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UNIVERSITY OF CALIFORNIA,
IRVINE

Examining Tilt as Emotional Dysregulation in Gaming

DISSERTATION

Submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Informatics

by

Minerva Wu

Dissertation Committee:

Professor Constance Steinkuehler, Chair

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2025

DEDICATION

This dissertation is dedicated to my brother, Wells,
who was the reason I started playing, much less studying video games,
and who has been my source of both realism and encouragement in all matters.

This work is also dedicated to my parents,
who have always believed in me and supported me
throughout the challenges of graduate school and life.

And to all the games, videos, books, and of course, people
that I love and draw inspiration from.

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Lee, J. S., **Wu, M.**, Lee, D., Fleming, L., Ruben, L., Turner, T., Brown, K., & Steinkuehler, C. (2020). Designing an Interest-Based Integrated Curriculum Around Esports. *International Journal of Designs for Learning*, 11(3), 78-95.

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ABSTRACT OF THE DISSERTATION

Examining Tilt as Emotional Dysregulation in Gaming

by

Minerva Wu

Doctor of Philosophy in Informatics

University of California, Irvine, 2025

Professor Constance Steinkuehler, Chair

Tilt is a gaming phenomenon where an emotional response, typically negative, leads to deterioration of gameplay; tilt is a form of emotional dysregulation, wherein players are selecting dysregulatory regulation strategies as part of a downward spiral in emotional self-regulation. The present study first surveyed young adult video game players (n=165) on their triggers and responses to tilt. A subset of participants (n=30) were also interviewed to provide qualitative context and explore how players make sense of tilt. Omnibus statistical tests, correlations, and partial correlations were conducted to examine how triggers and responses vary by demographics, gameplay habits, personality, and social context of play. Higher length of experience correlated positively with being triggered by opponents. Gamer identity correlated positively with planning responses and behavioral toxicity. Emotional regulation tendency indicates that tilt is indeed a form of emotional dysregulation. Genre analyses revealed mixed results. Although Immersion motivation was most common, prioritizing Improvement correlated

positively with being triggered by the player's own mistake, responding with Disengagement or Toxicity, and mitigating dysregulatory responses due to self-triggers. Despite not showing up as statistically significant in surveys, Social Context –specifically playing with friends– was emphasized by interviewees as making for a more lighthearted and fun experience. Overall this study helps provide trigger and response information on tilt and information on singleplayer perspective to the phenomenon of gaming tilt.

1: Introduction

Defeat.

As the red letters appear on the screen, Ezreal mutes himself and screams, slamming his mouse against the table and hitting his thigh in anger. Another loss. He's trying to keep a positive attitude, trying to tell himself at least he got more gold this game, but he can tell his teammates and more importantly, his friend Lux, are getting annoyed. It's his fault, he thinks, frustrated and angry. He got greedy and was punished for it. Their teammates were nasty and useless and he kept falling for the bait, responding to their comments. He's tired now, but he doesn't want to quit before getting a win. He knows he's better than this.

On the other end of the call, Lux leans back in her chair and closes her eyes, biting back her exasperation. It was hopeless, she thinks, ashamed and annoyed. She was playing the wrong character for this matchup and the other team was too strong. It's only when she hears herself sigh over the discord call that she realizes she hadn't even been talking and joking around with Ezreal over the last half hour. She wonders why she continues to play this game when she's so bad.

"One more. Then we really should go to sleep." It's been the third time they've said that.

These contrasting vignettes represent experiences of tilt in videogames. Tilt is a form of emotional dysregulation and a phenomenon in gaming where an emotional response, particularly anger or frustration, leads to worse decision-making and performance in-game (Wu et al., 2021). By design, games thwart easy progress toward their main objective, providing a rich context for generating tilt and, possibly, the cultivation of strategies to overcome it as a means towards winning or just improving at the game.

Tilt disrupts the fundamental aspects of a “well-played game”. In presenting a philosophy for play and players, Bernie DeKoven focused on play as a means to creating community and self-mastery. The well-played game exists in the sweet spot between challenge and ability, such that all involved are having fun, and having fun *together*. This might be experienced as “flow states” (Csíkszentmihályi, 1990) in which the player’s skills align with the goals of the task, generating feelings of control over the situation and outcome resulting in loss of self-consciousness, immersion in the activity of hand, and joy. Tilt, by contrast, is orthogonal to a “well-played game.” Tilt is decidedly *not* enjoyable because the player’s emotions are unpleasant and disruptive because decision-making has been impaired. In a well-played game, a player’s ability is well matched enough to the game’s level of difficulty that they are both challenged and having fun. In a tilted game, players are no longer in sync with gameplay and tend to death spiral into increasingly poor performance and experience. Towards the end of community building, tilt means that one person is no longer playing well and thus the community is no longer playing well together.

Tilt is also related to toxicity in gaming, providing one explanation for why toxicity happens in games (Turkay et al., 2020). Players are not necessarily maliciously and intentionally looking to harass their fellow players but rather experiencing a maladaptive, emotional response to stimuli, which triggers them to project their own frustrations (Adinolf & Turkey, 2018; Kou & Gui, 2020). Their language and behavior might be conscious and cathartic, taking out their frustrations on others, or unconscious, where they do not notice their behaviors as harmful or disruptive to others (Romhanyi et al., in press; Wells et al., 2024).

Because tilt is the opposite of both fun and productive progress through a game, players are motivated to avoid or overcome tilt for the sake of improving their gameplay and continuing to enjoy the game. Previous research on anger and gaming has found that isolating and eliciting

in-game emotions can help train behaviors and responses that improve overall gameplay (Behnke et al., 2021). Understanding the triggers and responses that players have is useful not only for mentors looking to help alleviate tilt or toxic behavior but also for game designers seeking to understand the kinds of emotions their design choices create and how to partially ameliorate the ill effects of disruptive player behaviors. By practicing the regulation skills needed in low-stakes but emotionally real “hot” moment of a game, players can hopefully transfer these skills to other emotionally charged moments in their life.

Previous work on tilt has been done in the esports space (Adinolf & Turkey, 2018, Kou 2018, 2020; Wu et al., 2021); however, tilt is not exclusive to one genre. Understanding the nuances across different kinds of games may prove insightful to how people deal with tilt differently in different contexts. There are a variety of valid strategies for addressing tilt in games and understanding when to use one strategy over another is important to the player’s immediate enjoyment and progress and, potentially, their longer-term well-being, social relationships, and willingness to play. While one strategy might be useful in the short term, it may be deleterious to longer-term collaborative play over multiple gaming sessions. For example, ignoring a problem in a single game may effectively avoid interrupting the flow of play, but acknowledging the problem directly and finding strategies to deal with it may be better for longer-term in-game success and friendships. And while the reactions chosen in the throes of tilt may seem inconsequential, having the language to understand and think about emotional self-regulation in games may well open the door to being able to use in-game moments as ways of understanding emotional regulation in and out of game contexts.

This dissertation explores tilt in videogames as a form of emotional dysregulation. Games are a potential space for developing and practicing emotional regulation skills and I am particularly interested in understanding the potential for social scaffolding and emotional

learning in game contexts. I start by examining the triggers and responses to tilt that player experience (Part 1: Survey). Building off my previous work with adolescent esports (Wu et al., 2021), I consider the nuances of game-related emotional regulation, how the dynamics of tilt vary by individual demographics (e.g. personality traits) and game context (e.g. game genre). I then considered how players make sense of their own emotional regulation and the role of social scaffolds players have available (Part 2: Interview). This work on triggers is not meant to build another model of self-regulation or social self-regulation, but to use existing models to better understand how social context can help scaffold the process of learning and using emotional regulation strategies both in and out of game contexts.

This work is situated under Educational Technology; while it touches on topics that may be of interest to game studies or psychology, its primary intention is to understand a potential space for learning (specifically social-emotional and emotional learning) that shows up in the playful context of videogames. By understanding some of the causes and tensions related to tilt in the context of games, this work aims to help players and their mentors identify positive and negative patterns of emotional response and behaviors in players and ultimately point to potential interventions where games can serve as safe practice spaces for emotional regulation skills.

Research Questions

Overall questions:

- I. What are the primary triggers and responses to getting tilted among older adolescents? How do they vary by demographics, gameplay habits, personality traits, game genre, motivations for playing, and social contexts of play?
- II. What, if any, social contexts of play influence self-regulation in response to tilt in games?

The specific research questions addressed in the study are as follows:

1. What are the primary gameplay habits of older adolescents?
2. What are the primary tilt triggers and responses among older adolescents?
 - A. Are some tilt triggers more common than others?
 - B. Are some response strategies to tilt more common than others?
3. How do triggers for tilt vary?
 - A. Do triggers for tilt vary by age?
 - B. Do triggers for tilt vary by gender?
 - C. Are some personality traits associated with greater frequency of being triggered for some situations than others?
 - D. Do triggers for tilt vary by the amount of gameplay?
 - E. Do triggers for tilt vary by the length of experience of gameplay?
 - F. Do triggers for tilt vary by genre of game?
 - G. Do triggers for tilt vary by social context of play?
 - H. Do triggers for tilt vary by motivation for play?
4. How do responses to tilt vary?
 - A. Do responses to tilt vary by age?
 - B. Do responses to tilt vary by gender?
 - C. Are some personality traits associated with greater frequency of use for some responses than others?
 - D. Do responses to tilt vary by the amount of gameplay?

- E. Do responses to tilt vary by the length of experience of gameplay?
 - F. Do responses to tilt vary by genre of game?
 - G. Do responses to tilt vary by social context of play?
 - H. Do responses to tilt vary by motivation for play?
5. How do different triggers relate to different responses?
- A. Are trigger and response relationships mediated by gameplay habits?
 - B. Are trigger and response relationships mediated by genre of game?
 - C. Are trigger and response relationships mediated by social context?
 - D. Are trigger and response relationships mediated by motivations for playing?
6. How do players view managing tilt in game as related to managing stress or frustration in real life?
- A. How, if applicable, do players compare in-game tilt to real-life frustration?
 - B. How have mentorship experiences, for those who have had them, affect players' responses to tilt?

This dissertation work specifies the general categories for gaming tilt triggers (Wu, Lee & Steinkuehler, 2021, Kou & Gui, 2020). For responses it builds on previous work and integrates strategies from stress management (COPE Inventory). Finally I hope to explore possible predictors for these triggers and responses, including genre of game, gaming habits (inspired by Verheijen, 2019's recommendations for gaming metrics beyond hours of gameplay), and longer term personality tendencies. Qualitative data from interviews is used to illustrate or clarify the patterns found from the survey work. Additional themes that came up in interview participants were also identified and extracted for discussion.

2: Literature Review

2.1 Defining Tilt

“Tilt” as a term has evolved over the history of play. This section summarizes a few definitions of tilt as it has come up in poker, video games, and esports in particular. I use this to build my working definition of tilt and conclude with a few notes about how tilt has explicitly been studied in recent years.

Tilt as a term originated from pinball, where frustrated players would hit the machine; the machine would flash “tilt” and lock controls, ending the game (Duncan, 2015). Tilting the machine in itself was not against the rules of the game— bumping or nudging the table was indeed part of the ways to control the ball— however, such subversion or manipulation, if detected by the machine, would be penalized (Castle 2020). Tilt was a mechanic that, while penalized, was not disallowed and learning to use the machine’s tilt undetected or strategically was part of learning to play the game at an expert level.

The construct of tilt was adopted by the poker community when Browne used tilt as an explanation for why poker players would continue to play despite heavy losses and make increasingly poor decisions (Browne, 1989). Instead of treating continual play as a pathological “addiction”, Browne explained that poker players were making increasingly worse decisions because of their emotional stake in the game. Being “on tilt” was closely associated with gambling and is related to poor money management and self-control while playing. Describing tilt in poker, Palomaki says that “tilting behavior is instigated by loss-induced feelings of *injustice/ unfairness (moral indignation)*... [and] associated with *chasing* behavior, where players attempt irrationally to regain the money that they feel is *rightfully* theirs” (Palomaki, 2019,

emphasis in original). Tilt is an emotional, moral reaction that affects decision making in gameplay, causing irrational or poor responses.

While most tilt experiences were focused on negative feelings and experiences, the concept of emotions influencing rational decision making can be expanded to include not just negative emotions, but “positive tilt” where win streaks lead to more impulsive and risky play (Dow Schull, 2016). In the ascetic ideal of Dow Schull’s online poker players, making risky plays because of overconfidence due to win streaks was as the same as making risky plays to recoup losses from losing streaks— in both scenarios, the tilted player allowed their emotional experience— either positive or negative in affect— to influence their objective calculation of the odds of the hand. Tilt is thus the erosion of objective decision making over the course of repetitive play due to emotional attachments.

Video games bring a new set of sources and dynamics to tilt. Recent literature in tilt has focused on the experience in esports video game titles, where tilting is an emotional experience related to frustration or anger- inducing situations that cause suboptimal play. Tilting situations might be due to losing streaks built over multiple games that negatively impact the player experience and disengage players from the game itself (Kou, 2018) or lash out in toxic and offensive ways towards other plays (Turkay, 2020). Tilt could also happen within the scope of a single game, caused by a perceived failure of individual performance, teammates’ or other player’s behavior (Kou, 2018; Wu et al., 2021). Finally, tilt also encompasses the sense of “moral injustice” or “righteous indignation” of losing when a victory was highly probably or perceived as deserved (McLinton & Pascale, 2024).

Besides outbursts, tilt could also be associated with subtler behavior: rather than lash out at others or the game, players might just stop communicating with their teammates and emotionally and mentally disengage. Wu, Lee, and Steinkuehler (2021) considered a “lumping”

response, borrowing from a term in business practice where workers would “take their lumps” as part of working. Bonilla and colleagues (2024) described this subdued expression of tilt as mood swings related to the loss of motivation or enthusiasm for the game.

Outside of esports, tilt shows up as part of the intended design and core emotional experience of playing. Single player action-RPGs in the vein of FromSoftware’s *DarkSouls* capitalize on the unique experience of frustration followed by cathartic elation that comes from overcoming a challenge. In such games where character death can reset progress from hours of in-game play, getting over tilt to gradually learn and improve at the mechanics part of and seen as part of the experience and appeal of such games (Guzsvinecz, 2023, FromSoftware, 2011). These games feature intentionally frustrating and challenging designs with punishing consequences *for* players to surmount, such as in *Getting Over It with Bennett Foddy* (Foddy, 2017). Tilt might include the experience of persisting at playing the game *despite* frustration.

Video game players’ persistence despite these challenges— or even because of these challenges— presents an opportunity for learning in contrast to traditional educational settings where students seem hesitant to engage in challenges. The motivational mindset to persist in the face of challenge influences the learning, use, and transfer of skills to diverse situations (Dweck, 1986) and the tendency to persist in these efforts over time (Duckworth, 2007) is correlated with academic achievement.

As adapted to video gaming, I use tilt as part of the player experience: ***Tilt is an emotional reaction to in-game events that cause a deterioration in gameplay performance and enjoyment.*** While tilt is dysregulatory, the process of overcoming tilt can be a cathartic learning experience. Tilt will naturally come up in gameplay contexts and how players deal with

tilt is what makes it problematic or playful¹. Understanding tilt better can provide insight on how players self-regulate— consciously or unconsciously— in-games. This understanding is of particular interest for researchers and mentors who seek to use games as a context for practicing self-regulation for out-of-game settings.

While associated with frustration, rage, and considered toxic or deviant behavior, tilt is not merely the *emotional state* of anger or frustration in a game context, but also the behaviors made in response to that emotional experience. Without the consequence to behavior response, the emotion alone would be epiphenomenal and of zero concern. Neither is tilt *a single dysregulatory or negative response* to in-game events— more concerning is the tendency to choose such dysregulatory or negative responses. Thus in this dissertation, triggers and responses are captured as a general frequency rather than associated with a specific instance of tilt. Triggers refer to the causes of tilt— in-game or surrounding game actions or events. Reactions refer to the emotional state and affect associated with being on tilt. Responses refer to the *behaviors* taken during or soon after the play session, in the heat of the moment.

2.1.1 Studying Tilt

Researchers have highlighted the role of anger and frustration as one form of emotional motivation (Battigalli, 2015) and regulation (Kou, 2020). Anger or frustration though, while commonly associated, is only part of tilt: aside from this emotional, affective component, tilt is also tied to the erratic (Wei & Palomaki et al., 2016), irrational (Dow Schull, 2016), nonstrategic (White & Romano, 2020) play and the sense of injustice resulting from being denied earned

¹ Calling it “the Problem” of Tilt is a simplified view. Tilt is a phenomenon that represents a problem. Life is emotional. Games are emotional. They should be emotional; if they weren’t emotional something would be wrong. The problem comes when players get so emotional that they are no longer having fun and they are so caught up in the emotion and the performance that the game is no longer fun. The play is no longer playful. This is the problem. The “problematic” part of tilt comes when players respond poorly: toxic responses, no longer enjoying the activity, different ways of lashing out that they might not even be aware of, chasing/ streakiness.

success (McLinton & Pascale, 2024). Tilt has been correlated positively with internet gaming disorder and negatively with life satisfaction (Bonilla et al, 2024).

Interviews with players has been a dominant method in understanding the experience and phenomenon of tilt (Bonilla et al, 2024; Donner, 2024, McLinton & Pascale, 2024). Survey and questionnaires have been used to help measure the experience of tilt² (Bonilla et al., 2024, Cregan et al., 2024). Designers have looked to facial recognition software (Wei & Palomaki et al., 2016) and physiological wearables (Gilleade & Dix, 2004) to help detect these emotions. Ideally, the study of tilt would be studied from both self-report of experiences of the play and external reports of behaviors to remove biases from self-reporting possibly undesirable behaviors or feelings³. Further, esports games, particularly Massive Online Battle Arena (MOBA) type games have dominated the conversation and study on tilt. Cregan et al., 2024 do consider games in general, beyond esports titles, but seem to be multiplayer-only games. This study aims to gather data about how tilt shows up in singleplayer games as well.

Current definitions of tilt in the games scholarly literature relate to and intersect with key constructs including toxicity (Wells et al., 2024; Turkay et al., 2020), emotional regulation as part of self-regulation (Hemenover & Bowman, 2018; Villani et al., 2018), social-emotional learning (Slovak et al., 2016, 2023), mood management and coping (Reinecke, 2009, Reinecke et al., 2012), and motivation (Przybylski et al., 2010, Yee, 2006).

² Bonilla et al.'s 2024 work on the Tilt Questionnaire is an 18 item tilt questionnaire asking participants to "indicate the extent to which you have experienced the following situations [causes and consequences] during a game in the last 15 days". While having this questionnaire would have been useful and interesting to include in my dissertation work, it was unfortunately not yet available while I was designing my survey. The approach by frequency is similar, but my survey does provide a more detailed, if lengthier, approach.

³ Inducing tilt in participants with deliberately planted triggers, while definitely possible, would be quite unethical.

2.2 Tilt as Emotional Dysregulation

With a working definition of tilt, I move on to describing tilt as a form of emotional dysregulation. This section discusses extant literature regarding emotional self-regulated learning: I organize and simplify various models into discussions of awareness and regulation, in the self and others, then present a few concepts adjacent to social-emotional learning and emotional regulation skills. Finally, I discuss how games have already been studied in emotional regulation contexts.

Social and emotional skills, and improving these skills through social-emotional learning (SEL), are highly complex abilities drawing on subconscious processing and based on procedural learning rather than merely declarative knowledge (Slovak & Fitzpatrick, 2015).

The key focus of most social and emotional skills is to be able to react appropriately even within ‘hot’ moments, that is, situations when the learner is overwhelmed with emotions, and/ or the importance of the situation, or just has a very short time to react (e.g. heated conflict). During such moments, the ability of conscious, analytical thought is often diminished, emphasizing the need for learning skills that operate on a procedural basis.”(Slovak & Fitzpatrick, 2023, p. 4.)

By discussing and practicing these skills in “cooler” moments, by simulating the actual emotions and having learners play as themselves in personally relevant scenarios, researchers hope that learners will gradually be able to transfer their learning from the intervention context to all aspects of their lives. From an social-emotional learning (SEL) perspective, the purpose of any of these games or technologies is to *encourage practice* of learned skills and *promote transfer* to non-learning contexts.

Self-regulation, specifically emotional (affective) self-regulation or self-management, is a specific slice of social and emotional regulation that deals with an individual's ability to be aware of their own emotions and respond to these changes (CASEL, 2020; Salovey & Grewal, 2005). Being so emotional as to be unable to flexibly and appropriately respond to emotional states, is thus a form of emotional dysregulation. The in-game version of this kind of emotional dysregulation is being on tilt.

Thus, games are a prudent venue through which to study emotional dysregulation. Tilt serves as a specific phenomenon that is familiar to the gaming community. Gamers are encouraged to overcome tilt because doing so impairs their ability to not only play the game, but to play well and improve at the game.

Tilt in the esports context has continued to be of interest as a unique opportunity for discussing emotional regulation. CHI 2024 featured interviews framing emotional regulation as part of socially regulated learning and a tabletop game designed specifically to target team communication specifically regarding tilt (Kleinman et al., 2024, and Cho et al., 2024 respectively). Both papers discuss tilt as a specific opportunity for emotional learning, and explore social aspects of learning to improve at emotional regulation. The Social- Emotional Learning (SEL) as a track in AERA 2024 has been looking at teacher, parents, and even principal emotional regulation skills as they influence child emotional regulation skills (Schonert-Reichl, et al, 2023) provides one such relevant review, although there was an entire track on SEL). There is continued interest in the unspoken “metagames”, narratives, and conversation surrounding collaborative gameplay (Corbitt, 2024).

The emotional regulation literature in psychology includes extensive information that is not well represented in game studies (or in some cases, other SEL research in education). While studies of emotional self-regulation in videogames have been conducted, they crucially

focus on different aspects. For example, Villani et al. (2018)'s review of videogames on emotion regulation discuss how games are used by players as a means for regulating emotions (such as via escape). Discussion asserts that gamers can learn adaptive emotional regulation strategies and considers how certain features of games (e.g. avatar identification, immersion in narrative) can contribute to empowering development of skills; further work building off these potential opportunities for educational and psychological intervention are encouraged. Hemenover and Bowman's (2018) review of emotional self-regulation and games takes a three-pronged approach to the nature of game-evoked emotional experiences and how games produce and regulate emotions. The review specifically mentions "feelings of frustration expressed by gamers who perform inadequately during play" as a form of gaming-aggression-adjacent phenomenon that was beyond the scope of the review (p. 129) and highlight that the social context impact of emotions evoked by gameplay" are in need of further study (p. 130).

2.2.1 Learning and self regulation in stressful environments

Research into emotional regulation and academic achievement (as a proxy for learning in general) have indicated a complex interplay between experiencing emotions, motivations (to learn), self-regulation of learning behaviors, and academic achievement. Positive emotions are associated with "broaden and build" learning (Fredrickson, 1998 as cited in Ben-Eliyahi & Linnenbrink-Garcia, 2013.) However, emotions alone are not indicative of better performance or learning outcomes. Positive emotions for example, are only positively correlated with academic achievement when mediated by motivation and self-regulated learning behaviors (Mega, Ronconi, & De Beni, 2013). Positive emotions alone could simply reflect their students' satisfaction with the end achievement rather than with the activity itself. Tilt, on the other hand, is associated with negative emotions like frustration and anger. The negative affect associated with tilt is hurtful towards learning efforts, but dealing with frustration and learning to manage

negative affect en route to mastery is a form of self-regulated learning as well and useful to understanding how players regulate in playful spaces.

Slovak (2016) defines this experiential learning as the potential of technology: identifying teachable moments, scaffold reinforcement, prompting reflective moments, encouraging transfer. In game spaces, learning takes place within a safe space where failure is not disastrous but instead expected as part of the experience and journey. Tilt thwarts learning in two ways— first by the negative affect associated with the activity, then by causing a downward spiral in performance that prevents progress.

2.3 Frameworks of Emotional Regulation

In most definitions and descriptions of tilt, an emotionally triggering event causes the deterioration of rationality and decision making. Leaving the game is one popular method of addressing and resetting to deal with tilt, but continuing to play means needing to actually deal with tilt, which requires an effort to regulate the often negative emotions. This section takes a broad look at emotional regulation and social-emotional learning.

Theories and frameworks for emotional regulation present different ways of understanding how emotions are processed and suggest when and how to modify (regulate) the emotion. While not game-specific, these frameworks provide a lens for understanding where, when, and how players can intervene and respond to tilt *besides* just leaving the game. Below I organize the discussion of the literature on emotional regulation according to three basic sequential stages generally found across frameworks of emotional regulation: **trigger - emotional reaction - response**. Once an emotion is elicited (e.g. a triggering situation) there is awareness of the emotion (reaction) and then a response is made to address that emotion

(response). Note this is *not* intended as a model of emotional regulation or even emotional processing.

First, an emotion must be elicited by a trigger– In the case of games, the trigger can be some in-game frustration, such as a bug, another player, a loss, or something as subjective as a realization that the player is not performing as well as they believe they can (See 2.4 Triggering Tilt). Upon experiencing the trigger, the player then regards the situation and, intentionally or not, reacts to it. These emotional reactions can vary from disappointment and frustration, to more aggressive or animated displays of emotion. In the case of emotional regulation, there is then a deliberate response to the trigger or emotion. These can vary from suppressing the emotion and focusing on containing it, to lashing out through harmful behavior (e.g. toxicity or trolling), to planning and positively reappraising the situation by focusing and redirecting their attention towards a specific in-game action (See 2.5 Responses to Tilt)

2.3.1 Awareness

Emotional regulation first comprises awareness and expression of emotions, in the self and in others. While different frameworks vary in their level of analysis (grain size) and the ways to demonstrate this awareness, all frameworks require awareness or acknowledgement of the emotions as necessary for any conscious attempt to act on the emotion. CASEL's model of SEL (CASEL, 2020) includes a broad understanding of self awareness and social awareness, related to generally understanding anything from emotions in the moment to understanding individuals strengths, biases, motivations, and identities. Emotional Intelligence in the 4 Branch model (Salovey & Grewal, 2005) deals with emotions specifically, holding that emotional and social awareness are essential before any attempt to modify the emotion can occur. The concept of having metamoods or a sense of “general moods” is couched in being aware of having these moods (Salovey & Mayer, 1990). Likewise, the RULER framework (Brackett, 2019)

separates Recognizing, Understanding, and Labelling the emotion as separate slices of acknowledging the existence of the emotion, why the emotion exists, and what to call the emotion. Affective (feeling) focused awareness in AREA model (Wilson & Gilbert, 2008) begins with Attention given to an event and the Affect Theory (Tomkins, 2014) separates elicitation of the emotion and awareness of the emotion. These highlight that there can be an unconscious emotional reaction, but until attention is given to the emotion, regulation cannot begin. Narrowing to the cognitive understanding of attention, the Process Model⁴ (Gross, 2015) specifically highlights “attentional deployment” as choosing to pay attention to a potentially emotionally distressing situation. This attentional deployment is considered an antecedent regulation strategy taking place *before* experiencing the emotion: choosing to give awareness to an emotion can be itself part of regulating the anticipated emotion.

Neurobiologically speaking, awareness starts when emotional or emotion/ affect-affecting information first enters the perceptual system. Collected and processed the temporoparietal junction, sensory thalamus, and limbic system, emotional information is then redirected to appropriate areas of the brain (Andrews, Ahmed & Blakemore., 2021). Throughout adolescence, these emotion-processing systems move from cognitive (cortical) theories of mind– generated by perspective taking– to faster (more efficient) emotional and intuitive systems– that is, the cognitive perspectives are distilled into societal values that become the basis for how they intuit people’s emotions later as an adult (Andrews, 2020). Finally, the emotion can then be expressed and communicated, either verbally or nonverbally.

Awareness of emotions in other people likewise precedes being able to understand and regulate others’ emotions. Various measures have been developed but the lack of consistent operationalization suggests that nonverbal receiving ability has multiple underlying constructs or

⁴ Kou and Gui (2020) used the Process Model in analyzing forum responses on tilt

is sensitive to different aspects (Salovey & Grewal, 2005). Developmental forms of empathy such as mirroring or classical empathic conditioning serve as ways to learn expected emotional responses (Salovey & Mayer, 1990). Empathy itself can be divided into cognitive and affective empathy. Cognitive empathy (perspective taking) is that ability to see and understand the feelings of other people, to see from their point of view without judgment and to communicate that understanding back to others (Wiseman, 1996 as cited in Schrier & Farber, 2021). Affective empathy (emotions and mirroring) meanwhile is being able to feel what others do, and then express concern or distress appropriately; from an evolutionary perspective, affective empathy exists to allow individuals to learn from others' emotions, to reduce conflict, and to promote prosocial behaviors and interactions (Schrier & Farber, 2021). Empathy, as a process of emotional sharing, is one of aligning emotional experiences. Whether individuals experience the same kind of affect (emotional correspondence) or reconcile "initially disparate feelings... to align with one another" to reach emotional alignment (emotional convergence; Rinne, 2024, p.3), the process of empathy requires *awareness*—attention to the emotion and situation.

Aligning emotion experience between individuals— known as emotional correspondence (Rinne, 2024) distinguishes between emotional correspondence, when individuals experience the same kind of affect, and emotional convergence, where individuals reconcile "initially disparate feelings... to align with one another" to reach emotional alignment (p.3). These can be unconscious or semiconscious adaptations, but ultimately emotional sharing (empathy) requires *awareness*—attention on the emotion and situation.⁵

⁵As an aside, Rinne points out that there's still research to be done on "what *features* of emotion-expressive social interactions are important and supportive of emotional sharing" (p. 4, emphasis in original). In the practice of communication, these features refer to rhetoric—that is, *how* exactly people can best and most acceptably communicate their emotions and how emotions in others are perceived. Whether a facial expression, movement, verbal comment, or other kind of engagement, what is important and salient in expressing emotions and shared emotions is still under investigation, but *establishing* shared feeling is unquestionably important for the community.

2.3.2 Regulation

Once aware, people move to regulating or changing emotions in themselves and others. Cognitive Behavioral Therapy (Hofmann et al., 2012⁶), considers how behavior, thoughts (cognition), and feelings (emotion/ affect) are all part of how someone responds to a situation and how the three parts can influence each other in creating change. Affect theory separates behavior as both physical expressions (e.g. body language) and cognitive expressions (e.g. different understandings of a situation). Both the Affect and AREA models contain “adaptation” to an emotional situation. The RULER model sets Expression and Regulation apart– as opposed to the primarily cognitive and affective steps I bundled under awareness, these are behavioral aspects of emotion. Expression deals with the communication of emotion, filtered through language or cultural narratives, while Regulation mediates on the emotions being felt or expressed. The Process model explicitly labels “response modulation” as how someone chooses to respond to an emotion that has already occurred.

Response strategies can intervene at the awareness stage and help to avoid the trigger altogether. For example, in the Process Model, four of the five modification opportunities are antecedent-focused regulatory measures that can take place before an emotion is even felt. By deliberately selecting (or opting out) a situation (a game), a player can prevent tilt altogether. Indeed, taking a break and getting out of a recognized tilting experience is widely recommended (See 2.5.1 Disengagement - Leaving the Game). Even when playing, choosing what to pay attention to or how to interpret events of the game are regulatory steps that can be taken to modify the emotional response to tilt before it is even felt.

⁶ Hofmann et al. (2012) is a meta-analysis of the efficacy of Cognitive Behavioral Therapy, not documentation of its protocol. The treatment technique itself was established earlier in 1970.

2.3.3 Social Context as Regulation

From a social-emotional learning approach, the social aspect of regulation is how an individual acts around or *regarding* other people. This is why awareness in the CASEL (CASEL, 2020) and 4 Branch (Salovey & Grewal, 2005) models are associated with empathy, and regulation is associated with communication skills, charisma, and cultural sensitivity. In social games such as in esports, players can leverage not only their own knowledge and abilities, but that of others, such as expert players or mentor players.

Coregulation is a *form* of regulation where the regulation mechanisms are externalized. The emotional regulation strategies made for individuals are, in coregulation, a communal task. Through gestures, discussion, sharing, modelling, prompting and other such activities, another individual or a group is made aware of a learning or emotional target and work together on how to modify the approach or response (Handbook of Self-Regulation of Learning and Performance definition. Rinne, 2024; Tan et al, 2022) Coregulation happens when other people support or are actively participating in the regulation process. A teacher or parents coregulates emotions with their student or child. Therapy can also be considered a form of coregulation– the therapist takes the role of prompting different metacognitive processes and encouraging different reflection and planning activities until said strategies become instinctive and natural for the patient.

Regulating each other's emotions is not only important but Tan et al., 2022, examine sequences of team communication as a proxy for team cohesion in esports teams. Communication sequences differed between high cohesion and low-cohesion teams with formats. Both high and low cohesion teams had Question > Answer communication sequences, but only high cohesion teams had a statistically significant pattern of Question > Answer >

Question sequence.⁷ Suggestions were more likely to be met up with Agreement and Apologies were more likely to be met with Encouragement. Meanwhile, lower cohesion teams tended to engage in more exchanges of analysis on the game state to reflect on past actions and the impact of such actions on their outcome. More frustration and disagreement sequences were observed.

While communication frequency may not be an indicator of team performance, communication frequency can serve as an indicator of team cohesion and the rapport built between team members⁸ (Lee, 2021). Such analyses of communication indicate that the way people talk in game is associated with not only how well they team gets along (maintenance of the relationship), but in how the player ends up feeling about the game and how they feel about how they performed. Furthermore, given the influence of emotional experience on self-regulated learning, the way players choose to speak does not only reflect but influence how they and others they play with feel— that is, emotional experiences are as much constructed as they are responses.

Insight into the social context of play also provides context for why some individual emotional regulation strategies may seem positive or best practices but not work in all circumstances: reappraisal or positive reinterpretation of a situation may be seen as being in disagreement about the severity of a situation. Alternatively, an apparently negative strategy may have ulterior motives that make sense in the context of the situation: suppression, typically regarded as poor coping for long term mental health, of frustrations could stop exchanges from

⁷ This resembles scaffolding exchanges in classroom settings, which primarily follows a Initiation (elicitation) - reply (response) - evaluation format (IRE). Four kinds of elicitation prompts: (Renshaw, 2013, citing Mehan, 1979): choice, product, process, and metaprocess. This last one, metaprocess elicitations, are reflective prompts that ask learners to reflect on the learning and construct their learning in a way that can be deployed elsewhere— that is, encouraging transfer.

⁸ This may be a game-specific phenomena: Previous metanalyses have indicated a positive relationship between communication frequency and non-game teams (Marlow et al., 2018 and Mesmer-Magnus & DeChurch, 2009 as cited in Tan et al, 2022.)

escalating further in the heat of the game and allow teammates to bring up the problem later to discuss with cooler heads.

While this study does not observe these in-game exchanges directly, this study does examine how people reflect and make sense of the conversation that happens around their gaming and, as part of providing context for the different responses, seeks to capture some of the language used in these exchanges.

2.3.4 The Role of Games in Emotion Regulation

Finally, within the literature on emotional regulation, explicit discussion of video games typically focuses on games as a means for regulation rather than a context in which emotional regulation may be needed. In this literature, games can be used for mood management or repair. These models also offer insight as to the role of games and other media in regulating emotions.

Mood management theory is concerned with using the environment (such as media, games, and other technology) to conduct mood maintenance (prolonging desirable emotions) and mood repair (attenuating undesirable emotions) (Birk et al., 2016; Salovey & Mayer, 1990). In stressful situations, mood management and emotional regulation is one method of coping (Pearce, 2022). Mood management in a coping situation is similar to Przybylski et al.'s catharsis motivation for playing (2010). Games can be effectively used to regulate emotions, but reliance— that is, using games long- term and in isolation from other regulation practices— has negative impacts on well-being (Verheijen et al., 2019) as reliance starts to look like addiction.

Self-determination theory (SDT) as a motivational theory that says when the need for perceived competence, autonomy, relatedness are satisfied, people are intrinsically motivated to perform an activity and experience enjoyment doing so (Przybylski et al., 2010 as cited in

Verheijen et al, 2019; Birk et al. 2016 also mention it in less detail). Of particular concern for games, flow theory is concerned with the balance between skill and difficulty that affects the affective experience (Csikszentmihalyi, 1990 is the common citation).

These theories may sometimes have conflicting ideas of why certain correlations may exist: For example, mood management theory would say that adolescents with low self-esteem seek out competitive games in order to enhance their self-esteem, but SDT might argue that competitive games lower self-esteem because poor performance threatens one's perceived competency at the game. (Verheijen et al., 2019). Games (and other media) are themselves emotional experiences and can be used as a tool in regulating emotions, but they can also provide an environment for training emotional regulation.

2.4 Triggering Tilt

With definitions of tilt and an overview of how emotions can affect learning even in playful spaces, I continue with an overview of what might cause, or trigger tilt.

Triggers for specifically in-game tilt have been documented for esports games. Broadly these consist of situations regarding teammates (or other players), achievement, streakiness, and game design, (Wu et al., 2021; Kou & Gui, 2020). Toxic behavior or poor performance by teammates (or other players in general) were the most commonly reported trigger in youth sports, comprising 36% of responses. (Wu et al., 2021). Achievement refers to the disappointment or frustration when performing worse than expected or desired (Kou & Gui, 2020 categorize this as part of achievement, Wu, Lee & Steinkuehler, 2021 categorize this as "self-tilt". Streakiness in esports refers to the binary win/ loss result at the end of a game—consecutive losses or "lose streaks" can be considered both a trigger and indication of being on tilt (Kou et al., 2018). Finally, tilt as a result of game design encompasses both intentional

design choices, such as the fairness of a match, and unintentional bugs in the gaming experience, such as lag.

Notably, all the studies documenting these themes in triggers were conducted regarding the Massive Online Battle Arena (MOBA) esports *League of Legends*. Other genres or titles may have a different spread of triggers. Given the focus on overcoming difficult challenges in Souls-like game, such games may see more tilt associated with game design or achievement-

In the below breakdown and in an effort to unify terminology, I use Kou and Gui's terminology (2018) as the wider concept but tie it to terminology from my own work (Wu, Lee & Steinkuehler, 2021).

2.4.1 Streakiness

Streakiness, such as win streaks or losing streaks, references the tendency of players to see consecutive appearances of particular patterns. In my previous work on streakiness arose as the concept of "loss" or "repeated loss/ setback" and constituted about 14% of triggers for tilt (Wu, Lee & Steinkuehler, 2021). In physical sports, streakiness is related to concept such as the "hot hand" fallacy, a common misbelief of basketball players and fans that a player's probability of scoring a shot is higher after a successful shot than after a failure on the previous shot, regardless of the fact that there is no positive correlation between the result of successive shots (Gilovich, Vallone & Tversky, 1985). Even though gaming at a high level requires acute mental skills, the results of gameplay are affected by coincidence and probability; the tendency to see patterns in the results of gameplay contributes to the players' conception of "streakiness."

Kou and Gui (2018) examined streakiness specifically and its influence on player experience in *League of Legends*. As might be expected, losing streaks led to a negative player experience and reduced engagement. However, even win streaks, while enjoyed, were

accompanied by “anxiety with the belief that a losing streak might ensue” (p.1). The lingering threat of streaks is such that a sense of improvement or achievement could not be felt– thus streakiness is not just the observation of patterns in seemingly independent games, but a social construct of players’ experiences in the game. Players “attributed both winning and losing streaks to internal factors such as mentality and external factors such as game design” (p.9). Tilt thus could be triggered by to the failure of internal mentality (referred to as “mentals” in gaming communities) to resist frustration, or triggered by antagonistic external forces.

In writing *The Well- Played Game* De Koven (1978) refers to a similar state of mind he calls “tournamentality” (pg 110- 112), wherein players are unable to let go of and mentally “end” the game, making subsequent games a continuation of the game. This is detrimental because rather than focusing on the present game and community, the game becomes an opportunity to make up for or get even for previous, possibly even unrelated, games.

2.4.2 Game Design

Tilt by way of game design refers to a host of potential triggers arising either from the design of the game (such as the game’s matching system or game balance) or unintentional technological issues (such as latency or lag, and game bugs). Whether intentional or unintentional on the part of the developers, affected players may experience these and feel a sense of “unfairness”. When these experiences affect the outcome of a game (or even outcome of a fight/ part of the game) this can cause players to lose out of no fault of their own. McLinton & Pascale (2024) call this “deservedness” the moral justification to a win that characterizes tilt as opposed to just frustration.

Some systems, such as the game’s matchmatching system or balance of different characters/ weapons, may be seen as unfair or overpowered. For example, while Riot Games’s

matchmaking system for popular MOBA title *League of Legends* (*League*) claims it will try to assemble teams “with an equal chance of winning”, [*League*] players believe that the matchmaking system “manipulates each match in order to achieve an overall win rate of 50% for every player” (Kou & Gui, 2018). Doubts as to how matchmaking is conducted may arise in situations where one team seems to be more mechanically skilled or coordinated. Game balance concerns may also arise from having playable characters or weapons of differing roles or complexities. The variety of playable characters or “builds” allows for and appeal to different playstyles and expertise. These are intentional design considerations that, through their interactions with other parts of the game may feel unfair.

Finally, unintentional technological issues that thwart players may also be frustrating. For example, a player’s strategy approaching an opponent could be sound but in the moment of execution their computer lags, leading to their losing that encounter. For example, in action-based games like *Hades*, it is important to weave dodging enemy attacks between attacking on their own. Dodging is even more critical when at low health or in punishing encounters where missing a single dodge can immediately wipe out the character (one-shot) or likewise do a massive amount of damage. A player who has been doing well dodging but then misses a dodge due to lag is being punished not for their performance or strategy, but for the limits of their hardware in playing the game.

2.4.3 Achievement/ Individual Improvement

In their 2020 exploration of emotive factors in *League of Legends*, Kou and Gui refer to “achievement” as moments of “anticipation” related to in-game progress or advancement (p. 158). In previous work I coded this concept as “self”, emphasizing how players emphasized perceived mistakes or performance (Wu et al., 2021). Both Kou and Gui and my own concepts though, refer to the often quantified metrics related to game advancement or skill. These metrics

are a source of information regarding player performance in relation to a particular mechanic, but can also be a source of disappointment when the reflected numbers do not meet what players felt they could or should be able to achieve.

In broader terms, achievement may refer to quantified character progression and advancement metrics. For example, In *Path of Exile* and other such action-RPG titles, a portion of the accumulated experience points (XP) are lost upon character death. Since the required XP to level up grows exponentially this means that at higher levels, a single death can undo XP progression that took hours to build up. Other games may set players back by making players return to the location of their death to reclaim their gear (e.g. *Dark Souls*, *Valheim*). Tilt due to achievement thus can refer to the perceived “undeserved” loss of hours of play due to missing or messing up in a single instance (hearkening to the “moral injustice” side of tilt) or to the observation that as players become frustrated, they lose more or are unable to recoup their losses.

An example of achievement in *League of Legends* might be creep score or “farm”, obtained by defeating opponent computer-controlled minions. Both sides have minions who will attack each other without intervention of player characters. Player characters, however, can intervene to help speed up the process, and being the last entity to strike a dying minion is referred to as getting a “last hit”, which raises the player’s creep score. Thus, a higher creep score is tied to better timing and opportune destruction of minions. The creep score serves as a specific, quantified metric associated with a particular mechanic (“farming”) of the game and can indicate by proxy how well players were able to perform this farming mechanic under the other

pressures of the game. Tilt related to achievement thus can refer to the expectation that a player can perform better than what their current score indicates⁹.

2.4.4 Teammates and Other people

Finally, multiplayer games, both cooperative (co-op) and competitive, add other humans as potential triggers. In my previous work, collaborative players were the most common (modal) reported cause of tilt (36% of responses) followed by other people in general (22%). When other players are the cause of tilt, teammates and players intended to be *collaborative or cooperative* are more likely to be the cause than *opponent or competitive* players. Tilt due to other people can be due to the unintentional breakdown of communication in a team, or due to intentionally toxic behavior.

In popular modern multiplayer games, particularly those of the Shooter, MOBA, or MMO genre, players are often assembled into temporary teams. These temporary teams, or “pickup groups”, allow strangers or mixed groups of friends and strangers to collaborate on a complex in-game task (Kou & Gui, 2014). Success in the game requires constantly communicating and coordinating team and enemy positions with each other. Breakdowns in communication can lead to both individual and team losses in resources or progress towards the objective. Communication though, is not necessarily consistent across the team— some friends might be using real-time voice communication on a third-party application such as *Discord* (Discord Inc., 2015), while the strangers in the game may only have access to in-game text chat or nonverbal pings and cues. Finally, Player expectations and knowledge of game strategies (such as

⁹ Refocusing on specific, controllable metrics such as creep score is one method recommended by coaches and forums regarding tilt. Rather than focusing on the win/ loss outcome of the game, refocusing (reappraisal) on a specific metric under the player’s control is one way of focusing efforts and managing expectations.

knowledge of the meta¹⁰) are not usually explicitly taught but gained through game experience and discussion. Yet understanding the popular tactics and communicating any experimental playstyles is all part of making sure everyone in a team shares a common understanding of the game and how they want to play. The breakdown of these communications can lead to frustration.

Toxicity in gaming has risen in concern in recent academic research (Romhanyi et al., in press). Toxicity in gaming has served as an umbrella term for concepts ranging from sexual or racial harassment, cyberbullying, trolling, and griefing. Game players have suggested that part of the enhanced immersion of games comes from the social context of playing with a unified goal (Poels et al., 2007). Thus, when a team is not unified in their approach, or a player's expectations are not aligned with those of their team, this division may be considered intentional malice, called "trolling" or "griefing".

2.5 Responses to Tilt

Once aware they are tilting or "on tilt", players have an emotional reaction, such as frustration, anger, or demoralization. From here, players must respond to the situation and emotions involved. This section discusses tilt responses in terms of exiting (leaving the situation completely), regulation (active emotional regulation strategies), and dysregulation (perpetuating tilting behavior).

Emotions are information, and situations are often perceived through their emotional response (Bruch and Feinberg, 2017). Having an emotional–affective– response is itself not

¹⁰ The Most Effect Tactics Available (meta) of a game is not to be confused with the metagame (Boluk & LeMieux, 2017) which refers to game discussion beyond the game– for example, strategies and approaches are part of the metagame, but the meta refers usually to specific strategies that are popular or favored at any time. In roleplaying games, the metagame includes different frames (Fine, 2006) of play in which player-knowledge or player-decisions are distinct from and not intended to infringe on character-knowledge or character-decisions.

dysregulatory: Emotions play an important role in decision making and information processing because they are *faster* and thus more immediately accessible than cognitive decision processes. (Bruch and Feinberg, 2017, discuss this concept in terms of emotions' roles in decision making; Andrews et al., 2021 and Konrad et al., 2013 provide more neurophysiological explanations of how affective responses are faster and more relied upon in late adolescence). Frustration, negativity, and even anger are emotions— not themselves responses to tilt, but emotional markers for aforementioned triggers. In stress-management, the response is called the “coping” or “coping strategy”. Tilt—the dysregulation— happens when players lose control of the emotion and select repeatedly or increasingly ill-suited responses to the situational context. Thus, the discussed response strategies can be both dysregulatory strategies or behavioral markers for being on tilt: being able to recognize and interrupt the downward spiral of tilt is part of the self-regulation process.

Physiological methods of measuring tilt such as wearables have been suggested for poker and could be used in gaming. New wearable technologies could allow us to tie tilt to physiological markers for arousal or frustration, such as blood pressure, heart rate, and skin conductivity (Gilleade & Dix, 2004). Lee (2021) found that game expertise/ skills correlated with a longer delay before the onset of physiological markers for stress (e.g. heart rate).

Response strategies might focus on more problem based coping or emotional coping and be more active or inhibitory (Carver, Scheier, & Weintraub, 1989). Game based emotional regulation has tended to be more problem-focused in ways that are relevant for in-game success (Villani et al., 2018). Indeed, cultivating affective impartiality was seen as one ideal for preventing tilt in poker players (Dow Schull, 2016). Programs designed to detect and lessen tilt emphasize the “exit” strategy, a disengagement strategy considered unproductive in stress management; however in the context of games, the player is meant to identify that they are so

agitated, need take a break, and return when they have a clearer mindset (Gilleade & Dix, 2004; Browne, 1989 describes this as in poker). Finally, some games have options to reduce the game difficulty while preserving the way the game experience. While the reduced effort is considered mental disengagement, reducing game difficulty may be a valid regulatory strategy used by players who are not playing for a grueling experience. Response strategies may be interpreted differently in different social contexts and serve more short or long term stress-management purposes. .

Out of character or unusual levels of communication may be another response to or symptom of tilt. This is a “sneakier” side to tilt: coaches of youth esports league mentioned that instead of acting out, some players would become more subdued and become demoralized (Wu et al., 2021). This kind of disengagement is seen as a maladaptive or generally maladaptive coping strategy. Frequency of communication, however, is not alone an indicator of *quality* of communication; further qualitative examination as to the content and effectiveness of communications is needed (Lee, 2021).

2.5.1 Disengagement – Leaving the Game

Being games and playful experiences, leaving the game is always an option¹¹. In multiplayer video games, quitting can be decidedly harmful to gameplay and the play experience for other players: For example, if in a 5 player vs 5 player (5v5) competitive match, one player suddenly leaves, the team they left (now a 4 player team) is at a disadvantage because they have one less player, and may need to move players from other roles to cover for

¹¹ De Koven (1978) makes the case for me that a game in which one party cannot leave is not quite a playful experience. There is an argument that “leaving” is not quite an option for professional gamers whose livelihood depends on playing, but for the nonprofessional, hobbyist population I am interested in, let us believe that leaving the magic circle is always allowed.

the missing player. If the leaving player left because they were enraged or upset, this is considered rage quitting – an immediate, abrupt disengagement coping strategy.

Disengaging and leaving can also be a productive and appropriate emotion-focused coping strategy: between games, players can choose to take a break before returning, playing another game or game mode, or disengage from playing the game altogether. Previous work (Wu et al., 2021) indicated that “exit” strategies accounted for about 32% of responses to tilt when high-school players recognized they were tilted. Indeed, such disengagement behavior is frequently recommended in forums and media as a way to stop tilt and break losing streaks (Kou & Gui, 2018). Exit behavior is intended to reset emotions so players do not take their agitation from one game and act recklessly in the next (Wei et al., 2016; Gilleade & Dix, 2004).

According to the Process model of emotion regulation (Gross, 2015), this disengagement response would thus be selecting out of a situation altogether, thereby avoiding any need to engage with the situation. That is, preemptively disengaging from the games, can also be a regulatory strategy for prevent tilt in the first place. Exit in poker was regarded as a good strategy for break-even players; in order to consistently win though, active emotional work must be done (Browne, 1989). Disengagement is helpful for processing emotions, but alone does not address underlying causes to tilt.

Disengagement behavior can be more subtle though– players can simply place less effort. Previous work (Wu et al., 2021) indicated that these “lump” strategies accounted for a minority of high-school players' responses– only 18% of responses to tilt. The COPE inventory (Carver et al., 1989) breaks these into behavioral and mental disengagement. Behavioral disengagement reduces the difficulty of the goal or the effort put towards the goal; mental disengagement involves briefly stepping away from the goal and distracting the mind with other activities. The COPE calls these disengagement “less useful” as the response does not directly

address the underlying stressor/ trigger, but disengagement strategies may nonetheless be useful to help calm emotions before reapproaching the game or challenge with a calmer mind.

2.5.2 Regulation

If not leaving the game, players would have to do some kind of emotional regulation work to continue playing while tilted. In my previous work (2021), such “positive” responses accounted for about 25% of high school players’ responses. These strategies consisted of active attempts to ameliorate tilt *while* playing. These strategies focused on the emotional reaction— actively trying to calm down or try to smile— or attempted to address the underlying problem in the game— trying to figure out what went wrong or otherwise learn from the experience.

Kou and Gui (2020) examined forum responses for how *League of Legends* players responded to gameplay. Their analyses grouped emotional regulation strategies according to the Process Model and provided examples of how *League* players engaged in situation selection, situation modification, attentional deployment, cognitive change, and response modulation for themselves and others they were playing with. In addition to using these strategies for their own emotional regulation, players would also employ similar tactics to diffuse tilt for teammates.

2.5.3 Dysregulation – Tilt and Toxic responses

Some responses are dysregulatory in the harm they cause others or the perceived aggression or toxicity of the response. In my previous work (2021) such “negative” responses accounted for 22% of high school players’ responses. These responses comprised the vision of tilt as lashing out and yelling over the mic or throwing gaming equipment. These

responses also included toxic behaviors such as intentionally playing poorly or saying rude or even harassing comments.

Kou and Gui (2020) also show how emotional regulation tactics can be used to intentionally goad opponents: players might intentionally create frustrating experiences in order to “inflict negative emotions on the [opponent] player and even fuel conflicts within the opponent team (p. 158:14). While this may be perceived as a form of trolling or toxicity, for the players of this team, this kind of behavior served as a strategy towards winning the game and preventing discord on their own team.

Responding to an emotional situation might be affective, cognitive, and/or behavioral in nature. Responses might simply be disengaging to prevent further encounter or exacerbation of the tilt. An active attempt to reframe or address the emotion or situation can be considered an attempt to regulate the emotion. Other behaviors can be expressed aggressively or as venting. These less productive and more socially contemptible responses are considered dysregulatory. The tendency to adopt dysregulatory or ineffective responses when emotionally distressed is tilting.

2.6 Who Gets Tilted: Role of Personality

Outside of the particular trigger and game situation that led to the tilt, I consider the role of personality and gameplay habits in terms of who and what situations might lead to tilt.

Emotion regulation is the suite of cognitive, affective, and social strategies by which people modify the emotions they experience and express; regulation strategies can be conscious or unconscious, cognitive or behavioral (Baranczuk, 2019, John & Gross, 2004). Emotional regulation thus, is not only a skill applied to a specific situation (e.g., playing a video

game) but part of a set of individual tendencies that persist across situational contexts. That is, the *tendency* to engage in emotional regulation is part of an individual's personality.

Understanding personality differences might help predict which players are more likely to engage in what kinds of regulatory strategies and how they might experience or respond to tilt.

Personality traits or dimensions represent predispositions towards particular regulatory strategies. More modern definitions of personality focus on personality not as a set of immutable traits, but as individual tendencies that are generally consistent across contexts and across time (McCrae, 2003). Personality is often categorized via the Big 5 Personality model (also known as the Five-Factor Model (B5/FFM) or by the acronym OCEAN; Costa & McCrae, 1992) or HEXACO (Lee & Ashton, 2004). Personality describes individual differences in thoughts, feelings, and action patterns, all of which can be learned, trained, and changed over time. Previous work in personality and emotion regulation has shown that different personalities have slight *preferences* in approach (Baranczuk, 2019). Thus, while many strategies might work or be effective and appropriate to particular situations, certain personalities may gravitate towards certain responses.

2.6.1 The Big 5 and Emotional Regulation

Meta-analysis of the B5/FFM personality traits has indicated that higher levels of neuroticism and lower levels of extraversion, openness to experiences, agreeableness, and conscientiousness, are correlated with generally more maladaptive strategies such as avoidance, suppression and rumination, and lower levels of reappraisal, problem-solving, and mindfulness (Baranczuk, 2019). That is, four of the five B5/FFM personality traits are associated with adaptive emotional regulation strategy use while neuroticism alone is associated with higher maladaptive strategy use (specifically avoidance and suppression).

Neuroticism (also known as Factor IV or Emotional Stability in the lexical tradition of personality studies) is characterized by anxious, unstable, and worrying tendencies. (McCrae & John, 1992). These are individuals who are characterized by their tendency to experience negative emotions, vulnerability to stress, and impulsivity or temperamentality in the face of emotional situations (Baranczuk, 2019). Individuals who score higher in neuroticism are linked to a greater avoidance, suppression, rumination, and worry (Baranczuk, 2019; Connor-Smith & Flachsbart, 2007). Baranczuk (2019) theorizes that this tendency to experience negative emotions and instability of emotional experience leads to a higher use of coping strategies that cut off the possibility of experiencing negative experiences— that is, taking emotional regulation strategies that intervene earlier in the emotional regulation process. However, avoidance and chronic suppression of emotions are considered “rarely useful” and can exacerbate the negative experiences (Baranczuk, 2019) Individuals scoring high on neuroticism were identified as those who would benefit most from supportive social support and emotional regulation strategies.

Extraversion, Openness to Experience, Agreeableness, and Conscientiousness were all linked to greater reappraisal, problem-solving, and mindfulness, and decreased avoidance and suppression (ibid.). Higher levels of extraversion is associated with taking more active, approach-centered strategies towards emotional regulation– that is, a willingness and tendency to engage with emotional regulation– and supportive socializing (such as accepting, validating, comforting, and problem-solving) (ibid.). This may be unsurprising as extraversion is linked to gregariousness and warmth of temperament and correlated with higher empathy or at least a reported care of others’ emotions. Openness to experience, characterized by curiosity and imagination, is linked to an openness towards emotional experience as well; Baranczuk theorized this openness towards considering new perspectives may be what inclined individuals towards reappraisal strategies, but also to worry. Agreeableness is characterized by

nonjudgmental approving, sympathetic, compliant, and straight-forward tendencies (McCrae & John, 1992). Like with Extraversion and Openness, individuals high in Agreeableness are inclined towards emotional regulation strategies that adopt others' points of view. Being agreeable also implies a necessary emotional knowledge awareness and social competence.

Finally, Conscientiousness, characterized by disciplined, organized, goal-directed behaviors, is also linked with a tendency towards adaptive emotional regulation and lower maladaptive regulation; Baranczuk highlights that it may be more for individuals that report high conscientiousness than others to "maintain goal-directed behavior in spite of emotional arousal" (Baranczuk, 2019, p. 225).

In addition to positive association with strategies such as reappraisal, problem-solving, and mindfulness, Extraversion and Conscientiousness were also linked to the adaptive regulation strategy of acceptance. Acceptance is accepting situations or their related emotions in a nonjudgmental way. Notably, agreeableness is not significantly associated with acceptance as a regulation strategy (Baranczuk, 2019; Connor-Smith & Flachsbart, 2007). Rather, Baranczuk (2019) surmises that agreeableness lends itself towards supportive emotional socialization. This also indicated that acceptance of the emotional situation is not a prerequisite of showing agreeable behavior and performing supportive emotional socialization behaviors and creating a positive environment for others.

2.6.2 Personality Traits that Lead to Tilt

Rather than rehash existing work linking the B5/FFM personality traits and emotional regulation, this dissertation builds upon the existing work by looking at specifically at 11 tendencies presumed to underlie personality differences as they relate to emotional regulation and thus may help explain how different people experience and respond to tilt:

First, as indicated by models of emotional self regulation, emotional regulation is a process that requires *awareness of the emotions* involved. This may involve knowledge of emotional strategies or *clarity* of the emotions and situations involved, and individuals who are socially inclined (high extroversion), socially compliant (high agreeableness), or socially curious (high openness) may be predisposed towards strategies that reframe tilting moments as opportunities or challenges rather than unfair setbacks. Alternatively, individuals might be used to viewing emotions as something to be ashamed of (*nonacceptance*). In social settings, such as multiplayer games, a certain level of *social competence* or *empathy* may be needed to support emotional regulation.

Next, being able to focus on a particular goal may underlie the ability to focus on a set in-game goal without being easily triggered or thrown off (*goal concentration*). Being able to *recover* focus when tilted may make regulation strategies more effective. Finally, *impulsivity* is linked with lower emotional stability (McCrae & John, 1992), but could also be linked to overconfidence when on winning streaks (Dow Schull, 2016). The temperamentality associated with impulsivity may contribute to how easily individuals experience tilt.

Finally, conscious emotional regulation during games would require *reflection* of gameplay either during or between games. Too much reflection outside of play though, would be akin to needless worrying or ruminating on the game. *Rumination* itself is associated with upregulation of negative emotions and exacerbation of the experience of negative emotions, even in preferred contexts (Ben-Eliyahi & Linnenbrink-Garcia, 2013). While these associations were made in an academic context (favorite vs least favorite classes), this might indicate that even when doing a preferred activity like playing a game, higher tendency to ruminate leads to greater negative emotions and lower positive emotions. Put together and acted upon habitually, all these strategies build into the *tendency to emotionally regulate*.

2.7 Situations of Tilt: The Role of Gameplay

Besides personality, gameplay habits may serve as another way of understanding the factors underlying tilt. In this section, I break down different ways of carving up the demographics of video game players as a community and offer these as metrics for understanding who gets tilted and the situations players may find themselves in when experiencing tilt.

Gameplay in survey work is often operationalized simply as frequency of game play, or time spent in front of a screen in game. This concern with screen time may be due to pediatrician and parent concerns with screen time (Gentile, 2004; Nwankwo, 2019). Regulating and preventing problematic symptoms thus means parents and mentors spend more time monitoring and enforcing restrictions to screen time and game content, leading players to spend less overall time (Donati, 2013). This is a vestige of viewing media as inherently in need of restriction (Clark, 2011), yet more active forms of play may provide parents with the opportunity to model desired gaming habits (Steinkuehler, 2015; Pearce, 2022). Given the rich qualitative work describing not only game play but contexts of play and activities surrounding play though, frequency of play alone is too simplistic (Hewett, Pletcher & Zeng, 2020; Verheijen et al., 2019).

To promote a more complete and nuanced, Verheijen et al. (2019) offer four additional dimensions to supplement frequency of play as methods for measuring gaming behavior: gamer identification, genre of games played, motivations for playing, and social context of play.

2.7.1 Gamer identification and expertise

Gamer identification considers identification with the particular social category of “gamers”. Recent research however, particularly after the lockdowns of the COVID-19 pandemic,

indicates that the negative stereotypes do not seem to apply as more people now play games and time spent playing has increased across all demographics (Barr & Copeland-Stewart, 2022; Pearce, 2022, Verheijen, 2019). Gamer identification alone can be as simple as a boolean statement: “Do you identify as being a gamer? Yes/ No.” A more detailed way of examining gamer identification may ask about a player’s history of playing games (How many years has the player played games/ played this genre), or their perceived skill and expertise at gaming. Even this “more detailed” gamer identification metric is a simplification though– players might perceive themselves as better at a certain kind of game, or more familiar with one kind of genre over others.

More gameplay experience is associated with a decreased risk or severity of tilt. Cregan and colleagues (2024) found that more gameplay experience was associated with decreased risk of tilt in video game, replicating an association found in experienced poker players (Palomaki et al., 2014). Specifically, while “poker experience was positively associated with tilting severity, the association was diluted for those experienced players who felt that gaining poker experience in itself had aided them in being able to tilt less severely” (p. 193, emphases added). Here, diluted actually indicates reversed– players who believed their accumulated poker experience helped them react less severely were actually correlated with lower severity of tilting.

2.7.2 Game Genre

Game genre classification and motivations for playing both seek to describe patterns of play and expectations for experience. Genre classification is notably a very inexact taxonomy, and categorization preferences have evolved and changed to emphasize different aspects: for example, platform, number of players, mechanical similarities, experiential expectations, or narrative aesthetic (Clarke et al., 2017). However, genre remains a popular descriptor and useful indicator of expectations in gaming.

Common genres consider the mechanics or features that might be expected. For example, shooters involve gun-based battle. As mentioned, MOBA titles involve team battle stages. Role-Playing Games (RPGs) cover a wide swath of games that involve taking on the role of another character, often but not always from a fantastical setting. Game progress usually involves improving or leveling up different metrics (stats such as strength, dexterity, or intelligence) from a limited pool of resources (such as experience points). A subset of RPGs consists of action-role-playing games (aRPG) which tend to focus more on this character-improvement metric, offering different paths or “builds” for character improvement. Simulation games focus less on playing a particular individual and more on embodying a particular role, such as that of a family (*Sims*), or villager (*Animal Crossing*). On the other hand, “Sandbox” games such as *Minecraft* focus on the setting-building, offering a wide-open world for exploration or creative in-game construction. Finally, party games are designed to support multiple players in the same physical space; party games are usually considered light hearted rather than “serious” gaming.

No single mechanic or narrative style or visual aesthetic defines a genre though, and games will frequently blend features seen across genres. Popular games can sometimes inspire new genres or classifications of games that take after the eponymous game. For example, “Souls-like” is a descriptor for games that emulate elements from the Dark Souls games, with features such as unforgiving combat and save-spots that restore resources but also respawn enemies. Since the features of a game are so varied, another way to examine games is by looking at the reasons players play games and sort games by the affordances of features conducive to those motivations for playing.

2.7.3 Motivations for play

Models for motivation divide players into groups based on the primary reason they play or the primary features they look for in games. Player motivations describe how individuals approach games and what they seek to accomplish in playing. A single game can be appreciated (and analyzed) from different perspectives from the purely ludic and mechanical to the purely narrative or artistic. In studying players and what tilts them, breaking down how the player approaches the game may be more illuminating than understanding the affordances or aesthetics of the games themselves.

Yee's (2006) model of player motivations for example, revealed 10 motivations of MMO players that were organized into 3 main components of gaming: Immersion, Achievement, and Social motivations. Immersion revolves primarily around exploration and being immersed in either a game world or in the experience of roleplaying a character. Immersion also includes using games as a form of Escapism from real-life problems. Achievement focuses on mechanical progress: seeing accumulation of in-game numbers, advances in ranking and status, optimizing strategies. Achievement appeals to players who value a challenge in their gameplay experience. Finally, Social motivation focuses on creating and enjoying a collaborative experience. Where Immersion and Achievement are about interacting with the game system, Social is about using the game as a subject of joint attention while interacting with and building relationships with other players.

Przybylski et al. (2010) though, that Yee's gamer motivations are related more to the affordances of the game rather than the psychological need met– that is, the profiles are more dependent on ability of the game to support or encourage Achievement, Social, Immersion mechanics rather than reflective of player motivations to play those games. Thus, Ferguson & Olson (2012) instead developed 16 motivational items based on the Self-Determination Theory

motivational model developed by Przybylski et al. (2010) . From these emerged four motivational factors Fun, Catharsis, Social, and Bored. Fun encompasses the desire to play because games were perceived as exciting, fun, or challenging. Catharsis represents the desire to escape or release real-life frustration by channeling those emotions into the game. Social reasons for play revolved around using games as a way to connect with and relate to others. And finally, Bored represented using games as a way of passing the time in the absence of other entertainment.

This study accounts for gameplay motivations by simply asking participants to rank the priority and importance of different motivations, inspired primarily by Yee's gamer types and Przybylski's motivations. These are used to make some general correlations between motivations and various triggers and responses. The interviews provide a more nuanced view of how motivations can change and over a lifetime or shift depending on the game.

2.7.4 Social Context in Gameplay

Social context consists of the social circle players play with and against. Multiplayer games are particularly salient examples of "third places" for socialization (Steinkuehler & Williams, 2006) and how "social gaming processes enhance the emotional experiences of gaming" (Kaye & Bryce, 2012). Other people can include not only teammates and opponents in multiplayer games, but other players and fans of the same or similar games, offline friends (Goncalves et al., 2023). However, single-player game experiences can also involve a social context, such as co-present (physically or or virtually) players (Gajadhar, DeKort & IJsselsteijn, 2008), or tandem play between multiple gamers in a single-player game (Consalvo et al., 2018). Playing well, thus, is social, and tilt breaks the well-played experience by creating an individual or even group frustration. Relationships with other players enhance and mediate these

emotional experience, and can help reinforce the learning from games through their shared interest and language.

Other people (the social context of the gameplay) can help make this learning more effective by reflecting on or supporting the player in their efforts. Teammates, peers, friends, and mentors can help change and encourage different views by sharing their experiences. This kind of mediation comes from joint media engagement (JME), where mentors (traditionally parents) support learning by redirecting attention (Takeuchi, 2011). Slovak et al. (2016) observed illustrated a JME interaction: parent's interest would cue their child into where and how to pay attention, the game encouraged parent-child interactions that parents could later reference as needed. Notably, a third of the "parent" roles in this study were actually played by another sibling or non-parent adult. Thus, JME can be applied across social contexts: a player takes direction from the focus and comments of their peers to form an understanding of not only how others feel towards the game, but also their underlying metrics for how they are evaluating that content. The kind of language and surrounding banter could help frame the social or emotional messages within the game itself, or provide reflection on in-game versus real-world situations.

The role of social context in influencing individual regulation and processes is fundamentally at the cross section of different fields of academic study. My prior examples in this section have focused on gaming, and educational concepts broadly, but there are certainly more approaches. Emotional regulation, as a subject of self-regulation and social-emotional skills, is part of psychology. Considering how features of the social environment shape individual perceptions is sociology, and the cognitive aspect of self-regulation is tied to the interdisciplinary field of judgment and decision making.

This literature review provided an overview of concepts related to understanding tilt as a form of emotional dysregulation in gaming and playful spaces. The review covered definitions

and conceptualizations of tilt, including a breakdown of triggers and responses suggested by previous work. Personality and gameplay habits have also been outlined as possible mediators on the experience of tilt.

3: METHODS

This dissertation comprises a mixed-method study on tilt in video games. Gamer participants were investigated via a cross-sectional survey on tilt triggers and responses. Survey sections aimed to capture tilt triggers, tilt responses (both self-regulatory and dysregulatory), demographics, personality traits, and gameplay habits including game genres played and social contexts of play. Such descriptives provide an overview of possible considerations for future research and open the study of tilt beyond esports titles.

A subset of survey participants were then interviewed in semistructured interviews to obtain qualitative examples of what tilt and regulating tilt looks like for players, and how players make sense of tilt and their social context of gameplay.

3.1 Participants

This study examined primarily the late adolescent and young adult age range. Adolescence is culturally a point in which students are undergoing a drastic shift and moving away from childhood structures, gaining autonomy and exploring life on their own (Sawyer, 2018). As young people with unprecedented independence, college students serve as a good point in development to observe reactions and responses to tilt and emotional regulation. The theories of mind that adolescents practice are the ones that are internalized and made efficient and instinctual in adulthood (Andrews et al., 2021). Young adulthood thus can serve as a relatively stable point of measurement, especially as I asked participants to reflect on their experiences throughout adolescence.

Studying the adolescent or young adult follows the ethos of work in digital parenting, where the child perspective is emphasized over parent intentions (Nichols & Selim, 2002). Some interview questions (e.g. regarding rules around games) asked participants to reflect on the rules in their childhood surrounding games and how they have adopted or abandoned these regulatory practices. Previous studies have also been conducted with college-aged young adults focusing on emotional dysregulation (Yen et al., 2017; Schreiber et al., 2012).

3.2 Procedures

3.2.1 Recruitment

While the survey was open to anyone 18 or older, I recruited on university grounds and in online channels with young adult populations. IRB was submitted and accepted prior to any data collection.

Participants were recruited via convenience and snowball sampling. Potential participants in Informatics and Game Design and Interactive Media (GDIM) classes were identified over the last three weeks of the Winter 2025 quarter. Virtual flyers were posted as announcements and/ or shown in a short in-class presentation. A total of 1,133 students were in these 9 classes. The flyer was also posted in the Game Design and Interactive Media discord community (with about 1300 members). Participants were also encouraged to send the survey link to non-UCI friends who might be interested.

The only restrictions placed on recruitment were that participants had to (1) be 18 years or older, (2) speak/ read English fluently as all study materials were in English, and (3) play video games. Experience and genre of games played were *intentionally* not restricted, as this

study sought to examine what tilt looked like in a variety of games and across a variety of experience levels.

Due to practical considerations, only a maximum of 170 survey respondents and 40 interview participants could be recruited. Ultimately 165 survey responses and 30 interviews were collected and deemed usable.

3.2.2 Survey data collection

The survey was administered online through QuestionPro. Upon accessing the advertised survey link, participants were shown a study information sheet and asked to confirm eligibility. Consent to participate was attained before any survey questions were shown. The survey took about 23 minutes to complete (median 17 minutes).

Participants were compensated with a \$10 Amazon gift card; gift cards were sent to all but one survey participant, who did not provide an email address. After data collection was completed and all compensation sent out, 5 surveys were removed for being only partially completed or filled out the same answer for all questions, leaving 165 survey participants.

3.2.3 Interview Data collection

Interview participants were recruited via opt-in at the end of the survey. In this opt-in, participants were also asked if they were willing to have their interview recorded and transcribed. Interview participants were sent an email with a Google Calendar link¹² to reserve a time with the lead researcher.

¹² Three participants were sent a doodle scheduling link, but Google Calendar proved easier to use.

Survey responses, such as their most common triggers and responses, mentorship experience, beliefs about tilt, and social context were pulled for discussion during the interview. Demographic markers were copied for purposes of reporting on the subsample. A separate, offline key tying email (collected for compensation purposes) and survey and interview identification ids was used to temporarily link survey and interview data.

On the day of the interview, consent to continue with the interview and recording were reestablished before any recording began. All interviews were conducted by the lead research over Zoom. Interviews took on average (mean) 64 minutes long, with a range of 39 minutes to 111 minutes. Two interviewees requested to not have their interviews recorded, but did assent to notes taken— analyses were conducted on these notes for these two interviews. Interview participants were compensated a \$20 Amazon gift card for their participation, separate from survey compensation.

3.3 Instruments

3.3.1 Survey instrument

A single cross-sectional survey consisting mostly of 5 point likert questions was conducted online. The full, final survey document can be found in Appendix A.

Demographic and Gameplay measures. Demographic and gameplay measures were drawn from previous survey work in games (specifically from the survey instruments detailed in Romhanyi et al., in press. These variables included *age, gender, education, ethnicity, amount of gameplay, length of experience, gamer identity, perceived expertise, and stakes of play*. *Genre* was measured as how often participants played a particular genre of game. A single additional game genre (action role-playing games (aRPG)) was added to the listed game genres since

aRPGs such as *DarkSouls* or Souls-like games are associated with the challenging experience. *Social context* was divided into how frequently the participant played alone, IRL friends, friends you met online, family, partners, and strangers.

While expanded surveys measuring motivation and style of play are available (Przybylski et al., 2010 and Yee, 2013), I chose to directly ask “When you are playing, how important are the following?” with the following six items: Immersion, Others’ Immersion, Outcomes, Individual Achievement (Improvement), Escape, Social Relationships. Immersion was made to approximate Yee’s Immersion gamer types and Przybylski’s Fun motivation. Others’ Immersion and Social Relationships approximated the Social construct in both models. Outcome and Improvement approximated Yee’s Achievement gamer type but varied in terms of what outcomes the participant was looking at— an overall win/loss outcome or improvement in specific game performance metrics. Finally, Escape approximated Przybylski’s Catharsis motivation.

Personality measures: Rather than rehash existing work linking the BIG 5/ HEXACO personality traits and emotional regulation, this dissertation looks at 11 traits related to emotional regulation. Personality measures are included as possible predictors to the preferred response strategies or triggering stimuli. Specific variables from the Personal Strengths Inventory (PERS-2, as found in Liao et al., 2011) and Difficulties in Emotion Regulation Scale (DERS, as found in Gratz & Roemer, 2004) were selected as related to emotional regulation. Items were sometimes slightly reworded to be more applicable to game contexts.

Many models of self regulation or emotional regulation highlight the importance of being aware of emotions and having the language to describe them in the first place. Thus, awareness of emotions in oneself (*emotional awareness*, items from the PERS-2) and others (*empathy*, PERS-2) seems important to downstream regulation attempts. Having the ability to distinguish between subtle nuances of emotions is part of having a developed awareness (*clarity*).

Conversely, a dispositional tendency towards embarrassment or irritation of emotions is regarded as a rejection of unwanted emotions of emotionality (*nonacceptance*, DERS). Emotional regulation as a behavioral tendency (*emotional regulation tendency* as tendency).

On the other end of the regulatory process, executing a particular behavior can be met with various levels of success. Both consulted scales acknowledge that the ability to concentrate on a goal and follow through without distraction is essential to regulation (*goal concentration*); “goal setting” is a strength in the PERS-2 that encompasses both setting and following through with goals, while the DERS lists difficulty in goal-directed behavior as detrimental to regulation efforts. Also detrimental would be immediately acting on emotions without leaving time to process them (*impulsivity*), and poor resilience (*recovery*) when returning to attempts when feeling upset. And since emotional regulation is a social endeavor when playing with other people, being able to navigate a social environment well may facilitate how well executing on a behavior goes (*social competence*, PERS-2).

Finally, self-regulation literature also distinguished between regulatory reflection and dysregulatory rumination. While actively considering an emotion and making efforts to modify the emotion or context in the face is considered a positive, regulatory response (*reflection*), dwelling on these emotions obsessively is dysregulatory (*rumination*) and can cause longer-term problems such as anxiety (Rumination-Reflection scale, as found in Palomäki et al., 2013).

Trigger measures: Triggers for tilt were developed based on categories identified in previous work for tilt in esports (Kou & Gui, 2020; Wu et al., 2021). Triggers were measured as how frequently, when encountered, did the trigger actually bother or frustrate them. *Game-* associated triggers were divided into 4 items: lag, malfunction (game not functioning as intended or expected), and matching system and balance (game is frustrating by design). Within

Team and *Opponent* triggers were items to measure tilt due to performance, tilt due to toxicity, and tilt due to the kind of communication. *Self* triggers were made to distinguish between frustration due to performance, expected performance, and their ability to contribute to their team (in multiplayer games). Finally, *loss* measured setbacks, losing gained resources or progress, and repeated losses in a row (streakiness).

While some items are applicable solely to multiplayer contexts (for example, team communication is not a feature of single player games), single player analogs to each item were included wherever appropriate.

Response measures: Responses for tilt were pulled primarily from the COPE inventory, developed to assess different strategies for managing stress. (Carver et al., 1989). The COPE Inventory was selected based not only on the longevity and popularity of use, but also because of its division of stress management into clear strategies and approaches to managing and responding to emotions and stress. Three items (from 4) were taken for each variable and four items were modified to apply more specifically to various game context (for example, in denial, “I say to myself ‘This isn’t real’” was changed to “I tell myself ‘It’s just a game’”). Additionally, 9 overtly dysregulatory responses were developed based on previous work in tilt in esports, with variations made for single-player games in mind. Responses to tilt were measured as how frequently while playing, when feeling tilted by something in game, did they engage the item.

For the purposes of most analyses, response variables were bundled into 5 theoretical categories

Active responses are positive, active behaviors that involve doing something about the situation or emotion in game. These included attempting to address the situation at hand by *active coping, planning, concentrating*; or by seeking outside support for either the in-game

situation (*instrumental support*) or their emotional state (*emotional support*). Concentrating was renamed from “Suppression of competing activities” from the COPE Inventory. These were grouped also because they fit the gaming term “lock in” as a way of saying put extra effort into or focusing.

Refrain responses are positive behaviors that are internal thought processes. While they may lead to saying something to others, they are mostly reflective of internal processes that focus on changing how the player thinks or feels. While not doing something in-game, these acknowledge the tilt. These variables included the reframing strategies *reappraisal* and *positive reinterpretation* that look at the situation differently, and restraint-focused strategies as *restrain* and *suppression* that focus on not letting others know about their emotional state. It also includes simply *accepting* the situation. Reappraising and suppression were taken from measures on the Emotion Regulation Questionnaire (Gross and John, 2003).

Disengage responses are a mix of behaviors that involve leaving the situation, either by putting less effort into the game and waiting for the end of the game. *Behavioral disengagement*, for example involves putting less effort in and making the goal easier, and *stop communicating* involves continuing to play but not communicating to teammates or becoming less talkative with friends over voice. *Mental disengagement*, involves playing the game out but then getting their mind off the frustration by focusing on something else. Finally, *rage quitting* is an immediate, disruptive leaving of the game. These behaviors all passively make others' gaming experience worse.

Copium responses are mostly negative, thought processes that, while not directly negative, are usually not productive ways of dealing with in-game situations. These included deflection strategies such as *denial* and *blaming*. Denial and blaming are both strategies included in the COPE. It also included *rumination* of tilting situations without efforts to change,

and using more *risk-taking* or reckless strategies. The label “copium” was attached as a gaming term that implied the strategy was a way of excusing or explaining away rather than useful to improving the situation.

Finally, *Toxic* responses included negative, dysregulatory behaviors that are externalized and forms of actively expressing frustration: This included *verbal toxicity* and physically acting out (*aggression*). It also includes *venting* emotions (even when muted), and in-game actions that might be considered *trolling* or *behavioral toxicity* such as taunting or spamming . These are active forms of hurting other people’s gaming experiences. Venting was the only variable taken from the COPE Inventory; the others were developed

Belief measures: Finally, four questions directly asking participants’ beliefs about tilt management were included. These evaluated how participants themselves believed genre, social context, and motivation affected tilt trigger or response. The statements were 5-point likert items ranked on how much they agreed with the statements:

- What triggers me varies by the game I am playing (impact of genre on tilt trigger)
- How I respond to managing tilt varies by who I am playing with or who is with me (impact of social context on tilt response)
- How I respond to managing tilt varies by why I am playing that day (impact of motivation on tilt response).
- I have been coached or mentored to manage or prevent tilt (mentorship experience)

This final mentorship question was also used to prioritize interview recruitment.

3.3.2 Interview Protocol

Long interviews were conducted to add context and qualitative nuance to the survey results. Long interviews (McCracken, 1988) are one-on-one conversations that are guided by topical areas with prompts. They are designed to be more conversational in style than a structured survey interview. Survey participants were invited to talk at length about the context surrounding gameplay, their experiences with tilt, and their experiences with frustration and regulation outside of games. Participants were also prompted to explain some of their survey answers.

Interviews began with the request for participants to describe their gameplay *“To start, I just want to get to know you and how you game a little bit. Tell me about yourself. What do you play?”*. Follow up questions helped set the stage of what platforms, when, and with whom participants were playing. Player motives for playing the games they played were also usually established during this introduction.

While I followed the flow of conversation for each participant, usually this led to a description of their experiences with tilt within the specific games they mentioned. Participants were frequently prompted for examples or clarifications (*“What does tilt look like for you/ in this friend group/ in this game?”*). Participants were also encouraged to talk about how their experiences with games and tilt have changed over time and the influences of their friend groups. A couple of questions were also asked specifically referencing their survey responses, usually regarding what a particular response looked like for them, or what tilt looked like in a particular genre of game the participant frequented.

Towards the end of the interview, participants were asked about any rules their parents had regarding gameplay growing up, and whether they would consider frustration “in real life” a form of tilt or something separate.

Before concluding, every participant was asked if there was anything they wanted to add or if there was something they thought they would be asked. All participants were asked if they could be reached for further comment or clarification and encouraged to reach out if they had any other comments. While all participants agreed, no one was contacted for further comment and only one participant reached out later to add other thoughts.

3.4 Analyses

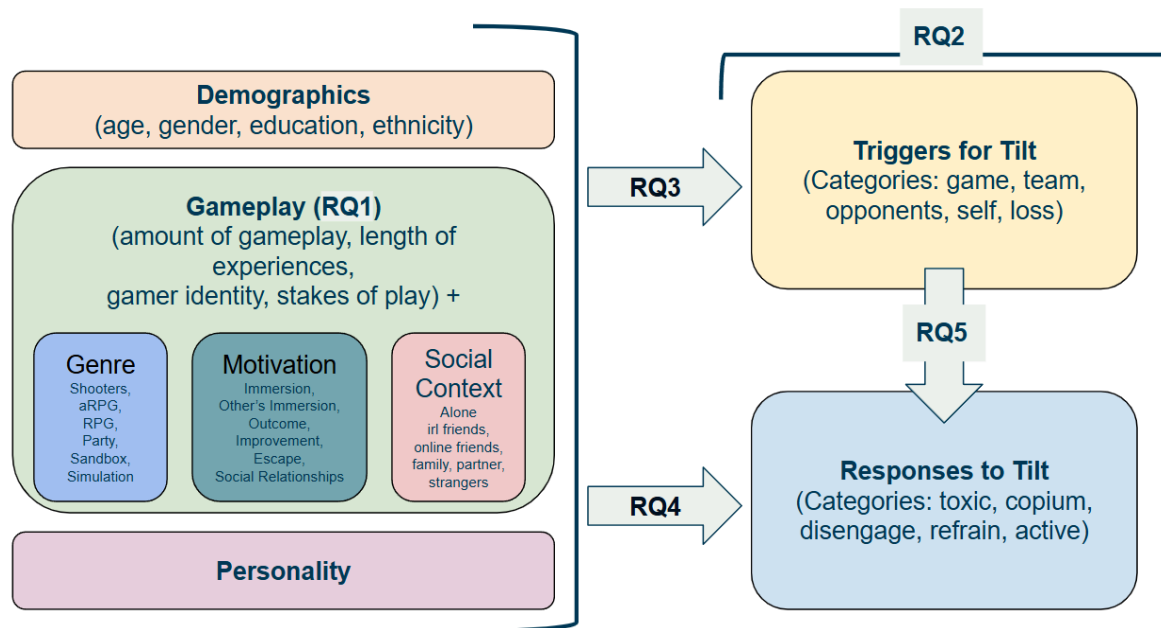


Figure 1. Diagram of Survey data and how they connect to research questions.

3.4.1 Quantitative Analyses

Cleaning: Identifiable information— that is, participant emails— were immediately stripped from exported data. Incomplete surveys were removed. Surveys that were almost entirely a single answer were also removed as bad data. Four amendments were made based on clarifications from interviews. Single unfilled data items in other surveys were filled as “does not apply” or as the most neutral response. Reverse coded variables were adjusted accordingly. Interval variables were constructed by summing relevant ordinal survey items. Response variables were then further grouped into the response bundles and averaged instead of summed for easier comparison across bundles.

Basic descriptive analyses were used to describe the overall sample. This included mean and standard deviation for parametric (normally distributed) variables or median and

interquartile range for nonparametric variables. Bar charts or box and whiskers plots are used to visualize data.

Omnibus associations conducted to see the influence of demographic/ personality/ gameplay variables on trigger or response. These included the ANOVA and Kruskal-Wallis (nonparametric version of the ANOVA) tests. Bonferroni Family-wise error rate corrections were applied to each group of tests. For omnibus relationships identified as significant, follow up t-tests or Dunn tests (the nonparametric version of a pairwise ttest) were used to tease out further differences. Benjamini-Hochberg corrections for false discovery rate were used in these follow up tests. Pearson- product correlations or Spearman's correlations (nonparametric version of Pearson correlations) were used to draw correlations between ordinal/ interval and interval variables.

For groups with a mix of parametric and non-parametric variables, the more common test was used for all tests. For example, only 3 of 14 presented game genres were normally distributed, so the nonparametric versions of the statistical tests were used for all game genre associations.

Finally, partial correlation tables examining mediators on the relationship between tilt triggers and responses are conducted. These also used Pearson- product correlations or Spearman's rho correlations (nonparametric version of Pearson correlations).

Central tendencies, correlation matrices and partial tables were calculated in Google Sheets. Statistical tests and follow-up t-tests were performed in R (R Core Team, 2023). Most charts were also made with R then edited manually. All quantitative analyses conducted, charts made, and notes on the specific tests and rationales can be found in Appendix B.

3.4.2 Qualitative Analyses

Cleaning: Initial transcripts of recorded interviews were generated using Zoom's machine-transcription feature. Transcripts were then cleaned by one of 3 research assistants or the primary researcher to remove excessive spacing, fix spelling for game terms, and generally clean the transcript for readability. During this manual cleaning, all references to players, people, and locations were anonymized (such as names or usernames). References to games, game content, and in-game interactions were not anonymized. Filler words were occasionally removed and cursory grammatical errors fixed, but transcripts were otherwise be transcribed verbatim. Audio files and the key tying emails to interview identifiers were destroyed after the anonymized transcripts were made and cleaned. Transcripts were then printed for analysis.

Interviews are analyzed via content analysis. Content analysis (Krippendorff, 1989), report on the surface content of the interview was used to describe the stated motivations and social contexts and any perceived influences, if any, on tilt responses. Primary players motivations and social contexts were coded referencing player motivation using the same scale combined motivations as used in the survey (based on Przybylski et al, 2010 and Yee, 2013). Players' views on managing tilt in game versus out of game are coded as part of their approach to games, with particular codes for banter and social context surrounding gameplay. Topical motifs regarding tilt triggers, and responses are grouped into themes (Braun & Clarke, 2012). Player thoughts regarding use of gaming language outside of the gaming context were described. The specific guidelines regarding managing stress or frustration were also coded.

In the following Findings section, I detail the quantitative findings with quotes from interviews woven throughout to help contextualize or interpret quantitative patterns. Numbers

regarding qualitative findings are used not to be representative or provide a proportion of interviews, but as examples of interviewees who discussed the topic.

4: Findings

See Appendix B for a compilation of all quantitative analyses and complete partial correlation matrices

4.1 Sample Descriptives

(RQ 1: What are the primary gameplay habits of older adolescents?)

4.1.1 Demographics & Gameplay Habits

Most of the participants were between 18-22 years old, but there were 7 (4%) older than 25. A large majority (88%) of the sample were either in their undergraduate studies or had just completed them. Given recruitment was on a college campus, particularly through the GDIM major, these demographics are understandable. 41% identified as female, 53% as male, and 4% as nonbinary with the remaining 2% declining to state their gender identity. This is not an overwhelmingly male sample and closely resembles the 47%:52% female: male ratio of game players in 2025 in the U.S. (Clement, 2025). Ethnically, the sample was overwhelmingly “Asian” (76% of participants indicated being of asian descent).. This is not surprising given the study was conducted primarily through UCI and Irvine is 45% Asian (U.S. Census Bureau, 2023), but the sample is still overwhelmingly Asian.

On average, survey participants played about 10-13 hours per week and had been playing for about 10 years. From interviews, most of this time was in the evenings after schoolwork or on weekends. Interviewees expressed a large difference in gameplay during the quarter versus on break. Overall, participants identified with being “gamers” and were confident

in their gaming skills (agreed to being skilled). They sometimes played ranked and rarely played other kinds of game challenges (See 5.3.3 Limitations regarding Gameplay Habits).

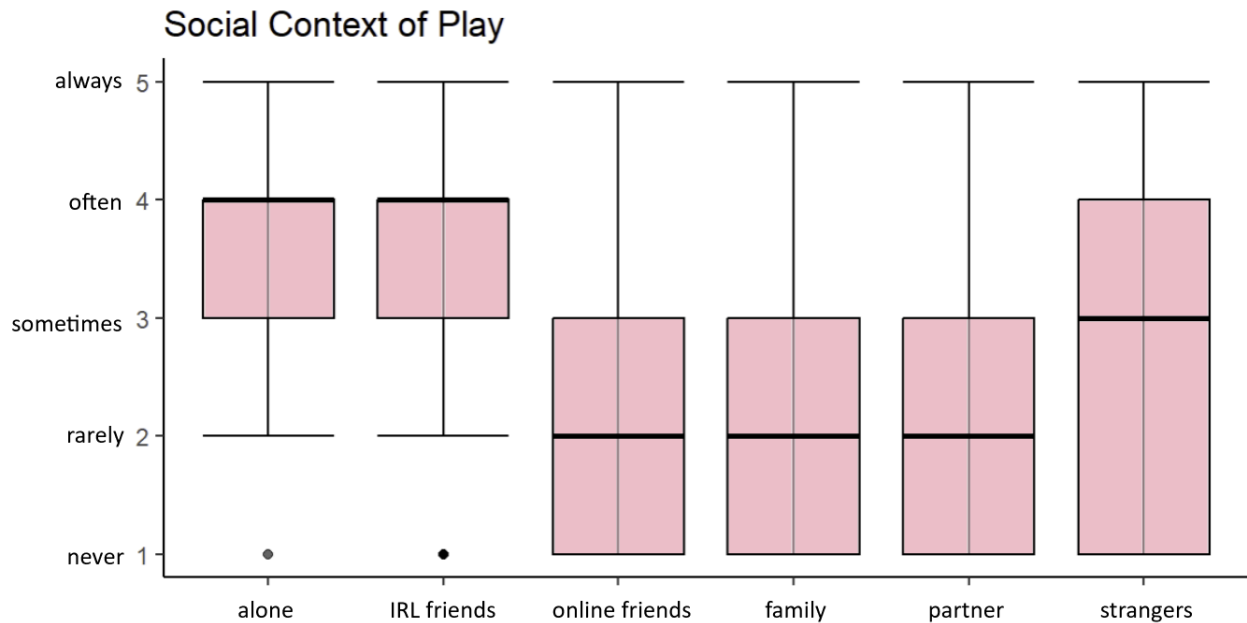


Figure 2. Social Context of Play in response to “How often do you play games with the following?”

Participants played primarily alone or with friends they knew from outside of games. Figure 2 shows the distribution of how often survey participants played with different social contexts. Overall, 65% of participants indicated they often or always played alone, while 60% indicated they often or always played with real-life friends; 37% of participants indicated they played often or always with strangers – from interviews, playing with strangers was mostly associated with the one or two cooperative strangers or entire opponent teams in team-based multiplayer games. By contrast, only 20% played often or always with online friends, 13% with family, and 21% with partners.

From interview accounts, 63% (n=19) of interviewees had relatively stable groups of friends that would gather online in the evenings or on weekends to play games together.

Gathering was usually an unscheduled event where friends would gather on the communication platform *Discord*, and if playing a multiplayer game, the group would use *Discord* voice communication to talk and communicate better in-game.

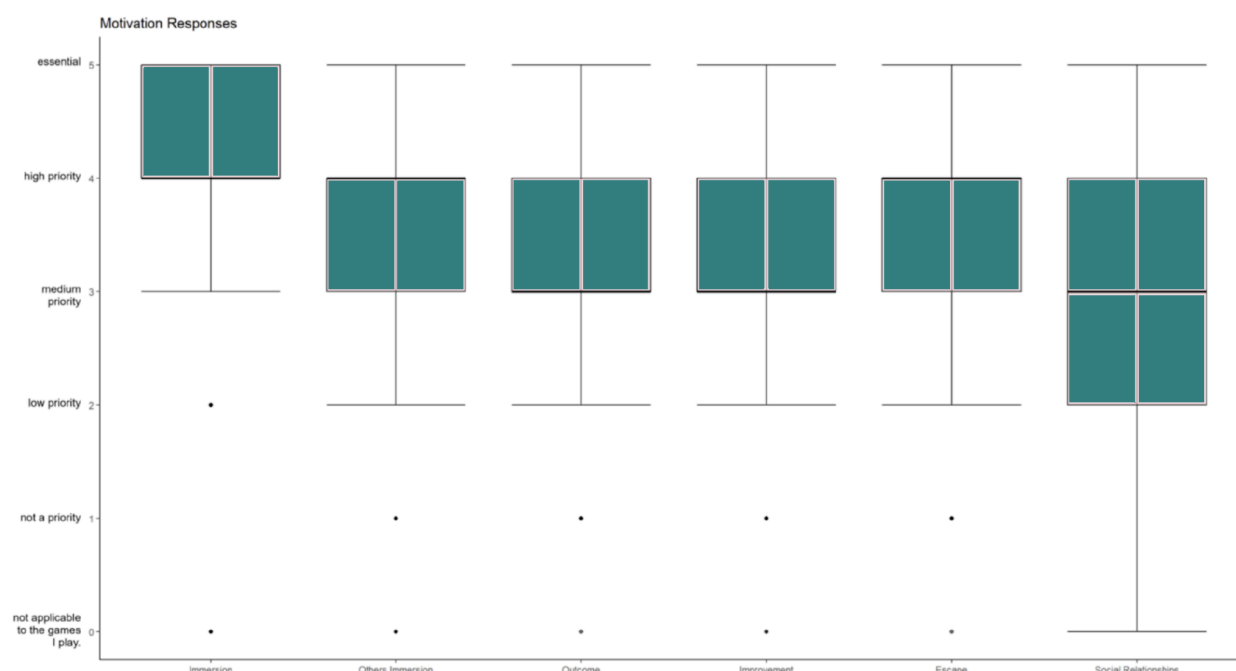


Figure 3. Motivation Responses in response to “When you are playing, how important are the following?”

Participants prioritized their own fun and immersion in the game, closely followed by the experience of others or escape/ cathartic motivations for play. Figure 3 shows the distribution of how important different motivations were considered. Immersion—that they were having fun and immersed in the game world—was considered high or essential for 88% of survey participants. All motivations though, were overall considered at least a medium priority when playing. Interview data indicated that outcome and individual improvement were more important during ranked games or challenges. While only 33% of survey participants indicated prioritizing social relationships while playing, 60% (n=18) of interviewees explicitly mentioned playing to socialize

or maintain social relationships: Gaming might be the go-to activity to keep up with and catch up with nonlocal friends and friends from high school, or as part of their hobbies in high school or even before. Interviewees also played with classmates and new acquaintances or just analyzed games while watching friends play. Finally, 7% (n=2) participants explicitly mentioned using games as a way of managing their moods, such as playing cozy games in the evenings to calm down.

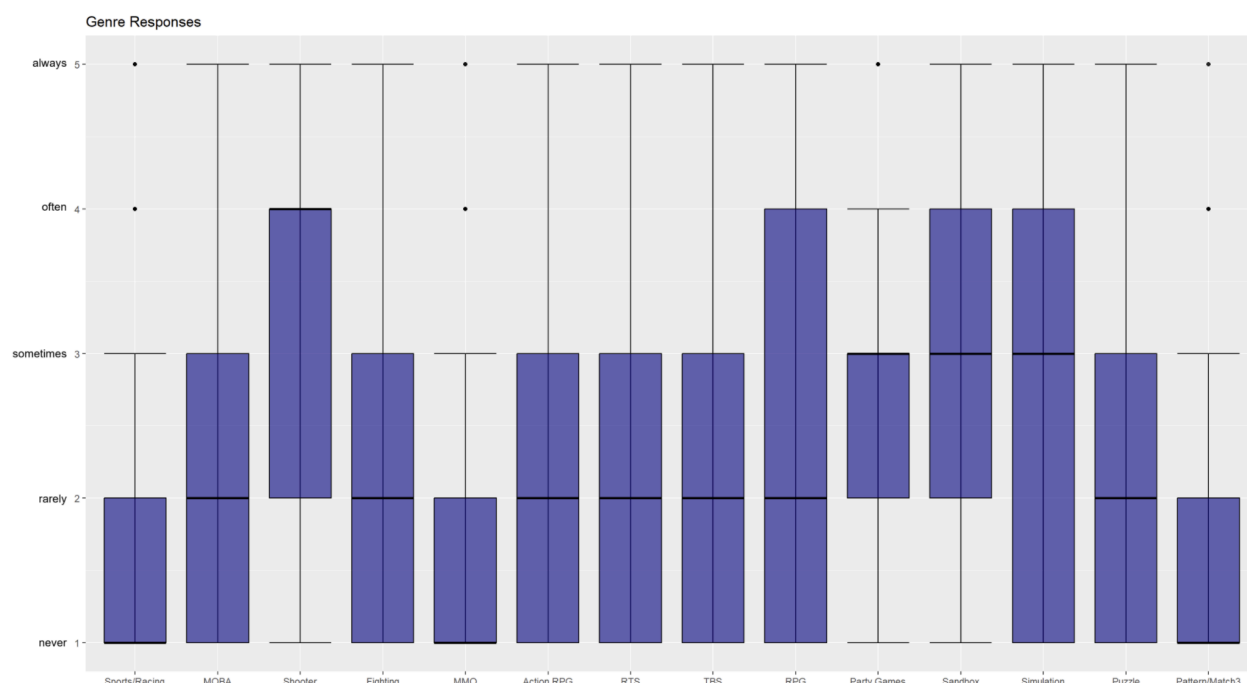


Figure 4. Genre of Games in response to “How often do you play the following genres?”

Figure 4 shows the distribution of how often participants played games of different genres. About half of players played shooter-type games such as *Valorant* or *Call of Duty* (53% often or always, up to 71% sometimes or more) and simulation games such as *Animal Crossing* (42% often or always, up to 72% sometimes or more). Other popular genres (over a fifth of participants indicated playing often or always) included MOBAs (22%), action RPGs (22%), RPGs (24%), Party Games (32%), and Puzzle games (29%). About a third also played other,

unlisted kinds of games (29% often or always). Open-field other category indicated rogue-lite, rhythm games, turn-based deck-builders, and visual novels as genres of interest, with possibly more fans that did not think to add them to the other category. As expected, genre is not a particularly comprehensive way of determining the kinds of games players engage with (See 5.3.3 Limitations regarding Gameplay Habits). For ease of future analyses of genre, I prioritized and used only 6 of the more popular genres: Shooter, action RPG, RPG, Party games, Sandbox, and Simulation games.

Table 1. Comparison of demographics between survey and interview samples.

Interview & Survey sample		
	Interview Sample (n=30)	Survey Sample (n=165)
age	21.10	21.14
gender	33% female, 56% male, 6% nonbinary	41% female, 53% male, 4% nonbinary
ethnicity	73% asian, 26% caucasian, 16% latine (20% mixed)	76% asian, 16% caucasian, 11% latine (9% mixed)
amount of gameplay (hrs/wk)	16.15 hours/week	12.81 hours/week
length of experience (yrs)	11.07 years	10.27 years
perceived expertise	8 (agree they are skilled)	6.98 (agree they are skilled)
ranked	3 (sometimes)	3 (sometimes)
challenges	2 (rarely)	2 (rarely)

Of 75 survey participants who were willing to be interviewed, 34 participants responded. 4 scheduled participants did not show up or cancelled after scheduling, leaving 30 interview participants.

When scheduling interviews, survey participants who indicated having been coached or mentored (if they answered “agree” or “strongly agree” to being coached on managing tilt or indicated having social support in managing tilt by others) were prioritized and given as they might be able to provide insight into how future interventions might most effectively target coaching efforts, and how mentorship efforts might be approached by non-coaches (e.g. parents). However, only 10 of the 165 survey participants indicated having been mentored regarding tilt, and only 2 scheduled an interview. While only two interview participants had been mentored regarding tilt, 2 other interviewees brought up insights they had gained from therapy.

As a subset of survey participants, the interview sample was of about the same average age and gender ratio as in the survey. The ethnic breakdown was roughly the same, although there were relatively more people of multiethnic descent. On average, interview participants played 3 more hours per week and had been playing for 1 year longer, and were very slightly more confident in their gaming skills. In terms of social context, interviewees reported playing less frequently with partners and somewhat more with strangers than the overall survey sample. Interviewees prioritized their own immersion and the outcome of the game/ match more than survey participants. Interviewees were slightly more certain that what triggered them varied by the game they were playing, and were more neutral on whether their motivations for playing affected how they responded to tilt.

4.1.2 Personality

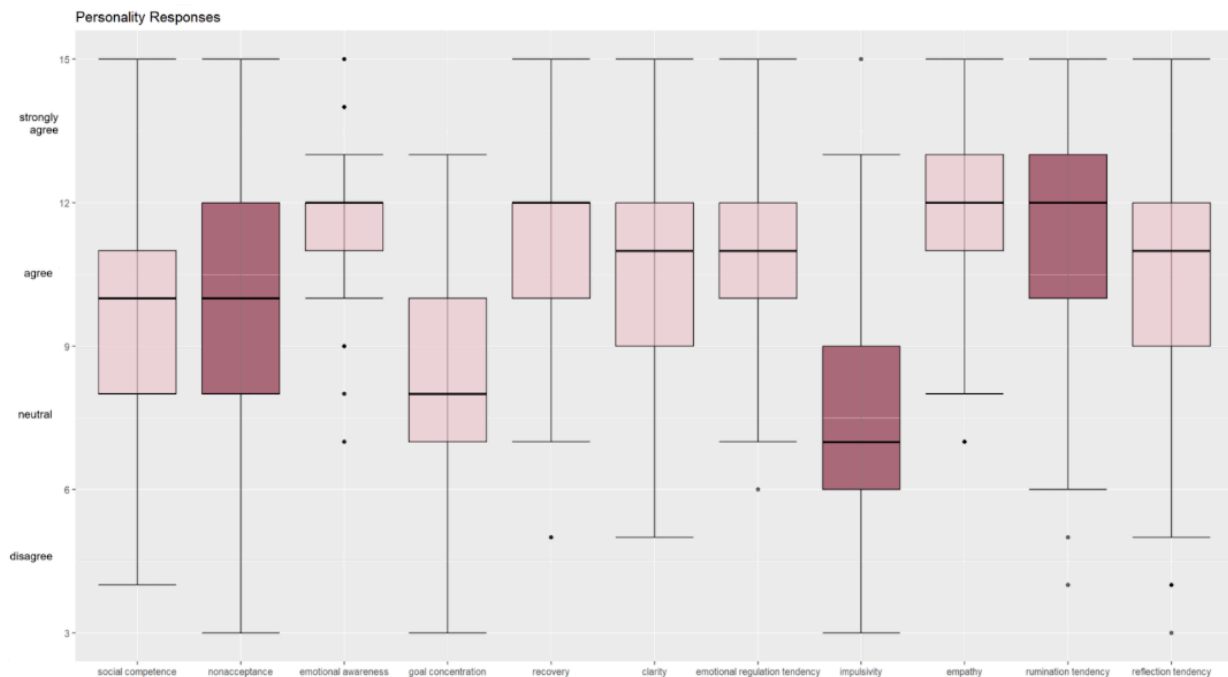


Figure 5. Personality variables in response to “How much do you agree with each of the following?” Darker colored variables (nonacceptance, impulsivity, and rumination tendency) are considered detrimental to self-regulation. Note that so few participants responded “strongly disagree” to any of the personality measures that “strongly disagree” does not show up on the chart.

Figure 5 shows the distribution of how survey participants responded regarding their personality. Overall, participants scored themselves as emotionally aware and empathetic. In particular, participants scored themselves as aware of their emotions and empathetic towards others' emotions. They portrayed themselves as nonimpulsive, but prone to ruminate about their mistakes (average score was neutral-disagree on impulsivity but agree on rumination tendency). Finally, participants overall indicated they were better at recovering after suffering a setback than they were at keeping from getting distracted from a goal in the first place (neutral-disagree on goal concentration but agree on recovery).

4.1.3 Beliefs about Tilt

For beliefs regarding tilt, participants believed that the genre of game or who they were with accounted for most of what triggered them or determined their responses. 86% of survey participants agreed or strongly agreed that the game they played influenced the kind of game they played influenced what triggered them. This is understandable, as naturally the affordances of the game influenced the available triggers. 74% of participants agreed or strongly agreed that who they were playing with influenced how they responded to tilt. In interviews, this seemed to come up as being more animated reactions and expressing their frustration around closer friends, or staying quiet and muting when around less familiar acquaintances.

Participants were more split about whether their motivations for the day affected their responses to tilt– 52% of survey participants agreed or strongly agreed, 21% were neutral, and 27% disagreed or strongly disagreed. From interviews, this belief may be so split because participants indicated playing different games to fulfill different motivations. However, this remains an interesting belief given the effect motivation had on triggers and responses.

4.2 Triggers for Tilt

(RQ 2A: Are some tilt triggers more common than others? and RQ 3: How do triggers for tilt vary?)

4.2.1 Are some tilt triggers more common than others?

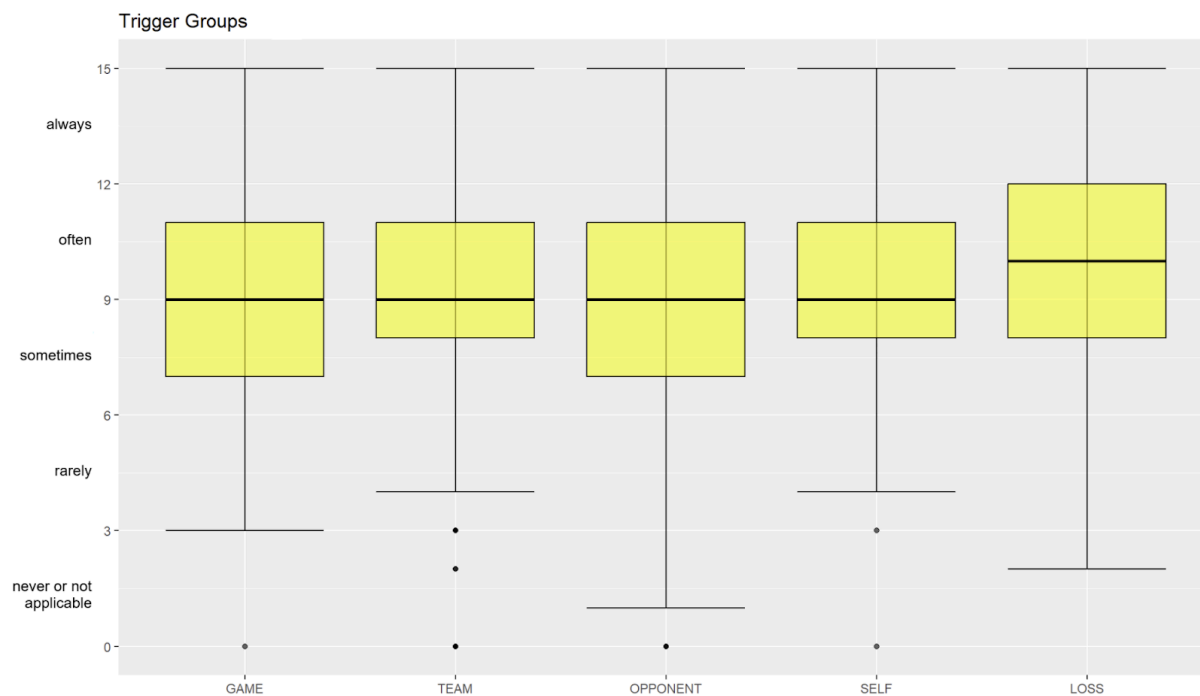


Figure 6. Trigger categories. Note that for game malfunctions/ bugs under the game category was removed for easier visual comparison.

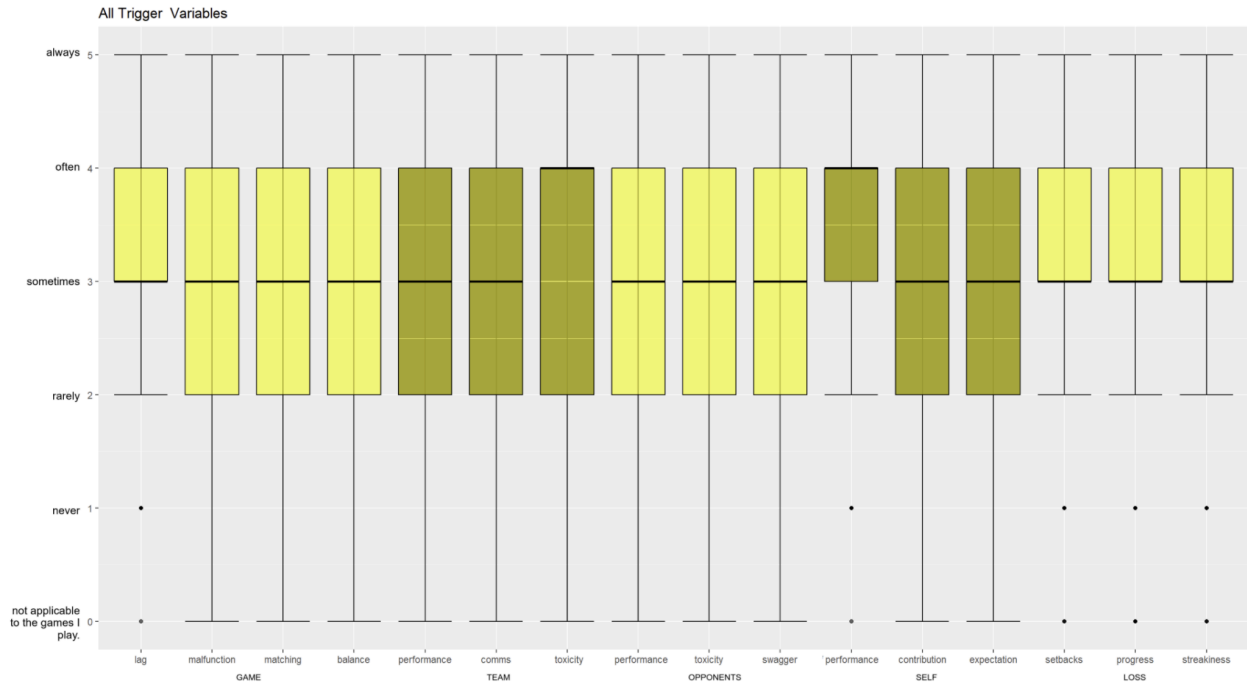


Figure 7. Individual trigger variables

(RQ 2A) All proposed triggers were considered “often” triggering when considered as categories, the loss category (mean = 9.78, SP = 2.64) was the most consistently high trigger, meaning people were more reliably and often triggered when losing a game or progress. Within categories, specific variables stood out as more often triggering: game lag (median = 3, IQR =1, with 45% of participants were often or always tilted by game lag), team toxicity (median = 4, IQR =2; 50% often or always), self performance (median = 4, IQR =1; 55% often or always tilted by game lag).

How frequently participants were tilted by a particular trigger– or, what participants were tilted by– varied in relation to a few gameplay habits and existing personalities. Age, gender, education level, ethnicity, and identification with being a gamer did not significantly affect how frequently a participant was tilted by a particular trigger. The amount of time played per week and the social contexts they played in also did not affect what participants were tilted by. Tilt

triggers did seem to vary based on how long participants had been playing games, a few personality traits, playing shooters, and motivation priorities when playing. Interviewees overall discussed triggers as affected by game expectations and their maturity outside of gaming.

4.2.2 How Demographics and Gameplay affect Triggers

(RQ 3A, 3B, 3D, 3G) Age, gender, amount of gameplay, and social context did not affect what participants were triggered by. ANOVA and Kruskal- Wallis omnibus tests were conducted on gameplay and demographics found no variations in triggers based on demographic variables and most gameplay variables.

(RE 3D) Longer length of experience (years) though, did make participants more likely to be triggered by opponents. Pearson's r found there was a significant variation in how often participants were triggered by opponents due to how long the player had been playing ($r = 0.204$, $p\text{-value} = 0.008$). Interviewee reflections suggested that more years of experience might be associated with higher ranks and greater expected understanding of the game, leading to greater tilt when this expectation was not met.

4.2.3 How Personality affects Triggers

(RQ 3C) Personality traits, specifically the tendency to emotionally regulate, goal concentration, and impulsivity, were correlated with triggers for tilt. Pearson's r was calculated to examine associations between personality traits and the frequency of being tilted. Emotional regulation tendency– the knowledge and practice of calming oneself down when angry or distressed– was negatively correlated with all trigger categories besides the game category¹³:

¹³0.3 or -0.3 are considered weak correlations, so such small correlations are barely worth consideration, but I thought it notable as a pattern across all the trigger categories. Game category had a correlation of ($r = -0.210$, $p\text{-value} = 0.001$). This was not considered significant because with family-wise corrections $p\text{-value}$ should be less than 0.001.

team ($r = -0.156$), opponent ($r = -0.228$), self ($r = -0.240$), loss ($r = -0.191$). Although these are very weak correlations, this pattern indicates that the tendency to emotionally regulate was associated with not being tilted as frequently tilted by any trigger—emotionally regulating prevented tilt in the first place. This pattern was not found with emotional awareness alone—it is the knowledge to and tendency to act upon and regulate that results in resilience to tilt. This supports that tilt is a form of emotional dysregulation and can be regulated as any other unwanted emotion.

Greater goal concentration was associated with getting tilted less. Goal concentration—the ability to remain focused or recover focus even when upset—was very weakly negatively correlated to being triggered by self ($r = -0.244$) and loss ($r = -0.247$). This indicates that being able to better focus when emotional allows players to be less affected when they themselves were not doing well, or when their efforts resulted in defeat. Interviewees discussed instances of friends in multiplayer games helping to coregulate by keeping them focused on the larger game, or with little encouragement and jokes.

On the other hand, impulsivity was associated with getting tilted more. Impulsivity was weakly positively correlated with being triggered by game ($r = 0.296$) and self ($r = 0.275$) trigger categories, indicating that impulsive players were more likely to be frustrated when the game did not behave as expected, or they themselves did not perform as they expected.

When interviewees discussed personality as influencing their tilt triggers, they rather credited maturity or growing up with games in their lives as reasons for why they no longer got triggered by the same things.

4.2.4 How Genre affects Triggers

(RQ 3F) Playing shooters more was associated with getting tilted by the team more. Kruskal- Wallis omnibus test revealed that playing shooters more often was correlated with getting tilted by the team ($H(4) = 16.466$, $p\text{-value} = 0.002$) – specifically, as indicated by follow up Dunn tests, participants who played shooters often (but not always) were more likely to be triggered by their own team. Interviewees did not highlight shooters as particularly tilt inducing, although shooters with temporary teams like *Valorant* being one of the more popular multiplayer games in this sample may contribute to how participants understood tilt in a multiplayer game context.

4.2.5 How Motivation affects Triggers

(RQ 3H) Whether participants focused on outcome individual improvement determined whether they were more often tilted by the design of the game or their own performance. This comes from a combination of two statistically significant variations in ANOVA results: Participants who highly prioritized Outcome as a motivation for playing were more frequently tilted by game issues ($F(1,163) = 9.814$, $p\text{-value} = 0.002$). However, participants who highly prioritized Improvement as a motivation for playing were more frequently tilted by their own mistakes ($F(1,163) = 11.07$, $p\text{-value} = 0.001$). Follow up t-tests also indicated that participants who did not care about their improvement at the game were significantly less likely to be tilted by self-category triggers.

One interviewee¹⁴ who summarized how both of these relationships might show up in

League of Legends:

¹⁴ This quote and interviewee's experiences is being used primarily as an illustration of the mindsets and how they might show up on a micro scale of play rather than indicative of the interviewee's overall motivations. In fact, Interviewee 6 had indicated her primary motivations for playing were the exploration of different mechanics rather than getting particularly good or outcomes or improving.

With my friends, most of them are on a level above me. So I listen to what they have to say and I will typically become tilted when I mess up and I know that I could have done something better, or when I'm against a champion that just feels unfair for my champion to play against. Like I'll play a lot of enchanter, and if I play against any kind of assassin it just feels very unfair. (Interview 6, p. 3).

In the first part of the quote, the interviewee had been finishing a description of how she takes advice from her more highly-ranked and experienced friends to learn about the game. She explains that her tilt is due to recognizing a mistake she made or misplaying something her friends have warned her against. In this case, her motivation to perform well and improve fuels her frustration when she makes mistakes. In contrast, in the second part of the quote, the interviewee explains a frustrating matchup based solely on the characters she and an opponent are playing: Enchanters are low-health, usually support-type characters, while assassin-type characters are designed to take advantage of this by deal a lot of damage in a short amount of time. Being put in situations where she was against opponents playing assassins made for a poor experience that arose as a result of the design of the game itself. Even if she played “perfectly...I can only do so much against them” (Interview 6, p. 3). Getting into such a confrontation does not bode well for the outcome of the fight, and she expresses how being put into this situation feels unfair.

4.3 Responses to Tilt

(RQ 2B: Are some response strategies to tilt more common than others? and RQ 4: How do responses to tilt vary?)

4.3.1 Are some responses more common than others?

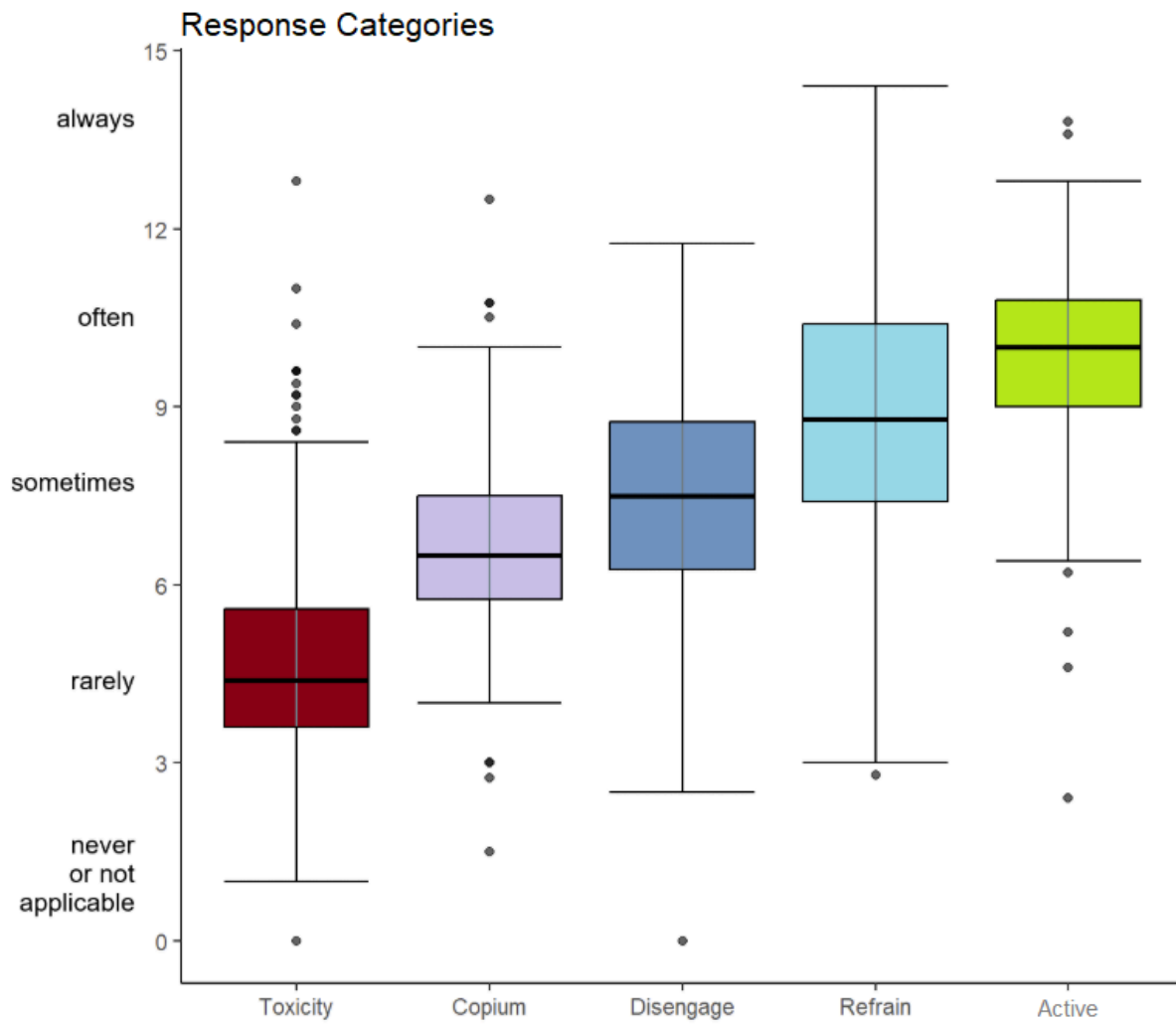


Figure 8. Response Categories

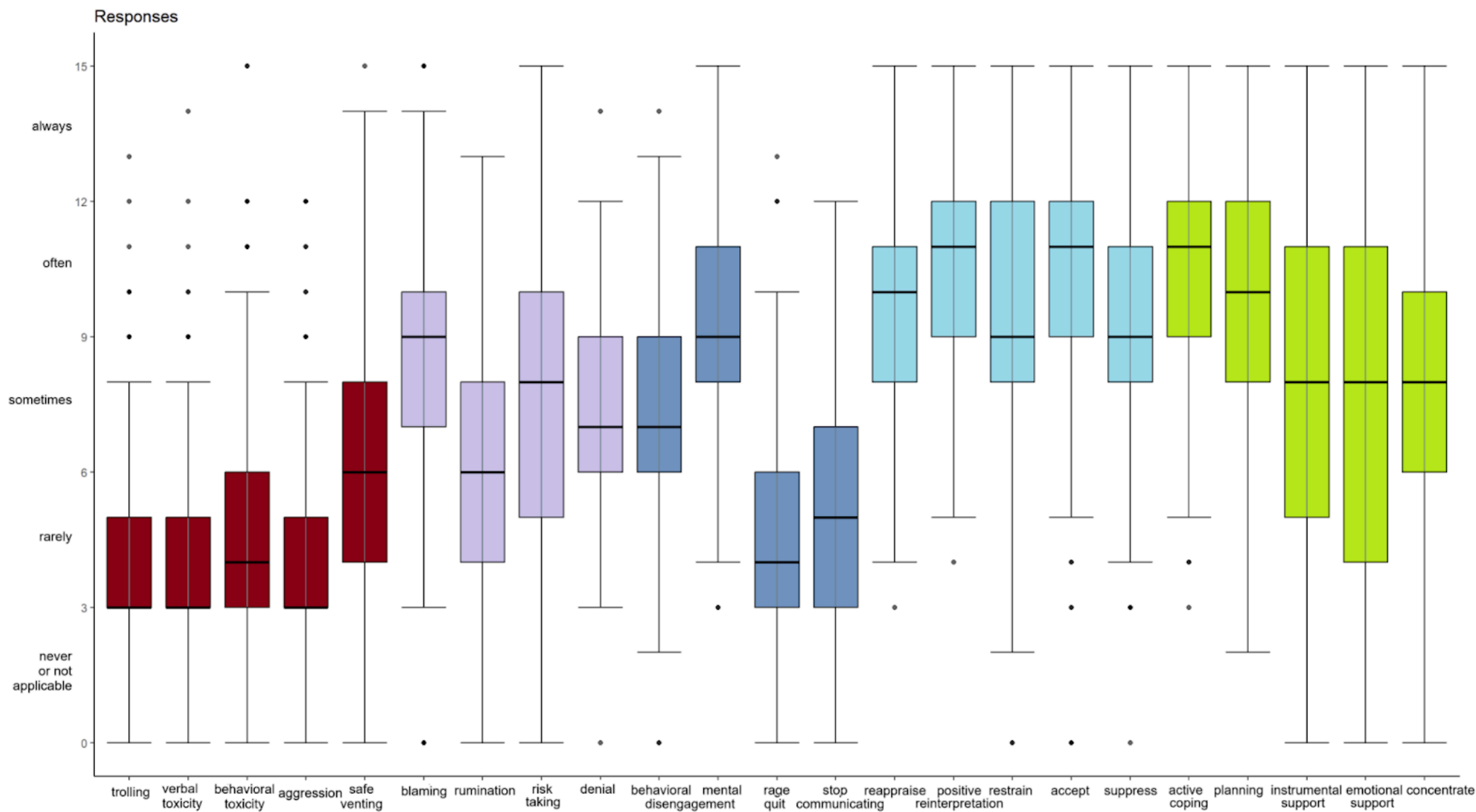


Figure 9. Individual response variables. Colors reflect the response categories.

(RQ 2B) Participants indicated more often responding with generally regulatory responses and less often with dysregulatory behaviors. Most often used were active (mean = 9.93, SD = 1.62) and refrain category responses (mean = 8.75, SD = 2.32). Within the active category, active coping (mean = 10.43, SD = 2.39) and planning (mean = 10.12, SD = 2.61) were most common and characterized active category responses as doing something or making a plan to do something to address the trigger. Within the refrain category, acceptance (mean = 10.66, SD = 3.04) and positive reinterpretation (mean = 10.44, SD = 2.60) were most common, focusing on accepting the tilt or attempting to find something positive about the situation or at least learn from the experience. Disengage (mean = 7.39, SD = 1.84) and copium (mean = 6.71, SD = 1.61) category responses were “sometimes” used – not the most common responses, but occasionally used. Disengage category responses were split between the more passive ways of disengaging (behavioral and mental disengagement) found as more common than the more dysregulatory forms of disengaging (rage quitting or stopping communication); of these mental disengagement (mean = 9.21, SD = 2.35) was the most common, representing taking a break after playing out the match or level. Copium category responses were all only “sometimes” used. Finally, toxic category responses (mean = 4.91, SD = 1.98) were the most infrequently used responses. While most toxic responses were only “rarely” employed by participants, venting frustrations (mean = 6.50, SD = 2.71), either while muted or to friends, stood out as used more commonly than the others.

How frequently participants chose a particular response– or, what participant responses to tilt were– varied in relation to gender, personality traits, amount played, gamer identity, and motivations. Age, education level, ethnicity, and length of gaming experience did not affect how frequently a participant chose a particular response to tilt. The genres and social contexts they

played in also did not seem to affect how players responded. Interviewees provided illustrations for what these responses looked like in the games they played.

4.3.2 How Demographics and Gameplay affect Responses

(RQ 4A, 4E, 4F, 4G) Age, length of experience playing games, genre of games played, and social context did not affect what participants were triggered by. ANOVA and Kruskal- Wallis omnibus tests conducted on gameplay and demographics found no variations in responses based on these variables.

(RQ 4B) While most responses did not vary by gender, ANOVA and follow up t-tests found that men responded significantly more often than than women did in four responses: rage-quitting (mean for men = 5.3 vs mean for female 4.22) , trolling (5.17 vs 3.63, verbal (4.90 vs 3.57) and behavioral toxicity (5.68 vs 3.79). This finding falls in line with the mixed findings of the role of gender in emotional regulation¹⁵. While interviewees in this study did not mention their or their friends' responses differing by gender, 10% (n=3) interviewees who were women did specifically mention not engaging in voice communication with strangers specifically to worries about being perceived as a girl. They did this despite knowing it impaired their ability to communicate in-game and would possibly affect their experience of playing.

Although not included in the research questions, a correlation was found between gamer identity and response. "Gamer identity" was a gameplay measure representing how much a participant identified as being a "gamer" and how confident they were in their own gaming skills.

¹⁵ While Cregan et al. (2024) found that gender did *not* have an interaction with on their experience of tilt or motivations for playing, I believe their metrics are more closely aligned to triggers in this study. Nolen-Hoeksema's 2012 review of the role of gender in emotion regulation and psychopathology asserts specifically that women using "more of almost all types of emotion regulation strategies compared to men," including less helpful strategies such as rumination (p. 179). I did not, unfortunately, analyze the distribution of strategies by gender to address these points.

Spearman's *rho* indicated weak correlations between gamer identity and two responses: planning ($\rho = 0.274$), behavioral toxicity ($\rho = 0.276$). The correlation between gamer identity and planning response supports the idea that being a gamer means constantly planning for the next move, even when tilted. Interview data indicated that making and revising strategies or goals, either alone or collaboratively, was a natural part of learning to play. The correlation between gamer identity and behavioral toxicity response indicated that performing these behaviors is part of being or performing as a gamer. Interviews indicated though, that some of these behaviors categorized as forms of toxicity (e.g. spam-pinging, crouching, taunting) may actually be considered a natural part of animated play, and in some cases, skill and good performance in a game allowed players leeway to show off with these kinds of behaviors.

4.3.3 How Personality affects Responses

(RQ 4C) Personality traits, specifically the tendency to emotionally regulate, impulsivity, and empathy were correlated with responses to tilt. Pearson's *r* was calculated to examine associations between personality traits and individual response variables. Tendency to emotionally regulate was associated with responding more with two positive regulation responses and less with two negative regulation responses: tendency to emotionally regulate correlated specifically with reappraisal ($r = 0.359$) in the refrain category and planning ($r = 0.263$) in the active category. Emotional regulation also negatively correlated with venting ($r = -0.299$) in the toxic category and stop communicating ($r = -0.253$) in the copium category. As with the relationship between personality and triggers, these results also support that tilt behaviors were affected by the tendency to self-regulate. Having this tendency to regulate emotions improved participants' responses when tilted, having them reappraise and instead of stopping communication and focusing on venting.

Impulsivity as a personality trait was associated with dysregulatory response to tilt. Specifically, impulsivity was positively correlated with venting ($r = 0.420$) and aggression ($r = 0.287$) from the toxic category, and with stop communicating ($r = 0.301$) and ruminating ($r = 0.268$) from the copium category. As with the relationship between personality and triggers, these results indicate that greater impulsivity hurt participants' response when tilted. This might also be interpreted as more impulsive participants were quicker to yell or express that frustration (venting) or act out physically (aggression, as in hit the table or throw a controller) but did not want others to be similarly affected by their tilt. Stopping communications in this case may be about avoiding tilting others with their own frustration rather than getting demoralized and not communicating because they were giving up.

Finally, empathy for others was associated with choosing not to disengage or be toxic. There was a weak relationship between empathy and specifically choosing *not* to rage quit, troll, or be toxic. Empathy had a negative correlation with each of these that almost met the cutoff for a weak relationship: rage quitting ($r = -0.252$) from the disengage category, and trolling ($r = -0.284$), verbal toxicity ($r = -0.259$), and behavioral toxicity ($r = -0.269$) from the toxic response category. That is, with greater empathy, participants were less likely to engage in these behaviors that would actively harm other players' game experience to avoid hurting others specifically because they recognize the effect these reactions have on others. Note that unlike other disengage category responses, rage quitting itself means disconnecting in the middle of the game, forcing their teammates to play with a player down. Understanding and empathizing with that struggle can also be why rage quitting was included in this relationship.

4.3.4 How Motivation affects Responses

(RQ 4H) Prioritizing improvement motivations for playing was associated with greater disengagement or toxicity. ANOVA omnibus tests highlighted two cases where prioritizing

certain motivations affected how participants responded when tilted. When prioritizing Improvement, participants were more likely to respond with disengagement ($F(1, 163) = 28.22$, $p\text{-value} < 0.002$) or toxicity ($F(1, 163) = 13.55$, $p\text{-value} < 0.002$) response categories. Based on interviews, the disengagement seemed to be around challenging themselves but maintaining control. For example, an interviewee that was reportedly in the top 5% of all *Osu* (rhythm game) players, expressed that regardless of how long he had been playing, “There’s always days where things feel off, or I’m not playing the way that I feel like I’m capable of. It’s very random. If I get to that point, I just start playing easier stuff that I have more fun with, or I just quit out of the game completely” (Interview 10, p. 3). Playing an easier game mode or leaving were forms of behaviorally and mentally disengaging. Here, despite the appreciation for a good challenge and wanting to constantly improve, the interviewee expressed that sometimes a break was needed. While he prized his achievement and the process of constantly improving at the game, he trusted that over time he would get better and recognized that some days would just not meet his expectations for himself. Rather than get frustrated at himself or the game, this interviewee would just play a mode that allowed him to still enjoy playing that day.

Regarding more toxic responses when prioritizing improvement, one interviewee shared an anecdote of a friend who lacked awareness of their own skill— despite constantly giving advice, the friend constantly relied on teammates to rescue him (Interview 5, p. 4). While not outright toxic, the friend was constantly venting his frustrations, complaining, or critiquing others, behaviors that might show up under venting response¹⁶. The interviewee called this “hypocritical” advice— this behavior could also be considered “backseat gaming,” where players gave unsolicited advice to teammates. In another interview, interviewee 28 indicated that “backseating gets people tilted so easily...but like if you’re getting backseated by a competitive player and they’re better than you, they’re coming from a good place. They know what they’re

¹⁶ Complaining would be a copium category response though.

doing.” (Interview 28, p. 37). This note about competitive, more highly ranked or better performing players knowing what they were doing also reflected the idea that they were allowed or more justified in taunting (behavioral toxicity). Interviewee 28 goes on to indicate that backseat gaming from “casual” players, particularly when they question decisions in “not like a curious way, but more like a more accusatory way” were particularly tilting (Interview 28, p. 37). If backseat gaming and other unsolicited, hypocritical advice can be seen as a form of venting behavior, this may help explain why more improvement-oriented players reacted with more apparent toxicity— their possibly good-intentioned advice when dealing with their own frustration is only spreading frustration¹⁷. Even if players like interviewee 28 tried to give credit and accept the advice of more competitive players, their advice may have been more detrimental than helpful.

When prioritizing Escape, participants were more likely to respond with disengage ($F(1, 163) = 10.29$, $p\text{-value} < 0.002$) or copium ($F(1, 163) = 15.85$, $p\text{-value} < 0.002$) response categories. These responses were understandable as “If you’re playing to escape something, then you’re more likely to get tilted. If other things aren’t going well in life, [and gaming] is the one thing you can kind of use to redeem the things that aren’t going well, then I think anyone’s bound to get more frustrated” (Interview 13, p. 17). Here, Interviewee 13 expressed a core risk he had realized with playing to escape reality or as mood management: when things didn’t go well in game either, he only felt worse. Disengage category responses might involve putting less effort into the games or walking away, while copium category responses might indicate either deflecting or overthinking the encounters— either way, as interviewee expresses, using games to “redeem” or make up for real-life frustrations only served to let real-life frustrations bleed into in-game-frustrations.

¹⁷ This may be speculation more than interpretation— Both of the qualitative examples are second hand examples from interviewees regarding *others* who reacted to tilt negatively. Further, Kleinman et al (2024) also describe backseat gaming positively, as a form of coregulated learning in esports.

Finally, when prioritizing Social Relationships, participants were more likely to respond with toxicity ($F(1, 163) = 11.9$, $p\text{-value} < 0.002$). Specifically, follow up t-test found participants who prioritized social relationships as essential were more likely to respond with toxicity. While initially this seems to contradict improvement- focused toxicity, interviews indicated a few reasons why this might be the case: in the case of multiplayer games, a few interviewees expressed how they only interacted with non-friend players to communicate in-game information. Even if non-friend teammates were frustrated, “I feel like I just stick to myself or my friends. And then [managing their mental] is their problem to deal with” (Interview 10, p. 5) If friends were being attacked though, they would prioritize cheering up their friend, usually in voice channels separate from the team. If criticism was found to be undeserved though, interviewees were more willing to lash back and respond to verbal attacks in defense of their friends.

Another reason for this apparent relationship between social motivations and toxic responses may be that what I had labeled “toxic” responses—including nonverbal, in-game actions that might be construed as aggressive (behavioral toxicity)-- were described as part of the banter amongst friend groups that gamed together. Behaviors that, in a vacuum, could be considered trolling or toxic, such as spam-pinging, trash-talking, or playing intentionally poorly, were described as part of the banter between familiar friends— as fun ways of poking fun at each other and being silly. One interviewee laughed as they described intentionally annoying their cousins:

I’m sorry, it’s so funny. I think it’s because they’re family. I want to see them get annoyed and angry because it’s fun for me....then later I’ll give them a fair chance. But like the first few rounds, I definitely like to annoy them....

There's an underlying trust already....And the way we bonded was like fighting each other." (Interview 12, p.7)

This interviewee earlier discussed how they avoided *Overwatch* because after a few rounds where their playing poorly had "swarmed [the chat] with slurs and report notifications". Yet not five minutes later, they laughed as they described how their cousins and them would "bully" each other in *Tekken*. They clarified that when they were young, wrestling had been a way of showing affection and camaraderie in this cousin group. The practice went away as they grew up and men and women could no longer fight affectionately, but showed up again as annoying and provoking each other in video games. What was "ridiculous", toxic behavior with strangers was funny and bonding with friends and family. The behaviors they described– bullying, spamming, trash talking, taunting, physically abusing each other's avatars—are toxic if done out of context or to a stranger. But amongst friends and family, these behaviors were seen as banter and part of showing affection.

The line between lighthearted, friendly teasing and toxic, tilting behavior was a flexible line, but interviewees did acknowledge and describe that line.

When it comes to playful banter, it's like it's exclusively– We're trash talking exclusively...to being in game. Just like 'Oh you're playing really bad'. But I draw the line where they start doing personal insults about the person's like character and stuff like that. (Interview 32, p. 13)

Interviewee 32 expressed here something echoed by others that how personal the teasing got was a line that could not be crossed. That is, there was a big difference between "You're playing bad" versus "You're a bad player" or even "This is why you're [not higher ranked]". Both kinds of comments were, unfortunately, said in discord calls during or after frustrating games, but the

former was met with laughs and jokes while the latter was seen as poor tilt management and examples of poor friends to play with.

Amongst friends, there was trust and understanding from years of playing together about how far jokes could be taken or how people usually joked around; when friends started to act out of character, banter became toxic, and joking around became poor reactions to being tilted.

4.4 Relationship between Triggers and Responses

(RQ 5: How do different triggers relate to different responses?)

See Appendix B for a compilation of all partial correlation matrices..

4.4.1 Do different triggers correlate with different responses?

Table 2. Relationship of trigger categories and response categories.

	Game	Team	Opponent	Self	Loss
Toxicity	0.441	0.399	0.297	0.321	0.167
Copium	0.306	0.353	0.317	0.282	0.311
Disengage	0.334	0.398	0.291	0.369	0.269
Refrain	0.071	0.221	0.169	0.173	0.175
Active	0.035	0.179	0.020	0.104	0.127

Despite the active and refrain response categories being more common, toxicity, copium, and disengage response categories were the ones that correlated with trigger categories. This supports the definition of tilt as selecting dysregulatory responses due to emotional reactions. Even if participants overall used regulatory responses more often, being on tilt is associated with dysregulatory and disengagement responses. Pearson's r was used to calculate correlations between trigger categories and response categories (Table 2); Correlations

between trigger categories and all response variables (Appendix 2) are also calculated and mentioned here to highlight where within categories these associations are primarily coming from.

Game triggers were correlated with toxic, copium and disengage categories. Getting tilted by the game was correlated with toxic ($r = 0.441$), copium ($r = 0.306$), and disengage ($r = 0.334$) response categories. Within the toxic category, four of the five individual variables were similarly correlated: venting ($r = 0.474$), trolling ($r = 0.342$), behavioral toxicity ($r = 0.320$), and aggression ($r = 0.333$). While individually the copium responses had correlations less than 0.3, bundled together they revealed a weak correlation.

Like game triggers, team triggers were associated with toxic, copium, and disengage response categories. The team trigger category was correlated with toxic ($r = 0.399$), copium ($r = 0.353$), and disengage ($r = 0.398$) response categories as well. Of these, venting ($r = 0.362$), behavioral toxicity ($r = 0.352$), and aggression ($r = 0.362$) stood out from the toxic category as being where this correlation might come from. As with game triggers, none of the individual copium responses stood out but combined together they were weakly correlated. From the disengage category, stop communicating ($r = 0.327$) had the highest individual correlation with the team trigger category, and mental disengagement was even nonsignificant. This means that when frustrated by team members, participants were likely to disengage by simply not talking to their teammates.

Meanwhile, opponent triggers resembled weaker versions of correlations seen with team triggers. The opponent trigger category was correlated with toxic ($r = 0.297$), copium ($r = 0.317$), and disengage ($r = 0.291$). For most individual responses, opponent triggers were less strong versions of the correlations seen with team triggers. However, correlations between opponent category triggers were stronger than team category triggers with venting ($r = 0.384$) from the

toxic category and behavioral disengagement ($r = 0.269$) from disengage category.. That is, while both team and opponent triggers were associated with disengagement, when tilted by their opponents, participants were more likely to disengage by giving up but still would keep talking with friends or teammates.

Self triggers were similarly associated with toxic and disengage responses, although rumination from the copium category stood out. The self trigger category was correlated with toxic ($r = 0.321$), copium , and disengage ($r = 0.369$) response categories. Of these, venting ($r = 0.341$) response from the toxic category, and rumination ($r = 0.306$) response from copium category stood out. This isolated correlation with rumination might indicate participants were particularly prone to keep worrying about their own mistakes or the mistakes of others. While individually the disengage responses had correlations less than 0.3, bundled together they revealed a weak correlation.

Finally, losing was associated with the copium response category. The loss trigger category was only correlated with the copium ($r = 0.311$) response category. Additionally, the loss trigger category was correlated with behavioral disengagement ($r = 0.330$) from the disengage category. Behavioral disengagement involves still playing, but putting less effort into looking for solutions and possibly even giving up on the game or overcoming that obstacle.

In summary, examining the relationships between trigger and response categories revealed that despite active and refrain strategies being more commonly used, tilt triggers were associated with the dysregulatory and disengagement responses. Losing was associated primarily with copium responses or simply giving up. Tilt due to other triggers was associated with toxic, copium, and disengage category responses. Getting tilted by opponents was more likely to lead to giving up while getting tilted by teammate mistakes was more likely to result in

stopping communication. This “original” relationship serves as a point of comparison for the relationships specified below.

4.4.2 How gameplay habits affect the trigger-response relationship

(RQ 5A. Are trigger and response relationships mediated by gameplay habits?)

Table 3. Relationship between trigger categories and active response category across different amounts of gameplay. The full partial tables are in Appendix 2.

Active response category	Game	Team	Opponent	Self	Loss
Original relationship	0.035	0.179	0.020	0.104	0.127
LOW amount (< 5 hrs/wk)	0.181	0.403	0.140	0.086	0.229
MEDIUM amount (5-10 hrs/wk)	-0.027	0.337	0.081	0.407	0.192
HIGH amount (>10 hrs/wk)	-0.070	-0.184	-0.136	-0.026	0.023

Holding “amount of gameplay” constant, we see that participants who played a low (<5 hours per week) or medium amount per week (5-10 hours a week) were found to use active responses in the face of tilt from their team. Table 3 shows that this relationship between team triggers and active responses did not exist ($r = 0.179$) before comparing across the amount of gameplay.

Table 4. Relationship between trigger categories and copium response category across different lengths of gaming experience. The full partial tables are in Appendix 2.

Copium response category	Game	Team	Opponent	Self	Loss
Original relationship	0.306	0.353	0.317	0.282	0.311
LOW length of experience (< 5 yrs)	0.147	0.295	0.008	-0.103	0.218
MEDIUM length of experience (5-10 yrs)	0.293	0.393	0.413	0.478	0.303
HIGH length of experience (>10 yrs)	0.395	0.328	0.333	0.288	0.352

Holding “length of experience” in gaming constant revealed that less experienced participants (≤ 5 years playing games) were less likely to use copium responses compared participants who had been gaming for a long time. At low length of experience, triggers had almost no relationship to copium responses¹⁸; meanwhile, medium and high lengths of experience replicated the relationship between triggers and copium response, compared to not considering length of experience. The absence of copium responses for low-experience participants may reflect that participants with less experience are not yet familiar enough with common gaming experiences to explain away their frustrations. When tilted, these less experienced players are either more toxic or disengage from the game, selecting themselves out of that gaming community.

¹⁸ Two of the low-length of experience results (team and opponent-triggered) were nonsignificant and due to random chance; however even just considering the other variables, this pattern of weak relationship holds.

4.4.3 How genre of game affects the trigger-response relationship

(RQ 5B) This relationship was measured by considering only participants who indicated often or always playing a particular genre. Partial correlation matrices were constructed by then holding genre of play constant and examining the relationship between trigger categories and response categories.

Holding genre constant revealed that the original relationship mostly held up. Shooter genre suppressed responses for team and self-triggers (correlations were slightly below the values in the original trigger-response relationship). This may be due to the intent not to make matters worse for the team and isolate tilt.

Table 5. Relationship between trigger categories and the toxic response category across genres

Toxicity response category	Game	Team	Opponent	Self	Loss
Original relationship	0.441	0.399	0.297	0.321	0.167
Often or always play SHOOTERS	0.458	0.248	0.214	0.242	0.222
Often or always play Action RPGs	0.591	0.484	0.505	0.367	0.311
Often or always play RPGs	0.518	0.478	0.213	0.402	0.222
Often or always play PARTY games	0.541	0.415	0.251	0.309	0.073
Often or always play SANDBOX	0.492	0.291	0.243	0.355	0.144
Often or always play SIMULATION	0.359	0.374	0.307	0.189	-0.006

Table 5 shows that the relationship between trigger categories and toxic response category was amplified in action RPGs, and for some trigger categories in Party and Sandbox games. For Action RPGs and RPGs this amplified toxicity response regardless of the trigger

category could be because many Action RPG and RPGs are singleplayer games where the only recipients of toxic behavior would be the nonplayer characters in the game themselves, or the friends listening to the participant rant about their frustrations. The amplified relationships in party and sandbox games is more surprising, although these could be due to players being very animated when playing these games. The slightly suppressed relationships for simulation games may be due to interviews claiming these kinds of games tended to be calming or relaxing by design; even when frustrations arose, everything was under their control. Overall, I was uncertain about the interpretation of effects of genre on the trigger-response relationship.

4.4.4 How social context affects the trigger-response relationship

(RQ 5C) Considering only social contexts that participants mentioned playing in often or always and holding social context constant, we see the same relationships between trigger categories and response categories hold. Slight variations existed – compared not considering social context, playing alone tended to amplify disengage responses, indicating that players would just leave and not engage when tilted. Playing with online friends suppressed team-trigger relationships compared, perhaps because playing with friends was regarded as more casual and lighthearted. Interview data again though, brought up how playing alone versus with friends definitely changed the gaming experience.

4.4.5 How motivation affects the trigger-response relationship

Table 6. Relationship between opponent and self trigger categories and response categories for specifically high or essential improvement motivation. The full partial tables are in Appendix 2.

	Original relationship		High or essential IMPROVEMENT motivation	
	Opponent	Self	Opponent	Self
Toxicity	0.297	0.321	0.165	0.142
Copium	0.317	0.282	0.237	0.096
Disengage	0.291	0.369	0.265	0.098
Refrain	0.169	0.173	0.317	0.246
Active	0.020	0.104	-0.107	-0.170

Finally, considering only motivations that participants ranked as high priority or essential to their gaming revealed that prioritizing individual improvement suppressed the relationships related to opponent triggers and self triggers. Table 6 shows just the relationship between opponent triggers and self triggers to the response categories and in every case¹⁹ correlations were weaker. At first this may seem to contradict findings related to prioritizing improvement leading to being triggered by self triggers, and responding with more disengagement and toxicity. However, this suppressing effect may actually specify that while players were aware of their own mistakes, by focusing on specific measures of improvement they were reducing dysregulatory responses due to these same mistakes.

¹⁹ Every case with significant correlations. Nonsignificant correlations in the active and refrain response categories would be due to chance and cannot be compared.

4.5 In-game tilt compared to real-life frustration

(RQ 6. How do players view managing tilt in game as related to managing stress or frustration in real life?)

When asked about real-life analogues to tilt, interviewees overwhelmingly gravitated towards the emotional reactions from tilt, such as “frustration” or “demoralization” rather than the process of doing progressively worse at the task, the deservedness of a near-success, or even the anger and toxicity also associated with tilt.

Interviewees were split on the idea of getting tilted in real-life scenarios: Half (n=14, 48%²⁰) saw gaming terms readily as metaphors for real-life situations and connected tilt to frustrations with homework, class assignments, or interpersonal conflicts. One particularly detailed example likened his experience overcoming tilt in action RPGs to hunting for errors in programming.

At least with people around my age, all of us play games. So [gaming terms] are an easy way to interpret and understand things. And I personally just find it kind of funny...I think gaming has been like practice for me in real life frustrating or stressful experiences. So nowadays, even when I have to do a really repetitive task, like programming can be a really repetitive [task] sometimes when I can't find the error. And I have to redo stuff sometimes, like the software would just crash or lag and stuff. And that in the past was really frustrating. But nowadays it just feels like gaming....If I'm having to redo stuff over and over and over again, it just feels the same way as me having to redo a boss site over and over and over again. So it doesn't feel as frustrating anymore. (Interview 16, p. 11-12).

²⁰ Percentage is out of 29, not 30 interviewees because Interview 8 did not address the topic of IRL analogues.

The interviewee starts by pointing out games serve as a shared activity for his community of friends, the language used in gaming not only an “easy way to interpret” things about the real world, but something “funny”.

This interviewee took the analogy a little further and describes how practicing dealing with tilting in game was practice for real life frustration. Previously he had described how when confronted with a difficult boss, he would set goals and let his defeats guide the goal for the day. In the action RPGs he played, learning the attack patterns of difficult bosses is essential to overcoming them. He might set a goal of learning an attack pattern to just learning how to learning how to predict an attack and then how to dodge it (p. 7). While each day’s play might be constant defeats, days and days of struggling to dodge the same attack array would lead to knowledge about the boss and strategies for dodging each move. These small improvements would build up and allow him to eventually not only defeat the boss, but be able to defeat the boss consistently. The interviewee likens this repetitive process of attempt and defeat to the “really repetitive task” of finding an error in programming. Repeated attempts to debug are likened to having to “redo a boss site over and over and over again”, constantly learning new ways. Computer lagging and crashing is likened to game lag issues. Overall, this example quote exemplified how gaming language could be used as a metaphor for real-life frustrations, and how this participant, for example, connected his practice dealing with in-game frustration to real-world frustration.

Not all interviewees believed that in-game experience with tilt translated to real-world frustrations though. The other half of interviewees (n=15, 52%) decided that the frustration related to tilt in games was not the same as the real-life frustration, usually due to real life stakes being more serious. Interviewee 32 indicated that with real-world frustrations, restraint was always needed because real relationships were on the line. As soon as possible after an

argument with a friend or significant other, he would try to discuss and clear the air; meanwhile, with games though “there’s no sense of urgency...I can give it time” (Interview 32, p. 10). Both of these responses may look like taking a break, but the interviewee was clear that real-life frustrations were met with restraint while games were met with mental disengagement. With real life, emotional reactions were held back for a more opportune time, and the time away is offset by an urgency to discuss once no longer in the heat of the immediate argument. With games, frustrations did not need further thought and if he was not inclined to think of them, the game frustration could wait unaddressed for an indefinite amount of time.

Other interviewees thought that tilt was a gaming term that should be reserved solely for gaming spaces. These interviewees expressed that it was awkward or embarrassing to use gaming language in real-world spaces. One participant connected in-game tilt to the frustration he had with sports or homework, and asserted that real world frustration was “definitely the same feeling, but I wouldn’t call it tilt in my real world activities.” (Interview 34, p. 6-7). For him, the hesitation to link the terms was only partially because “tilt” is not mainstream slang, and while he understood the metaphor between, he did not believe the term should be used outside of the gaming space.

Even though interviewees understood the intention of using gaming language as a metaphor for real-life frustrations, they were split on the appropriateness of using tilt as an analogue to real-life frustrations. About half found the triggers and responses to in-game tilt had understandable real-life analogues.

4.5.1 How mentorship experiences affect experience of tilt

(RQ 6B) Only 10 survey participants indicated having been mentored regarding tilt, and only 2 scheduled an interview. One of these attributed his “mentorship” to insights from therapy;

two other interviewees also brought up insights from therapy even though they did not call it mentorship. Therapy for all three interviewees who brought it up had been for something unrelated to games, but insights from their therapy helped form their approach to tilt and gaming²¹.

These interviewees brought up the role of therapy as a way of understanding and realigning their motivations for playing games. Interviewees 1, 9, and 16²² described very similar experiences where something suddenly clicked for them after years of friends and family pointing out that they got “too mad” at the games they were playing. For Interviewee 9, after starting work and coming home from work stress, “it was like something clicked in my head where I was like ‘Yeah I need to stop playing these games. It’s just causing [me] more stress than anything....I should be enjoying these games. I shouldn’t bring in more stress to my home life.” (Interview 9, p.1). For the interviewee, this realization was part of the tipping point that disconnected the association between “rage” and “fun” and “games” that he had associated from seeing streamers’ exaggerated displays of anger in his childhood. Through discussions in therapy and noticing his friends’ comments, he gradually understood why his friends actually enjoyed playing with him:

They’re asking me [to play] because I’m good at the game and when I say good, I’m honestly average. But they want me there because I’m a positive presence now. I’m funny. I make them laugh. I’m doing silly things in the game. ...I’m making these people laugh all the time, and that’s why they want me to play games with them. (Interview 9, p.3)

²¹ There were additionally 2 other interviewees that mentioned having elementary classes in online safety; however they credited their experiences and own reflection rather than these classes as the source of their approaches to tilt and gaming.

²² Interviewee 16 had not had therapy or mentorship experiences, he just expressed a similar experience and had come to similar conclusions based on his own efforts in self-improvement.

As he took on more real-life stress, interviewee 9 changed his understanding of the role games had in his life. Interviewee 1 called this realization “tempering your maturity” (p. 11). For Interviewee 9, this maturity helped him realize why his friends actually wanted to play with him, and shifted his priorities in playing and the way he played. This shift in priorities also reflects a shift in motivations, from playing with a focus on winning and in-game rewards towards playing to enjoy challenges and social interactions. Therapy helped these interviewees understand their motivations for play or recognize different coping methods available to them—namely, recognizing that they could leave the game when they recognized they were on tilt.

Interviewee 15 described her unique mentorship experience as friends teaching her the norms of gaming in their community. For example, her friends explained to her “don’t camp...it makes [the game] unbalanced” (Interview 15, p. 5). Camping is a tactic that involves staying in one spot where opponents have to pass through and repeatedly catching them there. Her friends explained this strategy but also explained why “you aren’t really supposed to [use this strategies]...because that’s not fair, even though that would make your performance better” (Interview 15, p. 5). Interviewee 15 mentioned that in her community, gaming skill and being a gamer was a form of social currency. Understanding the norms of playing with these groups helped set her expectations of what was fair and how to balance between desire to perform well and create a fair gaming environment. In this example, in order to not overly frustrate others, the norm was to keep moving around and not just lie in wait for easy victories. Being coached by her friends on the norms of the game helped set her expectations for what fair play looked like and frustration or anger towards her when she accidentally engaged in these. Her friends’ ideas of when behavioral toxicity was allowed—specifically “teabagging”, or taunting by repeatedly crouching over fallen bodies—also influenced her assertion that behavioral toxicity was fine in singleplayer games against a computer, but not in multiplayer games with other humans. Interviewee 15’s experience was unique though, as the only instance of direct coaching, but it

showed how mentorship from more experienced friends could help definitively establish social norms in newer players.

5: Discussion

5.1 Revisiting Definition

The present study began with and espoused the definition of tilt wherein “Tilt is an emotional reaction to in-game events that causes a deterioration in gameplay performance and enjoyment.” Interviewees generally agreed with this definition, emphasizing the negative affect, whether anger or frustration or demoralization. The survey portion separated causes (triggers) of this emotional reaction and intentional methods of managing those emotions (responses). Survey data supported the process of tilt as an emotional regulation process: First, the tendency of emotional regulation– the tendency and ability to control and calm down when upset– was associated with being less triggered and inclined to tilt. Even when tilted, those who self-regulated were more likely to reappraise the frustrating situation and make a plan to address, and less likely to vent their emotions or stop communicating with friends and teammates. Second, even though regulatory active and refrain category responses were more common, the triggers of tilt were correlated to toxic and copium responses and the disengage responses.

Definitions of tilt are though united by the themes underlying them, even as different researchers describe them differently. Throughout interview conversations, the ideas of unfulfilled expectations and reduced control over situations kept coming up. Expectations align well with McLinton & Pascale (2024)’s conception of tilt “goes beyond just anger’ because the player feels moral justification; ‘they tilt because they are being denied...[something that] they have rightfully earned” (McLinton & Pascale, 2024, p. 4, modification in original). The moral justification and deservedness associated with tilt arises from frustration due to the gameplay

experience not meeting players' expectations— of the fairness or behavior of the game, of their own abilities, of their teams' or opponents' abilities.

These feelings of moral indignation and deservedness were exemplified by “chasing” after “deserved” wins in poker players (Palomaki, 2013) streakiness observed by Kou & Gui (2020). In the present study, this streakiness was called tilt-queuing:

If you lose a game, it's always the feeling that you want to do another [game] that way [with the original strategy]. You can win the next game. *Which is kind of paradoxical, because it kind of just gives you an excuse to play again whether you win or lose.* But chasing the win. If you're doing good, why stop now if you're feeling like you're gonna do good in your next game also. But if you lose, you can't end on a loss. That'd just be bad. It just makes you feel bad the rest of the day. (Interview 21, p.1, emphasis added)

Here, the participant acknowledges that the thought process behind tilt and in particular, queuing up for another game while tilted is fundamentally win-chasing. Losing a game is not only an undesirable outcome, but also the manifestation of a thwarted expectation – either expecting to do better or expecting to continue to do well. The approach that leads to streakiness and tilt-queuing is “paradoxical” because it gives an excuse for always playing another game, regardless of game outcome. It also supports the notion that tilt, despite the association with anger, is not necessarily tied strictly to anger, but is the manifestation of emotional dysregulation in game contexts. Another way of understanding tilt-queuing and the pursuit of well-regulated play is De Koven's “tournamentality” concept (1978). In this idea of tournamentality, players took the mindset they held in a previous game and brought it forward into the next game and then the next, creating a mental experience where the games are connected, rather than treating each game as its own instance of play.

If tilt is continuing to play regardless of the outcome, then knowing when—and how— to stop is not only a form of emotional regulation, but also a way of controlling the play experience. Just as De Koven had warned that “tournamentality” contradicts the idea of playing well as a community, interviewees expressed that good examples of tilt management involved knowing when to take a break. The ability to know when to step back was one way of controlling and managing tilt for not just themselves but that of their friends and establishing a good environment for playing together.

Maintaining a good social environment while playing was far from the highest priority when playing for many participants. The following sections highlight the impact different gameplay measures, including motivation, had on tilt triggers and responses before reconvening on the role of social context in the tilt experience.

5.1.1 The role of Demographics, Gameplay, and Personality in Tilt

My first overall research question asked “What are the primary triggers and responses to getting tilted among older adolescents? How do they vary by demographics, gameplay habits, personality traits, game genre, motivations for playing, and social contexts of play?” This section summarizes these relationships, with special attention to motivations and social context.

First, all proposed triggers were considered “often” triggering when encountered. Losing category triggers were the most common, and within their respective categories, game lag, team toxicity, and self performance stood out as more often triggering. Regulatory response categories active and refrain were more commonly used than disengage responses, while dysregulatory copium and toxic responses were more rarely used. This was interesting, given how disengaging after a game to take a break was so frequently recommended as a way to stop tilting and reset emotions (Kou & Gui, 2018, Wei et al., 2016).

Demographics and gameplay habits had some influences on how participants responded.. Demographically speaking, men responded by rage quitting, trolling, and engaging in verbal and behavioral toxicity more often than women. Age did not influence triggers or responses. Playing more hours per week was associated with less behavioral disengagement—that is, playing more meant participants gave up on their goals less. This may have something to do with feeling like they needed to stay in frustrating ranked games. Participants who played under 10 hours per week though, were found to use active responses when tilted by their team members. Longer length of experience was associated with being triggered by opponents more, a specification of previous work that found gameplay experience was associated with a decreased risk of tilt (Cregan et al., 2024; Palomaki et al., 2014). To contrast though, participants who had fewer than five years of gaming experiences were less likely than higher experience participants to use copium responses.

Personality as tendencies to engage in particular behaviors showed influences on both triggers and responses that align well with previous literature on personality. Goal concentration was associated with getting tilted less by self and loss trigger categories. Goal concentrating affecting triggers rather than responses lends credence to Baranczuk (2019)'s notion that conscientious individuals prize “maintaining goal-directed behavior in spite of emotional arousal” (p. 225). This also is in line with the emphasis on stoicism and maintaining objectivity for Dow Schull's professional poker players (2016). Maintaining concentration on a goal and *preventing* tilting behaviors despite emotional distress is more important than *responding* after the fact to tilt. Greater impulsivity was associated with more expressive tilt, such as venting more, physical aggression, cutting communication with teammates and friends, and ruminating over triggers. Impulsivity in the face of emotional situations is characteristic of neuroticism, which was similarly associated with dysregulatory responses to stress (Baranczuk, 2019). Finally, greater empathy was associated with less behaviors that would hurt others' gaming experiences: less rage

quitting, trolling, verbal and behavioral toxicity responses. While this association does not align with greater empathy being associated with more actively supportive responses (ibid.) it is demonstration of cognitive empathy (Schrier & Farber, 2021).

Finally, genre of game influenced triggers and had some influence on trigger-response relationships, but was not as clear as participants may have believed. Specifically, playing shooters more was associated with getting tilted by team triggers more often, and playing action RPGs, RPGs, party games, and sandbox games amplified toxic responses in response to trigger categories. Additionally, 86% of survey participants also believed that the kind of game they were playing determined their responses. While sensible, as genre reflects the affordances of what can be triggers, these associations between genre and tilt experience were not always clear. Genre may simply be an indicator of the affordances of a particular game, but how players interact with those affordances may be better understood through their motivations for playing.

5.1.2 The role of Motivation in Tilt

Of the six presented motivations for playing, prioritizing outcome, improvement, and social relationships while playing had consistent influences on tilt. Prioritizing outcome was associated with getting triggered by game category triggers and responding with disengagement or copium. That is, being outcome-focused made participants more sensitive to issues with the game being seen as unfair or behaving unexpectedly, and either stopping play or resorting to not quite helpful ways of thinking about or approaching the game.

Prioritizing improvement was associated with getting tilted by self-category triggers and responding with disengagement or toxicity. Improvement focused participants though, also demonstrated a suppressed relationship between opponent and self category triggers and toxic, copium, and disengage category responses. That is, while improvement-focused players were

increasingly aware of their own mistakes, by focusing on specific measures of improvement they were reducing dysregulatory responses due to these same mistakes. Prioritizing improvement versus outcome seems to resemble having mastery versus performance orientated goals towards learning (Pintrich, 2000).

Prioritizing social relationships while playing was also associated with toxic category responses. This may have been because participants were more likely to respond to toxicity or undeserved criticism leveled against their friends or because responses I labeled as toxic were considered acceptable as part of the banter within friend groups.

Finally, immersion motivation was important to almost all participants: Only 14% (n=23) of survey participants did *not* list immersion as a high or essential priority. Despite the universality of this motivation, immersion motivation did not seem to affect triggers, responses, or the relationship between the two. Throughout interviews, variation in what immersive and fun play entailed varied, but all emphasized how games are supposed to be fun. Perhaps the significance of immersion motivation was that increasing frustrations and poor performance were not only tilt-inducing in their own right, but also interrupted the immersion and fun of playing:

You might be okay at first. And you start thinking 'What plans, what can I do to fix this', and that might actually lead you to be more immersed in the game itself because you're completely tunnel vision on the game and trying to solve the problem at hand. However when you try that, and then try it multiple times, you kind of realize nothing you do is working. You start isolating yourself. You start trying to find bugs and glitches that can help you, right? *And that breaks yourself out of immersion, because instead of trying to focus and use the mechanics in the game itself, you're trying to find ways to play outside*

of those mechanics. And that can usually result from tilt. (Interview 28, p. 38, emphasis added)

The interviewee describes how a little bit of frustration in a game was expected and part of the challenge of games. Strategizing for these frustrations in single player games at first helps engage them in the world and story of the game, and helps them get immersed in a challenging situation. But at some point– the point of tilt– they are frustrated and looking for game bugs and glitches. At that point, their play is in trying to manipulate the world as a game system rather than in trying to embody a character in a story. This pulls them out of the world and lowers their immersion. Even in story-driven or singleplayer, tilt includes not just frustration caused by repeated setbacks, but losing immersion in a world.

Overall, motivations had complex, sometimes seemingly contradictory influences on triggers and responses. Improvement and social motivations were associated with more toxic responses, for example; however, what I coded as “toxic” category responses might be perceived differently depending on who the participants were playing with.

5.1.3 The role of Social Context in Tilt

The second overall research question asked “What, if any, social contexts of play influence self regulation in response to tilt in games?” RQ 3G and 4G similarly asked “Do triggers/ responses vary by social context of play?”

Quantitative analyses indicated that triggers and responses were not affected by playing more often with a particular social context. Similarly, social context had only slight influences on the relationship between trigger and response categories. Regarding triggers, interviewees corroborated that what they were triggered by was not affected by who they were playing with.

Qualitatively though, participants believed social context did affect their *responses* to tilt and the experience of tilt. 74% of survey participants believed that social context mattered, and interviews described how playing with friends affected their experience of tilt. Compared to playing alone or with strangers they would never encounter again, playing with friends or family felt more lighthearted and animated. Close friend groups who had been playing together for a long time sometimes had natural ways of coregulating, either by letting them know it was time to take a break, joking or encouraging, or distracting tilted friends. In situations where friends played competitively against each other, one interviewee even mentioned intentionally losing a game (interview 7) or offering advice (interview 20) to their opposing friend to help them feel better while playing.

Interviewees clarified that playing with friends made tilt situations (particularly in multiplayer situations) less frustrating and more fun than playing alone or with strangers.

It was definitely more fun [playing with friends] for sure because I was able to share my frustrations with other people and be like ‘oh this player just really sucks’ or ask ‘what should I do?’ They would assist me better as well, so that just kind of made the whole process more fun. (Interview 18, p. 6).

Even though participants got triggered by the same things, having their friends to commiserate with or offer insight on helped prevent more severe feelings of tilt. In fast-paced cooperative multiplayer games like MOBAs and Shooters, the group voice communication allowed for better communication and coordination in-game, allowing their friends to respond to tough situations in-game immediately, or strategize collaboratively and not just offer advice, but directly take action to help. Even having companions on call to help explain their decision making changed the experience— with strangers they might be confused, but at least with a friend in discord

explaining their decisions, participants could more easily grasp the situations at hand or decision making processes.

Arguments with friends were also described as more lighthearted, quickly resolved or forgotten because for many groups with a long-standing relationship, such animated arguing was part of the normal banter and fun of playing a game. One interviewee captured this idea in the quip “Screw you, see you tomorrow,” (Interview 28, p. 11). Over the course of the interview, he returned to this quip to emphasize that even if disagreements with friends came up during matches and continued long after the game, the friend group would go back to regular banter soon after—be that the next evening or even just a few seconds later when they started a new game.

In general, interviewees expressed how playing with friends and family meant the opportunity for more animated, sometimes dramatic reactions.

When I’m playing with my dad and older brother, I’d say it’s not so much egging on as it is false overconfidence, or something like that.I’d be like ‘Oh you’ll rue the day that you did this to me!’... and win or lose doesn’t really matter as long as I’m able to enjoy it. (Interview 20, p. 3-4)

In a series of examples involving both singleplayer and multiplayer games, interviewee 20 described how he would intentionally play up his reactions to in-game events for the amusement of himself and his friends and family. Other interviewees also noted playing up their emotions when streaming singleplayer games as a way of showing friends how they were feeling; when playing alone, there was no need to emote for others. Later, interviewee 20 expressed how even losing repeatedly to friends generally would not tilt him as long as they were not “rubbing it in”—indeed, it was their reactions to his losing that would be more tilting. Even if he was losing, if

they offered advice or encouragement, that could stave off the frustration of losing for a longer time.

Playing with friends was still the preferred social context, and generally made play more lighthearted and casual. Interviewees often played with friends or family (90%, n=27) even if not for explicitly social reasons. Playing with familiar friends had the added benefit of understanding their playstyle and knowing what to expect. Voice calls allowed for immediate clarification of thinking, collaborative strategizing or planning, and even coregulation of tilt. Understanding others' motivations, being able to immediately ask for help and receive communication or insight²³ from others, represented a form of control over the situation when playing with friends that did not exist when playing with strangers or opponents.

Thus, even if social context did not affect how often certain triggers or responses were chosen, who participants were playing with did influence the emotional experience of getting tilted. Understanding the social context of who participants are playing with is thus important at least to a qualitative understanding of the tilt experience.

5.2 Revisiting Models of Tilt

Since work on this project began, there have since been other efforts to measure responses to tilt and behaviors related to tilt: Bonilla et al. (2024) for example, developed a concise 18-item scale designed specifically to measure tilt causes and consequences. Their breakdown of tilt seems to focus on self triggers (causes) and emotional reactions rather than actions taken (responses). Cregan et al. (2024) adapted the Severity of Tilting Scale from Palomaki et al. (2014) to capture a similar experience. The present study takes a more granular

²³ While not as often expressed, playing singleplayer with an audience of friends had a similar effect where spectating friends could help offer explanations or advice, or lighten the mood with questions and speculations about the game story.

approach to trigger and response relationships whereas these studies approach tilt as a more unified experience.

The responses portion of the survey was heavily drawn from the COPE inventory, a measure of stress management. Unprompted interviewee feedback indicated that the survey items were surprisingly comprehensive, supporting the use of stress management for the purposes of examining tilt. I have a few hesitations though: for the purposes of analyses I broke responses into theoretical categories of 4-5 variables each as a simple regulatory vs dysregulatory breakdown was not particularly informative. This breakdown was not how the COPE inventory or stress management literature broke coping strategies. Strategies were described originally (Carver et al., 1989) as emotion-focused and problem-focused strategies, focused on addressing either the emotion itself as the problem or the source of stress as the problem, respectively. In Carver et al.'s breakdown, disengagement (both mental and behavioral) were regarded as less useful, dysregulatory methods of coping. However, interviewees discussed taking a break (mental disengagement) as the most useful advisable strategy for “resetting your mental”. Taking a break to stop tilt and break losing streaks was, after all, frequently recommended in forums and media as how to deal with tilt (Kou & Gui, 2018). Perhaps a key difference is that this disengagement is being done after the game has ended and is explicitly used as a way to emotionally disengage before returning. A more sophisticated factor analysis might find another way to break down responses in specifically gaming contexts or into other categories that are more descriptive of tilt experiences.

This work framed tilt as emotional dysregulation and a potential area for social-emotional learning. Despite framing emotional regulation as generally consisting of trigger-emotional reaction- response and highlighting the importance of awareness in the regulation process, this study focused primarily on trigger and response. Discussing tilt in the gaming community,

indeed, presumes that players are aware that they are emotionally affected by their gaming. However, this does neglect players that may not even be aware that they are emotionally reacting or responding in increasingly poor ways. Interestingly, though, emotional awareness alone as a personality tendency did not significantly correlate with any triggers or responses. It was instead emotional regulation and acting on such awareness, that was associated with less tilt and more regulatory responses. Meanwhile, impulsivity led to greater tilt and more dysregulatory responses; this calls into question just how aware players might be of their own tilt. Interviews highlighted that friends and others just being aware of tilt in themselves or in others was a good “response”. Further work just understanding how aware players are of their own tilt or of others tilt would be very useful in understanding this gap.

Additionally, I defined tilt as having both an emotional and behavioral component. While this emotional component resonated with everyone, the behavioral component could use further verification. Survey data verified that tilt triggers are, at least, correlated more with dysregulatory response, but my measures were still aggregates, operationalized as general frequency. Measuring if there are specific differences in performance, perceived performance, or response strategy would require observational studies. Given how interview participants mentioned modifying their reaction severity or performance of emotions in the presence of an audience, even observational studies may not be entirely sufficient. Qualitatively, understanding player expectations and working off their existing awareness may be more fruitful.

Social emotional learning models also generally differentiate between awareness and regulation in the self and others. Both CASEL and the 4 Branch model separate self and others. Survey data did not discuss dealing with tilt in other people, and interview data indicated further divisions between managing their own “mentals”, supporting their friends’, and getting involved with strangers’; even if these were teammates or cooperative players, strangers’ emotional

states were perceived as not their responsibility. This understandable differentiation supports that studying tilt in players themselves is best teased out from studying coregulatory processes and managing tilt in others they play with.

Finally, emotional regulation models and coping strategies emphasize that disengagement to prevent feeling an undesired emotion is a valid way of preventing but not addressing emotions. With gaming as a hobby, disengagement remains a common response to tilt, as a form of “adaptive, avoidant coping (Cregan et al., 2025, p. 1). However, exploring different models for moments of intervention and coping strategies may prove interesting for finding specific strategies. Kou and Gui (2020) references Gross (2003)’s work in emotional regulation and the Process Model of Emotion. Other models of understanding emotions provide different approaches for understanding when and how to intervene in emotional regulation while gaming. Some interviewees distinguished between immediate, uncontrollable reactions and intentional responses; interviewees who had gone through therapy likewise indicated that knowledge of how emotions worked helped them understand how to manage tilt. Thus, I believe that while not always the most familiar way of understanding tilt, using models of emotional regulation as ways of understanding tilt is useful. Understanding how emotions are processed and regulated helps players be aware of coping responses available to them other than just disengaging. Alternatively, analyzing tilt from the perspective of different expectations and stakes, may also line up with natural moments of intervening.

Another way of defining tilt might be as a dysregulatory response to “unfulfilled expectations”. Throughout interview conversations, participants often contextualized their responses to tilting situations by expressing their expectations. Even before starting a game, players had expectations of the game– to not lag, to arrange fair games. Their response to tilting situations could also be rationalized as being more or less in their control.

Tilt as a mismatch of expectations is particularly useful in understanding how severe the tilt or emotional reactions might be when playing with others. Players held expectations for how their familiar friends play, for the roles of their teammates; messing around and trying out new builds are expected to be relegated to more casual modes. Experience or rank in the game also served as a metric for setting expectations. Interviewee 28 introduces the idea of expectations depending on rank here:

I have a few friends that are pretty high ranked and pretty low ranked. For the high ranked people, you kind of expect them to do good or like at least not mess up. For low ranked people, the flip side is like, you don't expect them to do well, but that's okay. Cause you know, they're not that good right? (Interview 28, p. 10).

In the comment, there was nothing wrong with being low ranked, even after a long time of playing, expectations are just lower when playing with lower-ranked friends. Higher rank though, came with higher expectations. Later, the interviewee expressed how in the absence of a familiar shotcaller, the player of highest rank or doing the best in the game should be relied upon as the authority and call the shots for the team (Interview 28, p. 38). Thus, with higher rank, usually gained through more time invested, there was the expectation of more game knowledge and better ability to act skillfully with that knowledge. With strangers, seeing mismatches between rank and current performance was usually a cause for confusion or incredulity that led to frustration.

Other participants discussed expectations as part of the control they had over the outcome. Opponent skill or game issues were not things players could control, and were met with indifference "There's nothing we could do to change the outcome of this match so whatever....It's an acceptance"; however, if the outcome was something they had some perceived control over, such as team communication or a misplay, then players were more

frustrated or reactive since “We could have done something about this, but we didn’t.” (Interview 32, p, 12-13). For this participant, situations were more tilting when there was some perceived control that was not acted upon. Another participant, discussing single-player games, expressed the opposite, that situations were more tilting when he had no control and could not have played better (Interview 16, p. 4). While contradictory, both these participants described their tilt as a matter of perceived control they had over the situation.

Understanding tilt as a measure of unfulfilled expectations or control aligns well with McLinton & Pascale (2024)’s conception of tilt “goes beyond just anger’ because the player feels moral justification; ‘they tilt because they are being denied...[something that] they have rightfully earned” (McLinton & Pascale, 2024, p. 4, modification in original). The moral justification and deservedness associated with tilt arises from frustration due to the gameplay experience not meeting players’ expectations— of the fairness or behavior of the game, of their own abilities, of their teams’ or opponents’ abilities. In his thesis, Falwell (2023) similarly identified “Lack of Influence/ Control” and “Failure to Meet Expectations” as tilt triggers. This method of framing tilt triggers may be more general but comprehensive for understanding what tilts individual players and causes them to spiral.

Still, there are game-specific considerations to understanding tilt as emotional dysregulation. Even though interviewees understood the intention of comparing in-game tilt with real-world frustration, 52% of interviewees thought that the frustration experienced in-game was not the same as the feeling in real life. Tilt is not a perfect in-game analogue for facing real-life frustration, but might serve as a light-hearted metaphor for exploring ways of managing frustration. Games too, are not a perfect facsimile for real-life social experiences, can serve as a safe practice space to discuss and practice social-emotional skills.

5.3 Limitations and Future Directions

This dissertation has been a mixed survey and interview method exploration of the phenomenon of gaming tilt as a form of emotional regulation.

5.3.1 Limitations regarding Demographics

The sample was recruited through a college setting, so age and education are strongly tied to a college undergraduate experience. Other priorities such as schoolwork and work naturally competed with students' attention. Survey data collection was also done during the last few weeks of the Winter 2025 quarter when students might have been particularly focused on schoolwork and studying.

As mentioned before, ethnicity was overwhelmingly "Asian". Using "Asian" as a single monolithic category for ethnicity was particularly undescriptive given 45% of Irvine city identifies as Asian (U.S. Census Bureau, 2023). This division of ethnicity seems to be the standard, but distinguishing between even south and east asian would be a crude but needed first step towards more nuanced data

With only 7 nonbinary participants, statistical analyses are hardly reliable. Additionally, while only a couple of interviewees mentioned their gender playing a role in their experience of tilt in video gaming, there is mixed but long-standing research on differences by gender in experiencing and managing stress (Cregan et al., 2024; Nolen-Hoeksema, 2012) and the affordances of digital gender presentation. While this is not my area of interest, I support more research into the unique frustrations and experiences of nonbinary video-game players.

5.3.2 Limitations regarding Triggers and Responses

All the triggers were measured on how frequently when they encountered this were they frustrated. The survey does not measure severity of tilt for any particular trigger, or frequency of encountering a particular trigger. This was a unique departure from other work in tilt, particularly considering the influence of severity of tilt in Palomaki (2014)'s work on tilt in poker, but it seems findings from this study were fairly in line with previous work in tilt considering "severity". Interviewees made a few comments into the severity of tilt but the present dataset would probably be insufficient to answer questions about severity in meaningful detail.

Further, grouping of trigger and response variables categories were made based on the theoretical concepts. While member-checked with 3 other members of the gaming community, these were not based on a factor analysis. Further work would have to be done to determine how best to bundle these and to better connect these findings with existing work in emotion regulation and social-emotional learning literature. I have many caveats with response categories – most were double-barreled and combined slightly different approaches into one variable. My labelling also may not have been ideal– "toxic" has a specific connotation in gaming parlance as specifically verbal toxicity, and some of the behaviors deemed "toxic" in the present study might have been considered harmless venting or complaining and part of the banter of playing with friends.

5.3.3 Limitations regarding Gameplay Habits

This study intentionally moved away from using frequency of play ("Amount" (hours/week)) as a single metric for gameplay habits. I was heavily inspired by Verheijen et al. (2019)'s recommendations for additional dimensions in designing the gameplay habits section.

This study did give some insight into the conceptualization and measurement of these gameplay habit dimensions though.

Social context did not include an option for acquaintances, friends of friends, colleagues, which were brought up in the open “other” field and quite often in interviews. Further, who “social context of play” accounted for was not entirely clear to participants: Two mentions (on a comment in the survey and one interview) indicated that they played with strangers more often than they had indicated on the survey because they had not counted strangers that comprised the other team or who filled in a party (for example, if they had 2 other friends and wanted to play a 5v5 game, there would have been 2 strangers that filled in on their team). More research understanding temporary teams (Kou & Gui, 2014). and clarifying social context could be useful in future work in understanding tilt.

Game genres, as expected of an inexact taxonomy, were not particularly informative in terms of statistical associations. Genres correlated inconsistently with motivations and social contexts as well, not serving a particularly useful proxy for either of those concepts. Genres also change quickly with popularity of titles and demographics. Regardless, the mechanics associated with popular genres were useful in understanding the expectations of unfamiliar titles during interviews. I maintain that gathering game genres frequently played serves a useful purpose in providing context for interpreting results.

Motivations for play emerged as the most useful predictor for participant responses to tilt. Cregan et al. (2024) had likewise used a simple motivation scale (Win, Improve, Fun, roughly analogous to Outcome, Achievement, and Immersion in the present study). While the motivations in this study was a generalized approximation based on Yee (2006) and Ferguson & Olson (2012)’s work, I believe more work in breaking down motivations for play in relation to tilt

would be useful. Specifically, understanding local logics²⁴ and expectations related to tilt experiences or responses could shed light on the multiple priorities and streams of input players manage when gaming.

Finally, there was the matter of properly operationalizing stakes of play: Frequency of playing “ranked” and “challenge” game modes were initially intended to be combined into a joint variable “Stakes” that represented the stakes or difficulty of play that participants played at. However, players tended to play one or the other rather than have similar answers on both. Additionally, while “ranked” seemed to be a natural and familiar language, “challenge” as a term had to frequently be redefined in interviews. Permadeath, single-save files, speedrunning were familiar concepts, but not naturally associated with the term “challenge”. Alternatives to my challenge question might include asking what level of difficulty they prefer to play on (Story Mode/ Easy/ Normal/ Hard/ Extreme) with a separate question asking if they play with permadeath/ no-hit/ one save file or similar extra options). Exploring how the stakes of play influence the experience of tilt in both multiplayer and singleplayer contexts seems particularly promising given interview comments, and how nuanced the idea of stakes were in interviews.

5.3.4 Future directions: Stakes of Play

The idea of stakes when playing came up often and in surprising ways in interviews. My research questions did not address the influences of different stakes of play on tilt triggers, responses, or the relationships between the two, but additional analyses with just the “ranked” and “challenge” variables might reveal interesting associations. Certainly, interviews indicated that stakes of play were important to the experience of tilt by setting the tone and expectations of the game session.

²⁴ This is a term from a qualitative study examining how contradictory priorities could be held and the deciding factor would depend on the particular situation (Malvini-Redden & Way, 2017).

Stakes in interviews referred to ideas beyond playing for leaderboard ranking or additional challenges. Money and financial dependence was mentioned by a few interviewees, albeit as a concern they, as nonprofessional players, did not have. Identity and social currency was brought up by a few interviewees as well: playing with acquaintances from school or even friends carried social stakes that went beyond normal play, even if playing together was meant to be casual. “There’s that pressure of, if you fail a stranger, it doesn’t matter as much, but if it’s a friend, then you know it crosses a border and you might be reminded of [in game actions] again....It’s a weird thing, to be judged in a game space” (Interview 15, p. 2). In this part of the interview, Interviewee 15 reiterated the idea that playing with others entailed, in part, a performance: of who they were as a teammate in a multiplayer game, of their insightfulness in analyzing a story game, or even their identity as a gamer. This entailed using gaming jargon correctly or understanding gaming-related jokes to present themselves as an experienced gamer. Playing well— either in terms of skill or personable mentality— was a form of social currency.

Time also emerged as a consideration for determining the stakes of play. In ranked games, stakes were higher not just because there were ranked points that determined the player status on a leaderboard or division, but “for every [ranked point] you lose, that’s double the time to get it back because you lose it and you gain it again” (Interview 28, p. 15). This way of understanding rank also emphasizes the role of length of experience in games or amount played as part of understanding experience; in measuring poker experience, Palomaki et al. (2014) used a combination of years, monetary value involved, and cumulative hands of poker played. As an understanding of stakes of play, experience and the amount of time already spent playing could be seen as part of the sunk cost already invested into a game.

Interviewees seemed to agree that stakes were just lower in single player games. One player broke this up in terms of having save mechanics: Having a save file he could “always just go back [to]”, made the prospect of losing progress in singleplayer games less frustrating (Interview 25, p. 9). Even if he had to redo some part, the save file served as a backup for the furthest point they could be sent back to, and there was no urgency in returning to the save file: they could do so at their convenience, be that in a few minutes, the next day, the next week, or even in a few months. Comparatively, in multiplayer games, “if you rank down, you rank down. There’s no safety net” (ibid.). Multiplayer stakes were thus not only higher stakes because of the impact on other people, but also because they were real time comparisons with other people and there was no “safety net” to fall back to.

Stakes of play, thus, are not as easily measured as just the risk of losing rank or failing a challenge. Stakes also represented the risk of social currency or the sunk cost of time spent and the time that would be needed to make up for losses. Finally, games for this sample were hobbies. Time spent making up for lost or unmade progress was also an opportunity cost for doing other, real-life activities. Given the complexity that “stakes” really entailed, I believe they would be useful as additional measures of differentiating gameplay, alongside concepts like length of experience, genre, social context, and motivation.

5.3.5 Future directions with the interview dataset

As mentioned, the existing dataset could use a more systematic factor analysis in breaking down triggers, and the dysregulatory variables. Interview data provided anecdotal examples of responses and triggers and aligning how participants responded in a survey on their gaming tilt generally versus in an interview asking for specific examples and anecdotes of tilt might yield interesting insights and breakdowns about how particular contexts— genres,

stakes, social contexts, motivations— matter in understanding not only tilt but positive emotional experiences in gaming.

In the survey, 24 (15%) of participants marked that they frequently or always responded to tilt by reminding themselves it was “just a game”. This was initially construed to be part of the denial construct, as a game-specific analogue to “This isn’t real”. However, “just a game” came up frequently in interviews and seemed to include different meanings beyond games taking place in a magic circle separate from real life. Breaking down how “just a game” is used and the “just game” tag in qualitative codes would be an interesting exploration of how players relate to games.

Additionally, I found that some of the most interesting quotes in interviews came regarding IRL analogues to tilt – the frustrations and demoralizing equivalents of in-game tilt: How interviewees described their approaches to playing games, how they described real-life experiences informing their gameplay, and how gameplay served, for a couple interviewees as practice for real-world social interactions, all intrigue me as further explorations of social-emotional learning in playful spaces.

Interviewee 28, who provided many good examples already, mentioned explicitly how *League of Legends* taught him something about determination:

“One funny thing that I always said about *League* is that one of the greatest things it gave me was a good mental state, just because if you want to keep playing. ... Like [understanding] ‘never FF [forfeit] culture’.... “I’m already in the game so I might as well try to win,.” (Interview 28, p. 13-14)

In this five-minute part of the interview, the interviewee described how understanding—not just knowing about but understanding the “ideology” behind the maxim

“never forfeit” stood out as a valuable lesson in not only playing games, but maintaining a positive and calm outlook in the face of frustration and disappointment. He also explained his friend group’s use of “GG [Good game], go next” (Interview 28, p.19) as a way to acknowledge a friend’s feelings of resignation and demoralization while providing encouragement.

Other participants, such as interviewee 20, had many detailed anecdotes of playful experiences in both videogame and tabletop games that would be interesting to mine for better understanding of the specific social-emotional lessons games can reinforce. Some anecdotes described real-world relationships bleeding into in-game roles, which I find particularly interesting to understanding how player relationships influence their in-game interactions.

Conclusion

The present research investigated late adolescent and young adult video game players' experiences and perspectives on the phenomenon of tilt. Survey data focused on quantitative examinations of tilt triggers, responses, and the mediating effect of demographics, personality, and gameplay habits, genre of game, social context, and motivations for play. Interview data was used firstly to illustrate and contextualize quantitative patterns and secondly to draw connections between in-game tilt and real-world frustrations. Compared to previous studies of tilt that focused primarily on multiplayer experiences, this study aimed to explore tilt as a phenomenon in both multiplayer and singleplayer gaming.

Insights from this study may be worth considering for possible interventions to bolster self-regulation using games. Strategies for emotional regulation can indeed be used effectively to manage tilt in-game, so just having a diversity of emotional-regulation strategies could serve as a starting point. The two participants who discussed therapy helping their in-game responses had brought their insights in from non-game contexts into applicable for dealing with in-game tilt, then used games as a place to practice those skills. This aligns very well with the notion of using games as practice for “hot” moments (Slovak & Fitzpatrick, 2023; see 2.2 Tilt as Emotional Dysregulation); however, given the resistance to readily using tilt as a metaphor for real-life intervention, emphasizing the real-world applications and skills and finding gaming situations may be more useful than starting with tilting situations in game.

Understanding player motivations cannot be underestimated in designing interventions. Motivations, more so than any other metric of gameplay habits, genre, or social context of play, affected triggers and responses to tilt. Understanding different player motivations for playing and how they derive immersion and fun from games, will be crucial in creating compelling

interventions. While being presented with different strategies alone is a start, different response strategies brought up in interviews may be more compelling depending on motivation for playing. For example, the improvement-focused ideology behind the “Never forfeit” mentality brought up in an interview may be particularly compelling to improvement-focused players. More immersion focused players may gravitate towards insights such as looking at how they are playing as an indication for their own tilt. Such difference in preference was previously noted for personality traits, but this study indicates may be more pertinent for motivations.

Future interventions must also take into consideration the stakes of play and the amount of gameplay players have already invested and the potential perception of experience an individual may be facing or expecting of themselves. Expectation management, or greater understanding of what they as a player can or cannot control may be a more useful way of helping players understand how to manage their own tilt and how or even when to intervene with others.

Findings of the current study highlighted that (1) tilt and managing tilt could indeed be described as emotional dysregulation, (2) the influence of motivation, particularly the improvement motivation, over tilt triggers, responses, and the trigger-response relationship; and (3) the qualitative role and potential of supportive social context— particularly playing with friends— in tilt management. This research presented a more nuanced breakdown of triggers (game, team, opponents, self, and loss), responses (active, refrain, disengage, copium, and toxic), and possible mediating factors (demographics, gameplay habits, game genre, motivation, social context, and personality) than previously seen in research on the phenomenon of tilt in video games. Interviews also explored how therapy and learning social-emotional skills could transfer into in-game shifts in perspective, and how, despite not being a perfect metaphor, gaming language could serve as metaphors of understanding for real-life frustrations.

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Appendix A1: Survey Instrument

The Question Pro version of survey questions is available here: [\[Link: https://uci.questionpro.com/tilt\]](https://uci.questionpro.com/tilt)

Eligibility: I confirm I am over 18 and play video games. [checkbox confirmation]

Age (years): [numeric input]

Gender: [male, female, nonbinary, prefer to self-describe, prefer not to answer]

Education: [high school, GED, some college, bachelor's degree, some graduate classes, graduate or professional degree, prefer not to answer]

Ethnicity: [Asian, Black/ African, Caucasian (White), Hispanic/ Latine, Native American, Pacific Islander, Prefer to self-describe, Prefer not to answer.]

How many hours per week do you usually spend playing videogames online? [open, number]

For how many years have you been playing videogames online? [open, number]

How much do you agree with the following statements?					
	Strongly Disagree (1)	Disagree (2)	Neutral(3)	Agree(4)	Strongly Agree(5)
I identity with the term “gamer”					
I am good at playing videogames					
I am skilled at the games I play					

When you play videogames, how often do you play with the following?					
	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Alone					
IRL friends (friends you know outside of games)					

Friends you met online					
Family					
Partners					
Strangers					
Other group (indicate below what kind of people)					

Other group: [open]

How often do you play the following genres?						
		Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Sports/ racing	(ex. FIFA, NBA2K, Forza)					
Multiplayer online battle arena (MOBA)	(ex. League of Legends, DOTA 2)					
Shooter	(ex. Call of Duty, Overwatch, CS:GO, Valorant, Fortnite PUBG)					
Fighting	(ex. Street Fighter, Tekken, Super Smash Bros.)					
Massive multiplayer online (MMO)	(ex. World of Warcraft, FF14, ESO, GTA)					
Action RPG (aRPG)	(e.g. Dark Souls, Diablo, Path of Exile)					
Real time strategy (RTS)	(ex. Starcraft, Age of Empires, Clash Royale)					
Turn-based strategy (TBS)	(ex. Civilization, Hearthstone)					

Role-Playing (RPG)	(ex. Final Fantasy, Horizon Zero Dawn)					
Party Games	(ex. Fall Guys, Mario Party, Jackbox)					
Sandbox	(ex. Minecraft, No Man's Sky)					
Simulation	(ex. Sims, Animal Crossing)					
Puzzle	(ex. Tetris, Myst, Sudoku)					
Pattern/ Match 3	(ex. Bejeweled)					
Other	(please indicate below what genre or game)					

Other genre or game: [open]

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
How often do you play ranked or competitive games (games on the competitive ladder?)					
How often do you play challenges (e.g. speedruns, Nuzlocke, high score, other limiters)					

What are your current favorite games? [open]

When you are playing, how important are the following?						
	Not a priority (1)	Low priority (2)	Medium priority (3)	High priority (4)	Essential (5)	Not applicable to the games I play.
Quality of gameplay experience (I am having fun, I am immersed in the game world)						

Quality of gameplay experience for others (Other people are having fun)						
Outcomes of gameplay (winning/ beating the level/ completing a challenge)						
Individual improvement (doing better at something specific like KDA/ farm/ more damage dealt/ faster time)						
Improving my mood (venting, escaping everyday frustrations)						
Social relationships (getting to know someone better/ getting to hang out more)						

How much do you agree with each of the following?					
	Strongly Disagree (1)	Disagree (2)	Neutral(3)	Agree(4)	Strongly Agree(5)
I am able to fit in no matter what the social situation is					
I make friends easily					
I work well in a group					
When I'm upset, I feel guilty for feeling that way					
When I'm upset, I become embarrassed for feeling that way					
When I'm upset, I become irritated with myself for feeling that way.					
I know when I am getting angry					
I know by my body's reaction what emotions I am experiencing					
I can identify when my mood is changing					
I find it easy to try again when I fail					
When I'm upset, I have difficulty concentrating.					
When I'm upset, I have difficulty getting work done.					

When I'm upset, it takes me a long time to feel better					
When I'm upset, I believe that there is nothing I can do to make myself feel better					
When I'm upset, I know that i can find a way to eventually feel better					
I have difficulty making sense out of my feelings					
I have no idea how I am feeling					
I know exactly how i am feeling					
I calm myself down when I get angry					
I can control my anger					
I know how to deal with stress					
When I'm upset, I lose control over my behaviors					
When I'm upset, I have difficulty controlling my behaviors					
I experience my emotions as overwhelming and out of control					
When I see someone being treated unfairly I feel sympathy for them					
I feel sorry for people when they are having problems.					
It makes me sad to see someone left out in a group					
I tend to "ruminate" or dwell over things that happen to me for a really long time afterward.					
I don't waste time rethinking things that are over and done with.					
I often find myself reevaluating something I've done.					
My attitudes and feelings about things fascinate me.					
I love analyzing why I do things.					

People often say I'm a "deep", introspective type of person.					
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Think of the games you are playing now or have played often in the past. How often do the following things bother or frustrate you?						
	Never (1)	Rarely (2)	Someti mes (3)	Often (4)	Always (5)	Not applica ble to the games I play.
game lag/ ping issues						
game bugs (when the game doesn't function how it is intended)						
unfair matchmaking (when the people I am playing against are much better or much worse than me/ my team)						
game balance (when the game's design is unfair)						
my team doing poorly						
my team not communicating						
toxicity on my team						
despite my best efforts, the other team/ opponent just seems to be doing better (or the computer seems to be reading inputs rather than reacting)						
toxicity from the other team/ opponent (e.g. spamming, verbal toxicity)						
the other team/ opponent boasting or tryharding						
when I am underperforming / not doing as well as I know I could previously (by whatever metrics are available/ visible)						
when I am unable to help my gamemate(s) or team						

something happens outside of my expectations and ruins a plan I had						
repeated setbacks within a game/ match/ level						
losing a lot of progress, such as dying at the end of level or a saved game file						
losing multiple games in a row/ losing streaks						

If there are other things that trigger you, please indicate what they are and how often you get tilted by them. [open]

Think about when you are feeling tilted, frustrated, or upset by something in game. How often while playing do you engage in the following?						
	Never (1)	Rarely (2)	Someti mes (3)	Often (4)	Always (5)	Not applica ble to the games I play.
I control my emotions by changing the way I think about the situation I'm in.						
When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.						
When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.						
I look for something good in what is happening						
I try to see it in a different light, to make it seem more positive.						
I learn something from the experience						
I take additional action to try to get rid of the problem						
I concentrate my efforts on doing something about it						

I take direct action to get around the problem						
I try to come up with a strategy about what to do						
I make a plan of action						
I think about how I might best handle the problem						
I force myself to wait for the right time to do something						
I make sure not to make matters worse by acting too soon.						
I restrain myself from doing anything too quickly.						
I ask people who have had similar experiences what they did.						
I try to get advice from someone (friends, other players I know) about what to do.						
I talk to someone who could do something concrete about the problem.						
I talk to someone about how I feel						
I try to get emotional support from friends or relatives						
I get sympathy and understanding from someone.						
I seek divine help/ intervention.						
I try to find comfort in my religion.						
I pray more than usual						
I put aside other activities in order to concentrate on this.						
I focus on dealing with this problem, and if necessary let other things slide a little.						
I keep myself from getting distracted by other thoughts or activities.						
I learn to live with it						
I accept that this has happened and that it can't be changed.						

I accept the reality of the fact that it happened.						
I control my emotions by not expressing them.						
When I am feeling negative emotions, I make sure not to express them.						
I keep my emotions to myself.						
I refuse to believe that it has happened.						
I act as though it hasn't even happened.						
I tell myself "It's just a game".						
I just give up trying to reach my goal.						
I reduce the amount of effort I'm putting into solving the problem.						
I reduce the difficulty level.						
I daydream about other things to get my mind off of what is upsetting me.						
I play a different game or mode to get my mind off things						
I play the game/ level out but take a break afterwards and come back with a clearer mind.						
I get upset and let my emotions out.						
I feel a lot of emotional distress and I find myself expressing those feelings a lot.						
I yell or exclaim out loud but mute myself if on a voice call with other people						
I disconnect in the middle of the game.						
I rage quit.						
I quit without saving my progress, even if it sets me back/ consequences are worse later						
I troll (purposefully annoy) other players						
I abuse non-player characters (NPCs)						
I intentionally play poorly.						

I stay muted and don't talk to people.						
I stop communicating with my friends.						
I stop talking to any friends I'm on call with.						
I insult other players.						
I harass other players.						
I tease other players.						
I spam pings or emojis.						
I disrespect other people's avatars (e.g. teabag the body)						
I taunt or trash talk the other team						
I focus on how other people are contributing to the problem.						
I focus on how the design of the game contributes to the problem.						
I focus on how I am contributing or part of the problem.						
I throw something on my desk (e.g. controller, mouse, keyboard, pencils).						
I slam the desk or punch the air						
I yell at my gamemates or team						
I complain repeatedly, even long after I have stopped playing.						
I keep coming back to the things that make me upset.						
I continue to try the same strategies without looking up or seeking new ones.						
I make increasingly risky plays.						
I engage in higher risk- reward strategies more often than I normally would						
I play more recklessly.						

If there are other ways you respond to tilt, please indicate what they are and how often you respond this way? Other: [open]

How much do you agree with the following statements?					
	Strongly Disagree (1)	Disagree (2)	Neutral(3)	Agree(4)	Strongly Agree(5)
“What triggers me varies by the game I am playing.					
How I respond to managing tilt varies by who I am playing with or who is with me					
How I respond to managing tilt varies by why I am playing that day.					
I have been coached or mentored to manage or prevent tilt					

Have you had social supports in your gaming career that have helped you manage tilt or frustration in games? Check all that apply: [none (just myself), IRL friends, friends you met online, family, partners, strangers, streamers, social media, other (please indicate below what kind of support)]

Other support: [open]

Please enter your email to receive your \$10 survey gift card: (Emails will only be used to send gift cards and to reach out for the interview.) [open]

We would like to interview a subset of participants about their experience in games. Would you be willing to participate in a 45-60 minute online interview? Data will be tied to survey results, but all data will be de-identified. Interview participants will receive an additional \$20 Amazon gift card. Would you be open to being interviewed?

[No; Yes, I am open to being interviewed and having my interview audio recorded and transcribed; Yes, I am open to being interviewed BUT do NOT want my interview audio recorded.]

Appendix A2: Interview Protocol

NOTE FOR IRB REVIEWERS: Long interviews (McCracken, 1988) are one-on-one conversations that are guided by a guiding set of topics for discussion and a set of prompts to deepen and extend discussion on the points raised. The following protocol details both. Follow up questions may be asked related to the participants' responses and wording may be slightly different but will follow these topics. The interview should last 45-60 minutes.

Obtaining Consent

- Review Study Information Sheet
- Any questions about the Study Information Sheet?

Introduction

(read verbatim): Hello! My name is Hello Kitty and I'm a researcher at UCI. I am interviewing game players to get a better understanding of their experiences with tilt and how they deal with tilt in the various games they play. We want to know what kind of experiences you've had, with particular attention to who you play with and your motivations for playing. I'd like for this to be fairly conversational, so just feel free to talk and mention what you would like to and I'll ask follow up questions. Everything is just about your experience and your ideas, so no right or wrong answers, and nothing you say will be tied back to you. Everything is voluntary, and you are free to answer or not answer any questions and can end the interview at any time. The entire interview should take about 45 minutes to an hour and if you don't mind, we will be recording the interview audio and then transcribing it for analysis. Is this all okay?

- Confirm they are eligible:
- Obtain verbal consent to the interview.
- Obtain verbal consent to audio recording. If consent is not given, do not record.
 - *I'll start the recording now then.*

Prior Experiences

To start, I just want to get to know you and how you game a little bit. Tell me about yourself. What do you play?

- Name and Context of play
 - Game titles they play? [titles]
 - Single player title [SP]
 - Multiplayer title [MP], position
 - *Alright. Let's focus on [MP] and [SP] for today's conversation. If you think about something from another game you'd like to add though, please feel free to though.*
 - Do you play competitively/ not? Ranked? Challenges? [Competition/ stakes]
 - Why do you play these particular games? [Motivation to play]
 - What got you started/ What keeps you coming back?
 - Do you set particular goals before playing? (e.g. "Today I'm going to try to get X farm/ get to this location")
- More context
 - What do you play on? (e.g. console, PC, mobile)
 - When do you usually play? (e.g. After work, set days— pay attention to HOW they say this and what their mental organization is)
 - Alternative: Walk me through a typical week of gameplay: Who are you playing with, when, what are you playing?
 - Where do you usually play? (e.g. in my room/ in the living room, at school)
- *Just to make sure we're on the same page here, I've been defining tilt as "when a player has an emotional reaction, usually anger or frustration, that messes up gameplay and causes them to do worse, whether it's on purpose or not". Is this what you think of when you think of tilt? [definition]*
- What have your experiences with tilt been generally?
 - When I say tilt, what do you think of?
 - What does tilt look like for you?
 - When have you seen other players/ streamers being tilted?

- Can you describe a time where you were tilted when playing [MP]? [SP]? (Can use this as something to focus on)

Survey review:

I noticed in your survey you mentioned that you mostly get tilted by [Survey > trigger] and respond by [Survey> two most common responses].

- First, is there anything you'd like to add generally regarding your survey responses? [context]
- Can you explain ____ a bit more?
 - What does [particular response] look like for you?
 - (If they do admit to trolling or such behavior): Thank you for saying so, I know it can be hard to admit sometimes. What does this look like for you?
- Things to look for and ask for clarification on:
 - (If many different triggers):
 - What causes something to be more or less frustrating?
 - Does who you're around determine what's frustrating in a particular game?
 - In specifically [Single player/ Multiplayer] game, what are the most triggering things? Why?
 - (If many different responses):
 - What do you think makes you respond in these ways?
 - You mentioned in the survey going back to the game to rethink situations—do you go back after the game or just in the moment? rethinking?

Social Context

I'd like to spend some time on who you play with and some of the context around gameplay.

- In the survey you mentioned you usually play with [survey > social context].

- (If multiple groups:) Are these all together or different games? Tell me about who you usually play with, what you play, what each of those setups look like. (OR reference back to previous walkthrough of times)
- What do you talk about when gaming? I know there are times when the talk will focus on the game, but in the lulls, are you quiet or chatting about life?
- When you're around different groups, do you get tilted by different things? How does this differ?
 - Does how you respond change depending on who you're with? How so?
 - Have you ever seen someone who dealt with tilt really well? How about really poorly?
 - What made their response memorable for you?
- Did anyone coach or mentor you on how to respond to people online? [mentorship]
 - Where did you learn the responses you have?
 - Have you mentored others on how to respond to people online?
 - What did you focus on when mentoring others?
 - If you were to play with a younger friend or relative, what would you want to focus on, aside from how to play the game?
- Were there any rules or guidelines about gameplay or playing games that your parents had that you keep? [mentorship of self-regulation, specifically for time]
 - Why?/ Why not? What's changed?
 - How did your parents feel about gaming?
 - How did the rules in your home change as you got older?
 - Did these rules work for you? (Alternate lead into why they keep/ don't keep the rules.)
 - Do you talk with your parents about your gaming?
- Have you ever stopped playing a game altogether because you got too tilted?
 - Have you done so?
 - Did you return afterwards? After how long?

- If not, why not?
- What's your line? What caused/ would cause you to leave?
- Have you avoided playing a game because you heard that the community was particularly toxic (or a certain way that's triggering for them)
- Does how tilted you get playing a game affect how much you spend on it?
- Get titles and examples.

Comparison IRL

This moves away a bit from games, but do you ever feel like you get tilted IRL [in real life]?

- Do you ever feel like you get tilted IRL?
 - What gets you tilted IRL?
 - How do you react in the moment?
 - What do you do about it?
 - How do you feel about your reactions? Do they work for you?
- How do you normally deal with frustrating situations or people?
 - Any techniques that really work for you? (e.g. meditation, deep breathing, reassessing)
- (If different) What's different? Why do you [response] in game but [irl response] IRL?
- Do you find yourself using gaming language in real life?

Closure

- Anything else you want to add on to anything we've talked about? About tilt, who you play with, rules around playing just frustrations around games?
- Was there something you thought I would ask that I didn't?
 - Oh interesting! Let's talk about that a bit.
- Sounds good! If you come up with something, you've got my discord and email, please, feel free to send it to me!

- Before we end, can I just confirm a few demographic things?

/ End recording

Appendix A3: Institutional Review Board Approval



OFFICE OF RESEARCH INSTITUTIONAL REVIEW
BOARD

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February 19, 2025

CONSTANCE STEINKUEHLER SQUIRE
ICS/INFORMATICS

RE: UCI IRB #6185 Examining Tilt as Emotional Regulation for Gaming

The above-referenced human-subjects research project has been approved by the University of California, Irvine Institutional Review Board (UCI IRB). This approval is limited to the activities described in the approved protocol and extends to the performance of these activities at each respective site identified. In accordance with this approval, the specific conditions for the conduct of this research are listed below, and informed consent from subjects must be obtained unless otherwise indicated below. Additional conditions for the general conduct of human-subjects research are detailed on the attached sheet.

Approval by the Institutional Review Board does not, in and of itself, constitute approval for the implementation of this research. Other institutional clearances and approvals may be required. Research undertaken in conjunction with outside entities, such as drug or device companies, are typically contractual in nature and require an agreement between the University and the entity. Such agreements must be executed by an institutional official in Sponsored Projects, a division in the UCI Office of Research. The University is not obligated to legally defend or indemnify an employee who individually enters into these agreements and investigators are personally liable for contracts they sign. **Accordingly, the project should not begin until all required approvals have been obtained.**

Changes in approved research, during the period for which IRB approval has already been given, may not be initiated without IRB review and approval except where necessary to eliminate apparent immediate hazards to the human subjects [21 CFR Part 56.108 (a)(4), and if applicable 45 CFR 46.108 (a)(3)(iii)].

Questions concerning the approval of this research project may be directed to: University of California, Irvine, Office of Research, Irvine, CA 92697-7600; 949-824-8170.

Minimal Risk (Expedited) Review Category(ies): 6,7

Jessica Sheldon, CIP
Alternate Member, Institutional Review Board
Approval Issued: February 19, 2025
Expiration Date: February 18, 2028
UCI (FWA) 00004071, Approved: January 31, 2003

IRB Determinations as Conditions of Approval:

Informed Consent Determinations:

1. Waiver of Signed Consent Granted

a. Study Information Sheet Required for All Subjects

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APPROVAL CONDITIONS FOR ALL UCI HUMAN RESEARCH PROTOCOLS

POST-APPROVAL INVESTIGATOR RESPONSIBILITIES (PAIR):

In accordance with Federal regulations and HRP policies, there are Investigator responsibilities during the conduct, as well as after completion, of your research. Use the [PAIR Worksheet](#) to ensure adherence with your post-approval regulatory responsibilities.

UCI RESEARCH POLICIES:

All individuals engaged in human-subjects research are responsible for compliance with all applicable [UCI Research Policies](#). The Lead Researcher (and Faculty Sponsor, if applicable) of the study is ultimately responsible for assuring all study team members adhere to applicable policies for the conduct of human-subjects research.

LEAD RESEARCHER (LR) RECORDKEEPING RESPONSIBILITIES:

LRs are responsible for the retention of protocol-related records. For more information about the LR's recordkeeping responsibilities for the preparation and maintenance of research files, visit: [Post-Review Responsibilities](#).

APPROVED VERSIONS OF CONSENT DOCUMENTS, INCLUDING STUDY INFORMATION SHEETS: Unless a waiver of informed consent is granted by the IRB, the consent documents (consent form; study information sheet) with the UCI IRB approval stamp must be used for consenting all human subjects enrolled in this study. Only the current approved version of the consent documents may be used to consent subjects. **Approved consent documents are not to be used beyond the expiration date provided on the IRB approval letter.** IRB approved materials can be found in [Kuali Research Protocols \(KRP\)](#) in the attachments section.

PROTOCOL EXPIRATION:

The UCI IRB approval letter references the protocol expiration date under the IRB Chair's signature authorization. A courtesy email will be sent prior to expiration reminding the Lead Researcher to apply for renewal. **It is the LR's responsibility to apply for renewal to ensure continuous approval throughout the conduct of the study.** Lapses in approval must be avoided to protect the safety and welfare of enrolled subjects.

AMENDMENTS:

The UCI HRP does not require the submission of minor changes to exempt research. For

those studies in which a lead researcher (and faculty sponsor (FS), if applicable) has submitted to and received UCI IRB confirmation of exemption, minor changes may be made without notifying the UCI IRB. For more information about this including what constitutes a minor change versus a change that must be prospectively submitted for review and approval by the UCI IRB via a formal amendment, visit: [Post Review Responsibilities](#).

CHANGES IN FINANCIAL INTEREST:

Any changes in the financial relationship between the study sponsor and any of the investigators on the study and/or any new potential conflicts of interest must be reported immediately to the UCI Conflict of Interest Oversight Committee (COIOC). If these changes affect the conduct of the study or result in a change in the text of the approved informed consent document, these changes must also be reported to the UCI IRB via an amendment.

GRANT CONGRUENCE REVIEWS:

If this human subject research is funded or supported by a Federal Agency, it is the LR's responsibility to submit amendments, as necessary, to assure that the IRB protocol continues to be identical in principle and congruent with the scope of work outlined in the proposal application.

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REPORTING A PROBLEM:

In accordance with Federal regulations and HRP policies, only internal (where UCI serves as the IRB of record), Unanticipated Problems must be reported to the UCI IRB. Unanticipated Problems should also be reported to the UCI IRB when UCI is relying on an external IRB, and the incident occurred at UCI or the incident occurred at an offsite location on a study conducted by a UCI LR. Unanticipated Problems must be submitted to the IRB within 5 business days upon the LR's knowledge of the event. For more information, visit: [Post-Review Responsibilities](#).

POSTING OF THE INFORMED CONSENT DOCUMENT:

Clinical trials conducted or supported by a [Common Rule department or agency](#) initially approved by the IRB on or after January 21, 2019, must post one (1) IRB-approved clinical trial consent form at a publicly available federal website. The consent form must be posted after recruitment closes, and no later than 60 days after the last study visit. For additional guidance, refer to the [OHRP FAQs on Informed Consent](#).

CLOSING REPORT:

A closing report should be filed with the UCI IRB when the research concludes. For more information, visit: [Post-Review Responsibilities](#).

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Appendix B: Analyses

This appendix document comprises all quantitative analyses performed for the dissertation.

Central tendencies, correlation matrices and partial tables were calculated in Google Sheets. Statistical tests and follow-up t-tests were performed in R, and most charts were also made with R then edited. Bonferroni Family-Wise Error Rate (FWER) corrections were applied to each group of tests. Details and rationales are copied before each test.

In charts, Italics indicate non-significance.

Where not explicitly noted, a blank “What does this mean” cell indicated that the result was not significant; the differences in the Dependent Variable are not accounted by the Independent Variable

Takeaways are highlighted in yellow with interpretations or notes following charts.

Sample size: n= 165

P-value accepted: < 0.05

Overall Research questions

1. What are the primary triggers and responses to getting tilted among older adolescents?
How do they vary by demographics, gameplay habits, personality traits, game genre, motivations for playing, and social contexts of play?
2. What, if any, social contexts of play influence self-regulation in response to tilt in games?

RQ Reference

R Q	Question	Where I write about it	Data source/ tests used to answer	Short Answer
1	What are the primary gameplay habits of older adolescents?	4.1 Sample Descriptives	Central Tendencies of Gameplay Habits section	Older adolescents in this sample: - Play about 10-13 hrs/week. - Have been playing about 10 years. - Believe they are good at gaming and identify as a gamer. - Play ranked games "sometimes" and challenges "rarely"
TRIGGER, RESPONSE				
2	What are the primary tilt triggers and responses among older adolescents?			
2A	Are some tilt triggers more common than others?	4.2.1 Are some triggers more common than others?	Central Tendencies of Triggers	- All proposed triggers were considered "often" triggering. - loss category most consistently high. - game lag - team toxicity - self performance.
2B	Are some response strategies to tilt more common than	4.3.1 Are some responses	Central Tendencies of	Active (often) > Refrain > Disengage (sometimes) > Copium > Toxic (rarely) responses.

	others?	more common than others?	Responses	
EFFECTS ON TRIGGERS				
3 How do triggers for tilt vary?				
3A	Do triggers for tilt vary by age?	4.2.2 How Demographics and Gameplay affect Triggers	Spearman's rho correlation	no
3B	Do triggers for tilt vary by gender?	4.2.2 How Demographics and Gameplay affect Triggers	ANOVA	no
3C	Are some personality traits associated with greater frequency of being triggered for some situations than others?	4.2.3 How Personality affects Triggers	Pearson Product correlation matrix	- Greater emotional regulation tendency was associated with getting tilted less - Greater goal concentration was associated with getting tilted less by self and loss. - Greater impulsivity was associated with getting tilted more by game and self.
3D	Do triggers for tilt vary by the amount of	4.2.2 How Demographic	Spearman's rho	no

	gameplay?	hics and Gameplay affect Triggers	correlation	
3E	Do triggers for tilt vary by the length of experience of gameplay?	4.2.2 How Demograp hics and Gameplay affect Triggers	Pearson Product correlation	Longer length of experience was associated with being triggered more by opponents.
3F	Do triggers for tilt vary by genre of game?	4.2.4 How Genre affects Triggers	Kruskal Wallis	- Playing Shooters more often was associated with getting tilted by the team more.
3G	Do triggers for tilt vary by social context of play?	4.2.4 How Genre affects Triggers 5.1.3 The role of Social Context in Tilt	Kruskal Wallis, Interview	no, although according to interviewees social context made gameplaying more lighthearted overall and made communication easier.
3H	Do triggers for tilt vary by motivation for play?	4.2.5 How Motivation affects Triggers	ANOVA	- Outcome motivation was associated with getting tilted by game . - Improvement motivation was associated with getting tilted by self

EFFECTS ON RESPONSES				
4	How do responses to tilt vary?			
4A	Do responses to tilt vary by age?	4.3.2 How Demographics and Gameplay affect Responses	Spearman's rho correlation	no
4B	Do responses to tilt vary by gender?	4.3.2 How Demographics and Gameplay affect Responses	ANOVA	Men more often than women responded by rage quitting, trolling, verbal toxicity, and behavioral toxicity.
4C	Are some personality traits associated with greater frequency of use for some responses than others?	4.3.3 How Personality affects Responses	Pearson Product correlation matrix	- Greater emotional regulation was associated with more reappraisal and planning and less venting and stop communicating. - Greater impulsivity was associated with more venting, aggression, stop communicating and ruminating. - Greater empathy was associated with less rage quitting, trolling, verbal toxicity, and behavioral toxicity.
4D	Do responses to tilt vary by the amount of gameplay?	4.3.2 How Demographics and	Spearman's rho correlation	Playing more per week was associated with less behavioral disengagement

		Gameplay affect Responses		
4E	Do responses to tilt vary by the length of experience of gameplay?	4.3.2 How Demographics and Gameplay affect Responses	Pearson Product correlation	no
4F	Do responses to tilt vary by genre of game?	4.3.2 How Demographics and Gameplay affect Responses	Kruskal Wallis	no
4G	Do responses to tilt vary by social context of play?	4.3.2 How Demographics and Gameplay affect Responses 5.1.3 The role of Social Context in Tilt	Kruskal Wallis, Interview	no, although according to interviewees playing with friends encouraged them to be more animated in order to communicate emotions or entertain others. Close groups sometimes had coregulation strategies.

4H	Do responses for tilt vary by motivation for play?	4.3.4 How Motivation affects Responses	ANOVA	- Improvement motivation was associated with greater disengagement and toxicity. - Outcome motivation was associated with greater disengagement and copium. - Social motivation was associated with greater toxicity.
TRIGGER- RESPONSE RELATIONSHIP				
5	How do different triggers relate to different responses?	4.4.1 Do different triggers to tilt correlate with different responses ?	Pearson Product correlation matrix	Even though active and refrain responses were more common overall, tilt triggers were associated with disengage, toxic, and copium responses. - Game trigger was associated with toxic, copium, and disengage responses. - Team trigger was associated with toxic, copium, and disengage responses (primarily stop communicating in disengage) - Opponent trigger was similar to team, just less strong (and a greater focus on venting or mental disengagement) - Self triggers were associated with toxic and disengage responses, particularly venting and rumination. - Loss was associated with copium responses.
5A	Are trigger and response relationships mediated by	4.4.2 How gameplay habits affect the	Partial correlation matrices, divided by	- Low or medium amount of gameplay (<10 hrs/wk) were more likely to use active responses regarding team triggers. - Low length of experience (< 5 yrs) was less

	gameplay habits?	trigger-resp onse relationship	levels of Amount of Gameplay, Length of Gameplay, and Stakes of Play	likely than higher experience levels to use copium responses.
5B	Are trigger and response relationships mediated by genre of game?	4.4.3 How genre of game affects the trigger-resp onse relationship	Partial correlation matrix, divided by Genre	- Shooter genre suppressed team and self triggers. - All triggers categories in aRPG, RPG, and some triggers in party and sandbox games were associated with amplified toxicity responses. Simulation games slightly suppressed these relationships. I was uncertain about the interpretation of these partial tables.
5C	Are trigger and response relationships mediated by social context?	4.4.4 How social context affects the trigger-resp onse relationship	Partial correlation matrix, divided by Social Context	- playing Alone amplified disengage responses. - playing with Online friends suppressed team-trigger relationships
5D	Are trigger and response relationships mediated by	4.4.5 How motivation affects the trigger-resp	Partial correlation matrix, divided by	-Prioritizing the improvement motivation suppressed toxic, copium, and disengage responses due to opponent and self triggers.

	motivations for playing?	onse relationship	Motivations	
	IRL			
6	How do players view managing tilt in game as related to managing stress or frustration in real life?			
6A	How, if applicable, do players compare in-game tilt to real-life frustration?	4.5 In-game tilt compared to real-life frustration	Interview response to "Do you ever feel like you get tilted IRL?"	About half of participants thought that tilt made a good analogue for real-life frustration. Those that did not usually understood the metaphor but thought real-life frustration was more serious and gaming language was more funny or awkward.
6B	How have mentorship experiences, for those who have had them, affect players responses to tilt?	4.5.1 How mentorship experiences affect experience of tilt	Mentorship exp influence in Interviews	Therapy experiences helped participants recognize and shift their motivations for playing.

Variable References

Personality variables

Likert 1-5 agreement

variable name	item	brief description of variable
social competence	I am able to fit in no matter what the social situation is	tendency to fit in and work well in a group
	I make friends easily	
	I work well in a group	
nonacceptance	When I'm upset, I feel guilty for feeling that way	tendency to feel ashamed or guilty about one's emotions.
	When I'm upset, I become embarrassed for feeling that way	
	When I'm upset, I become irritated with myself for feeling that way.	
emotional awareness	I know when I am getting angry	tendency to be aware of one's emotions
	I know by my body's reaction what emotions I am experiencing	
	I can identify when my mood is changing	
goal concentration	I find it easy to try again when I fail	tendency to be able to concentrate when upset
	When I'm upset, I have difficulty concentrating.	
	When I'm upset, I have difficulty getting work done.	
recovery	When I'm upset, it takes me a long time to feel better	ability to quickly recover emotional equilibrium after feeling upset
	When I'm upset, I believe that there is nothing I can do to make myself feel better	
	When I'm upset, I know that i can find a way to eventually feel better	
clarity	I have difficulty making sense out of my feelings	ability to clearly express feelings
	I have no idea how I am feeling	
	I know exactly how i am feeling	
emotional regulation tendency	I calm myself down when I get angry	tendency to and ability to control and calm down when upset
	I can control my anger	
	I know how to deal with stress	
impulsivity	When I'm upset, I lose control over my behaviors	tendency to lose control when emotional
	When I'm upset, I have difficulty controlling my behaviors	
	I experience my emotions as overwhelming and out of control	

empathy	When I see someone being treated unfairly I feel sympathy for them	tendency to feel upset when others are mistreated
	I feel sorry for people when they are having problems.	
	It makes me sad to see someone left out in a group	
rumination tendency	I tend to "ruminate" or dwell over things that happen to me for a really long time afterward.	tendency to dwell on things and overthink things
	I don't waste time rethinking things that are over and done with.	
	I often find myself reevaluating something I've done.	
reflection	My attitudes and feelings about things fascinate me.	tendency to self-analyze
	I love analyzing why I do things.	
	People often say I'm a "deep", introspective type of person.	

Trigger variables

category name	variable name	item	brief description of variable
GAME	game lag	game lag/ ping issues	Triggers due to the game not behaving as it is supposed to (or being unfair by design).
	game malfunction	game bugs (when the game doesn't function how it is intended)	
	game matching system	unfair matchmaking (when the people I am playing against are much better or much worse than me/ my team)	
	game balance	game balance (when the game's design is unfair)	
TEAM	team performance	my team doing poorly	Triggers due to teammates
	team communication	my team not communicating	
	team toxicity	toxicity on my team	
OPPO NENT	opponent performance	despite my best efforts, the other team/ opponent just seems to be doing better (or the computer seems to be reading inputs rather than reacting)	Triggers due to opponents
	opponent toxicity	toxicity from the other team/ opponent (e.g. spamming, verbal toxicity)	
	opponent swagger	the other team/ opponent boasting or tryharding	

SELF	self performance	when I am underperforming / not doing as well as I know I could previously (by whatever metrics are available/ visible)	Triggers due to the player's own mistakes
	self contribution	when I am unable to help my gamemate(s) or team	
	self expectation ruined	something happens outside of my expectations and ruins a plan I had	
LOSS	setbacks	repeated setbacks within a game/ match/ level	Triggers due to losing games or losing progress
	lost progress	losing a lot of progress, such as dying at the end of level or a saved game file	
	loss streakiness	losing multiple games in a row/ losing streaks	

Response variables

category name	variable name	item	brief description of variable
TOXIC	venting	I get upset and let my emotions out.	Responding by expressing emotions/ venting aloud.
		I feel a lot of emotional distress and I find myself expressing those feelings a lot.	
		I yell or exclaim out loud but mute myself if on a voice call with other people	
	trolling	I troll (purposefully annoy) other players	Responding by intentionally playing poorly
		I abuse non-player characters (NPCs)	
		I intentionally play poorly.	
	aggression	I throw something on my desk (e.g. controller, mouse, keyboard, pencils).	Responding physically by
		I slam the desk or punch the air	
		I yell at my gamemates or team	
	verbal toxicity	I insult other players.	Responding by insulting others
		I harass other players.	
		I tease other players.	
	behavioral toxicity	I spam pings or emojis.	Responding with in-game demonstrations of poor sportsmanship
		I disrespect other people's avatars (e.g. teabag the body)	
		I taunt or trash talk the other team	

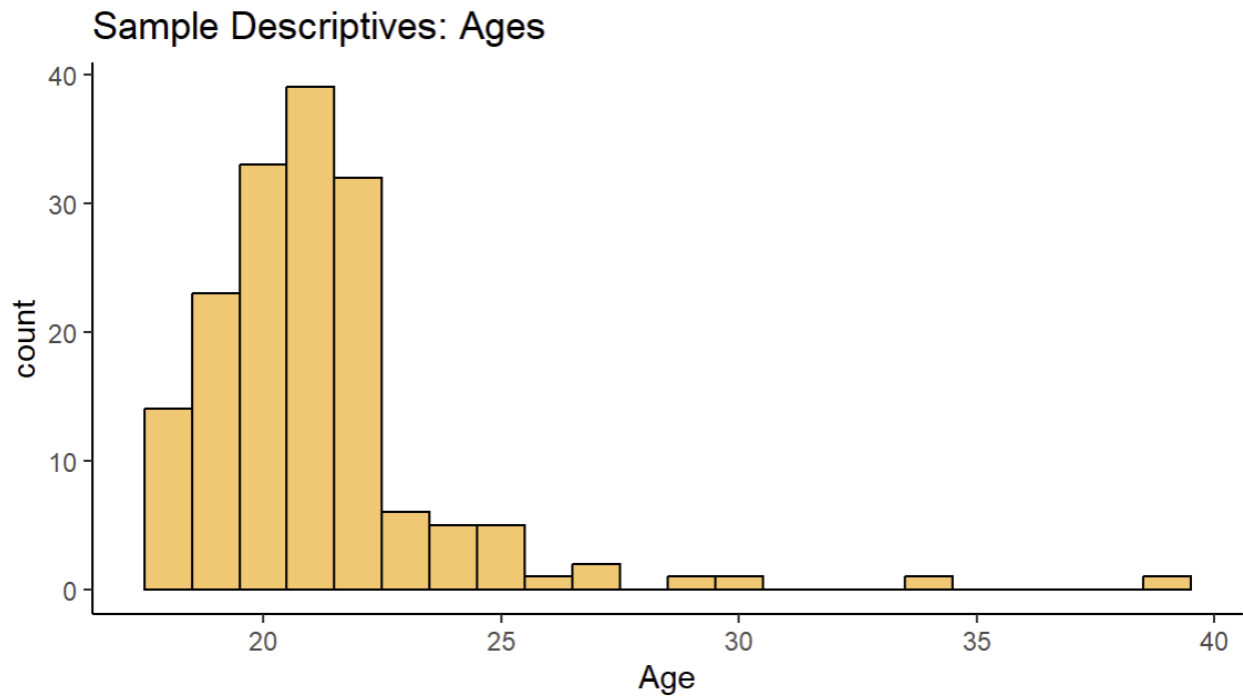
COPIUM	denial	I refuse to believe that it has happened.	Denying the reality of the situation
		I act as though it hasn't even happened.	
		I tell myself "It's just a game".	
	blaming	I focus on how other people are contributing to the problem.	Responding by finding someone or something to blame.
		I focus on how the design of the game contributes to the problem.	
		I focus on how I am contributing or part of the problem.	
	rumination response	I complain repeatedly, even long after I have stopped playing.	Repeatedly coming back to solutions or complaints
		I keep coming back to the things that make me upset.	
		I continue to try the same strategies without looking up or seeking new ones.	
	risk taking	I make increasingly risky plays.	Taking more risky behaviors.
		I engage in higher risk- reward strategies more often than I normally would	
		I play more recklessly.	
DISENGAGE	behavioral disengagement	I just give up trying to reach my goal.	Responding by reducing the difficulty or amount of effort put into a goal
		I reduce the amount of effort I'm putting into solving the problem.	
		I reduce the difficulty level.	
	mental disengagement	I daydream about other things to get my mind off of what is upsetting me.	Responding by focusing on other things.
		I play a different game or mode to get my mind off things	
		I play the game/ level out but take a break afterwards and come back with a clearer mind.	
	rage quitting	I disconnect in the middle of the game.	Disconnecting in the middle of a game (often angrily).
		I rage quit.	
		I quit without saving my progress, even if it sets me back/ consequences are worse later	
	stop communicating	I stay muted and don't talk to people.	Muting and not talking as much.
		I stop communicating with my friends.	
		I stop talking to any friends I'm on call with.	
REFRAIN	reappraising	I control my emotions by changing the way I think about the situation I'm in.	Changing the way they looking at something
		When I want to feel less negative emotion (such as	

		sadness or anger), I change what I'm thinking about.	
		When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.	
	positive reinterpretation and growth	I look for something good in what is happening	Looking for something good in the face of frustration
		I try to see it in a different light, to make it seem more positive.	
		I learn something from the experience	
	restraint coping	I force myself to wait for the right time to do something	Waiting before acting
		I make sure not to make matters worse by acting too soon.	
		I restrain myself from doing anything too quickly.	
	acceptance	I learn to live with it	Accepting the situation
		I accept that this has happened and that it can't be changed.	
		I accept the reality of the fact that it happened.	
	suppression	I control my emotions by not expressing them.	Not expressing negative emotions
		When I am feeling negative emotions, I make sure not to express them.	
		I keep my emotions to myself.	
ACTIVE	active coping	I take additional action to try to get rid of the problem	Doing something to address the problem directly
		I concentrate my efforts on doing something about it	
		I take direct action to get around the problem	
	planning	I try to come up with a strategy about what to do	Planning a way to solve the problem.
		I make a plan of action	
		I think about how I might best handle the problem	
	instrumental support	I ask people who have had similar experiences what they did.	Looking for advice to solve a problem.
		I try to get advice from someone (friends, other players I know) about what to do.	
		I talk to someone who could do something concrete about the problem.	
	emotional support	I talk to someone about how I feel	Looking for sympathy and emotional support
		I try to get emotional support from friends or relatives	
		I get sympathy and understanding from someone.	
	concentrating	I put aside other activities in order to concentrate on this.	Putting distractions aside to be able to concentrate.

(removed from analyses)	religion	I focus on dealing with this problem, and if necessary let other things slide a little.	
		I keep myself from getting distracted by other thoughts or activities.	
		I seek divine help/ intervention.	Seeking support through religion
		I try to find comfort in my religion.	
		I pray more than usual	

2. Sample Descriptives (Demographics + Personality)

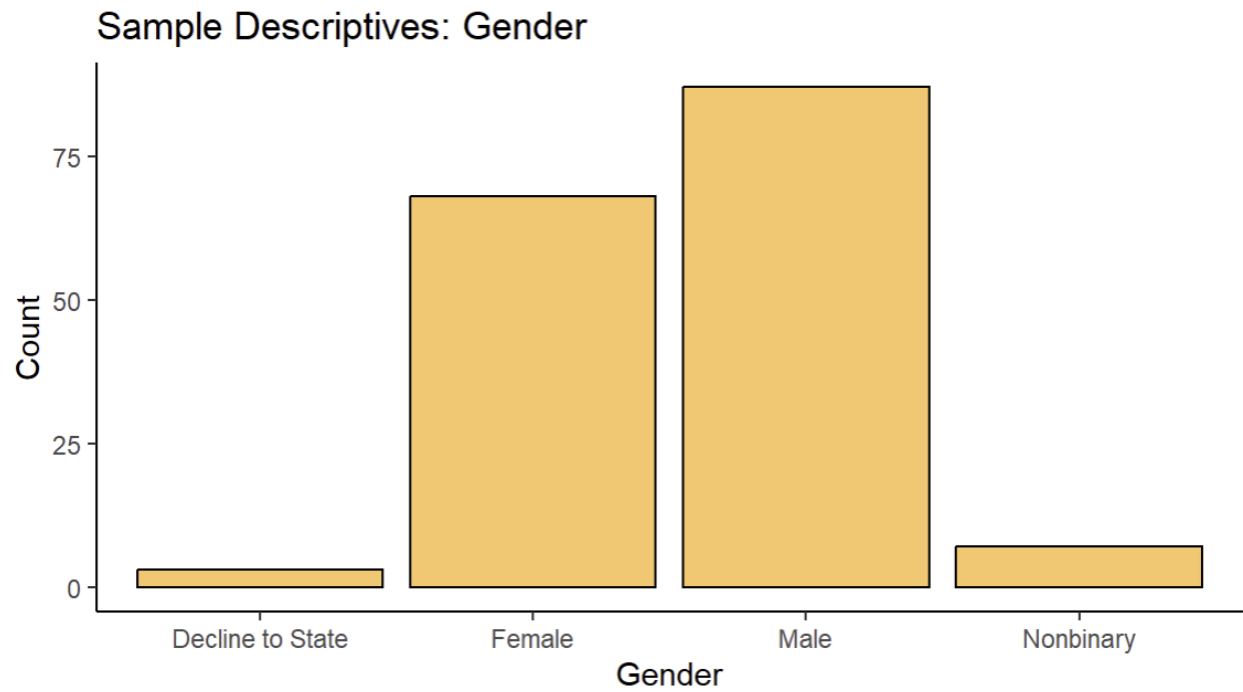
Age (age, INT)



Mean: 21.14 | Stdev: 2.67

Most of the sample was between 18 - 22, but there were 7 older than 25.

Gender (gend, NOM)

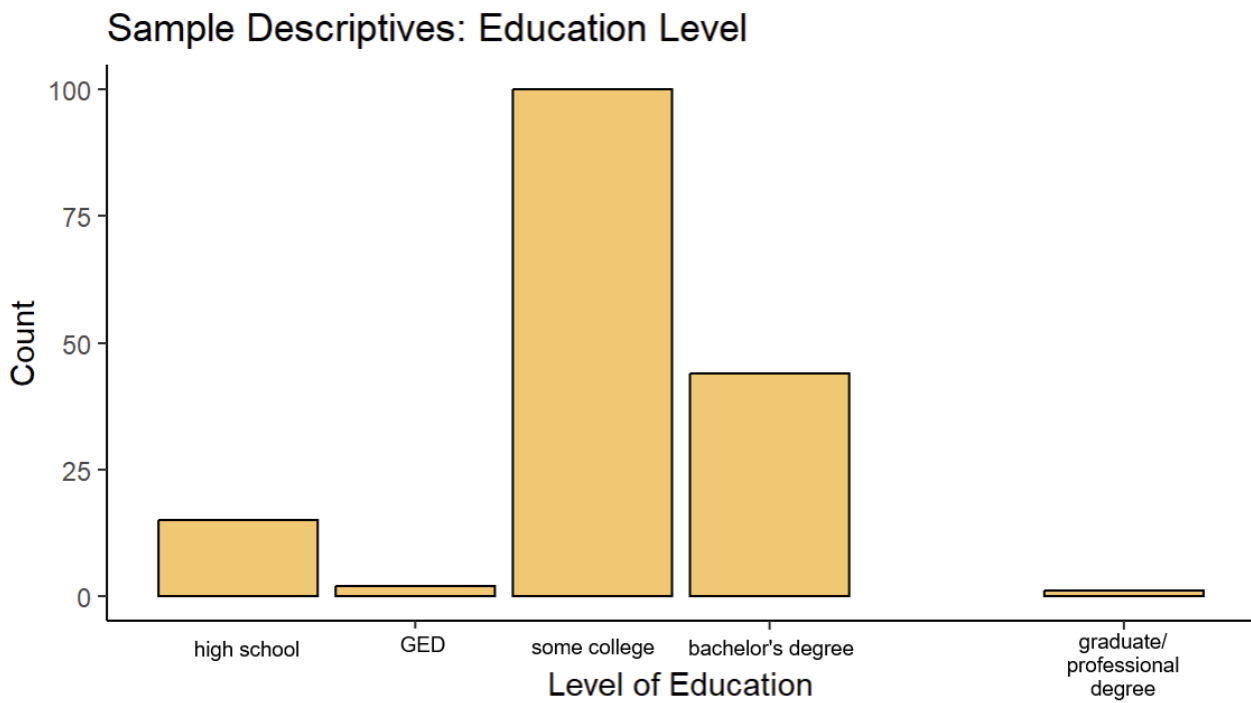


decline	female	male	enby
3	68	87	7
2%	41%	53%	4%

The sample is about 41% female, 53% male, and 7% nonbinary.

Not overwhelmingly male, but still a majority.

Education (educ, ORD)

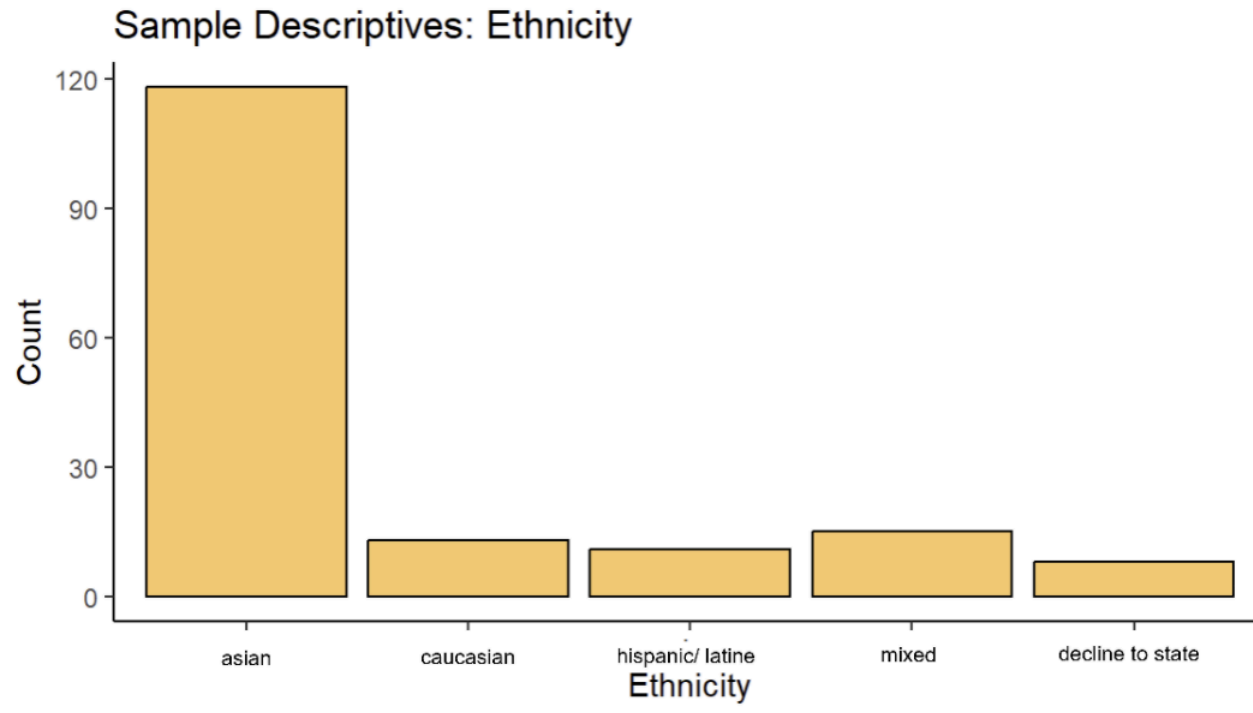


Median: 3 | IQR: 1

Decline to state	High school or GED	Some college	Bachelor's	Graduate+
3	17	100	44	1
2%	10%	61%	27%	<1%

Most of the sample was in their undergraduate studies

Ethnicity (eth_, NOM)



This graph groups all mixed-ethnicity participants in one category, as it is done for analyses. The two native american students were already included in mixed, but the three black students were grouped with decline to state. Note that 13/15 (87%) of the mixed students were half-white/caucasian.

asian	caucasian	hispanic/ latine	black	native american	decline	mixed (more than one)
126	26	18	3	2	5	-15

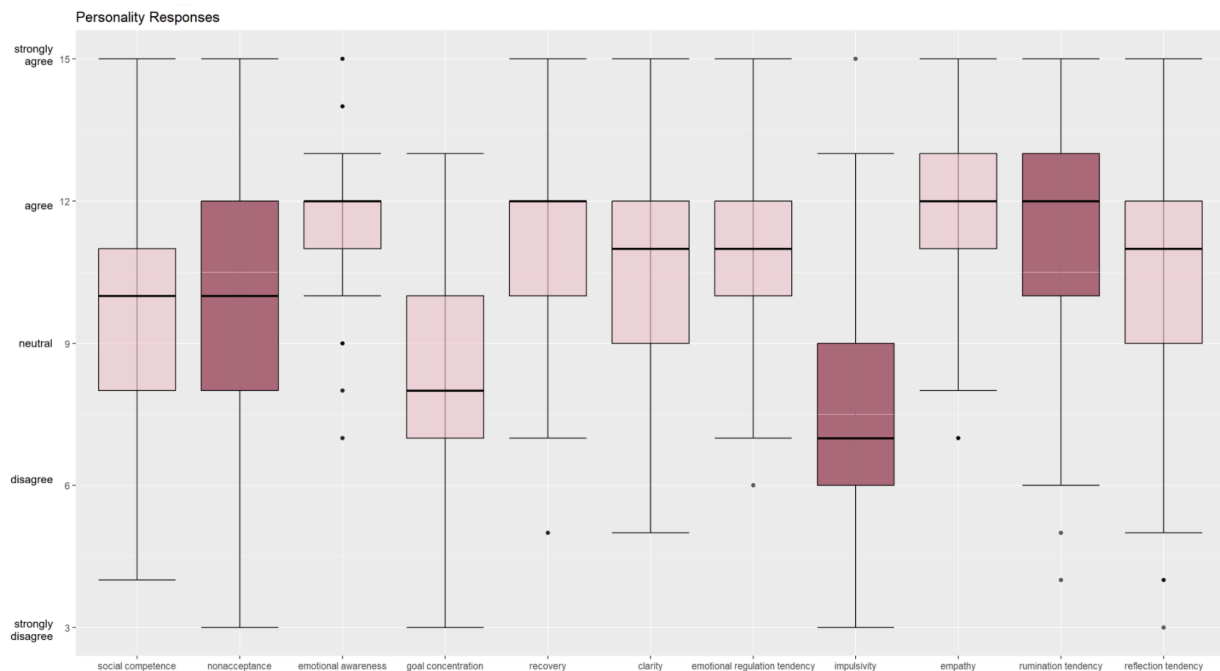
The sample is overwhelmingly asian.

“Asian” isn’t a particularly descriptive category, as there is no distinguishing between even south and east asian. This is also not surprising given the study was conducted primarily through UCI and Irvine is 45% Asian ([U.S. Census Bureau. 2023](#)), but the sample is still overwhelmingly Asian.

Personality (P1 - P11, INT)

For interval, this frequency chart was done with the following boundaries: strongly disagree = 3 < disagree ≤ 6 < neutral ≤ 9 < agree ≤ 12 < strongly agree.

For interpreting personality: 15 = strongly agree | 12 = agree | 9 = neutral | 6 = disagree | 3 = strongly disagree.



Variable	Variable name	mean	stdev
social competence	P1_0	9.81	2.39
nonacceptance *	P2_0	9.75	2.56
emotional awareness	P3_0	11.61	1.44
goal concentration	P4_0	8.16	2.17
recovery	P5_0	11.13	2.07
clarity	P6_0	10.66	2.25
emotional regulation	P7_0	11.09	1.88
impulsivity *	P8_0	7.38	2.41
empathy	P9_0	11.96	1.80
rumination tendency*	P10_0	11.38	2.36

reflection	P11_0	10.44	2.43
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* marked variables are hypothesized to be detrimental to self-regulation

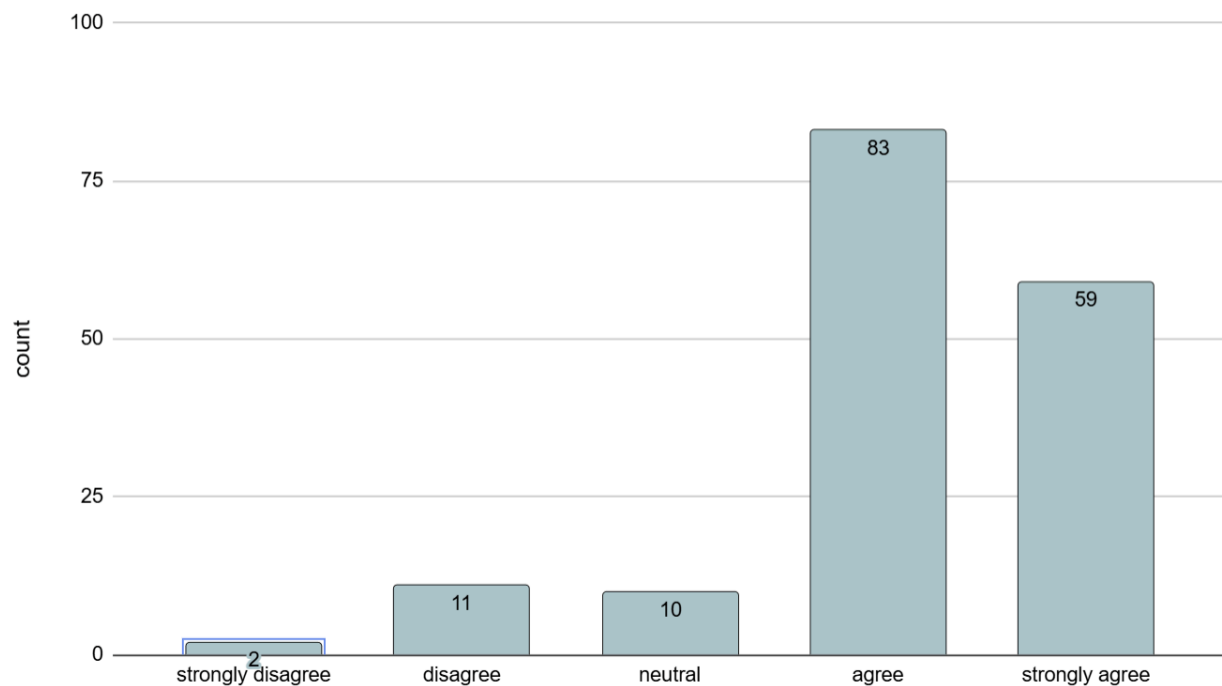
Overall, participants were between neutral and agreement on all the personality metrics. In particular, participants scored themselves as aware of their emotions and empathetic towards others' emotions. They portrayed themselves as nonimpulsive, but prone to ruminate about their mistakes. Finally, participants indicated they were better at recovering after suffering a setback than they were at keeping from getting distracted from a goal in the first place (neutral-disagree on goal concentration but agree on recovery).

BELIEF

Belief in Variability by Game (B1, ORD)

"What triggers me varies by the game I am playing."

Belief: Social Context Variability



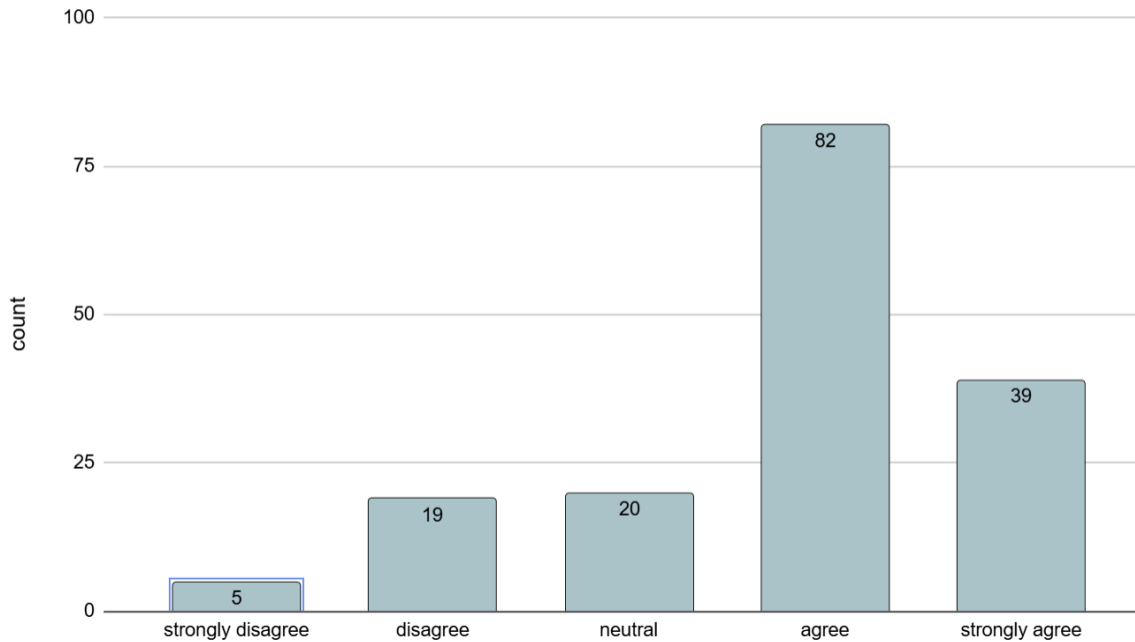
Median: 4 | IQR: 1

Most participants strongly agreed that what they got tilted by changed depending on what game they were playing.

Belief in Variability by Social Context (B2, ORD)

“How I respond to managing tilt varies by who I am playing with or who is with me.”

Belief: Social Context Variability



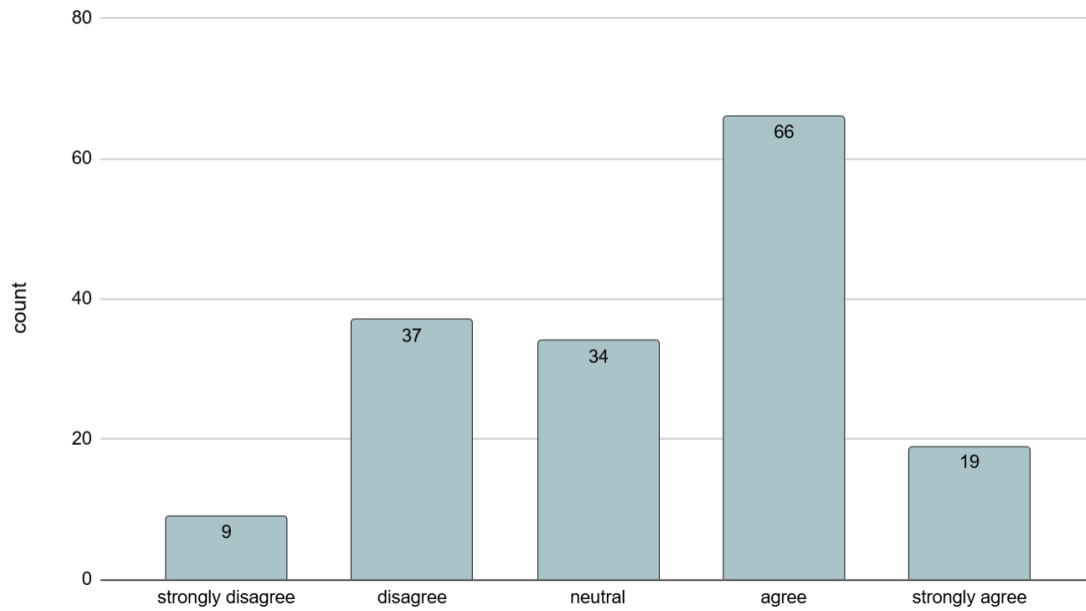
Median: 4 | IQR: 1

Most participants agreed that how they responded to tilt changed depending on who they were playing with.

Belief in Variability by Motivation of Day (B3, ORD)

“How I respond to managing tilt varies by why I am playing that day.”

Belief: Motivation Variability



Median: 4 | IQR: 2

While most participants agreed that how they responded to tilt changed by why they were playing that day, this was more varied than the other beliefs.

Mentorship Experience (B4, NOM)

I have been coached or mentored to manage or prevent tilt.

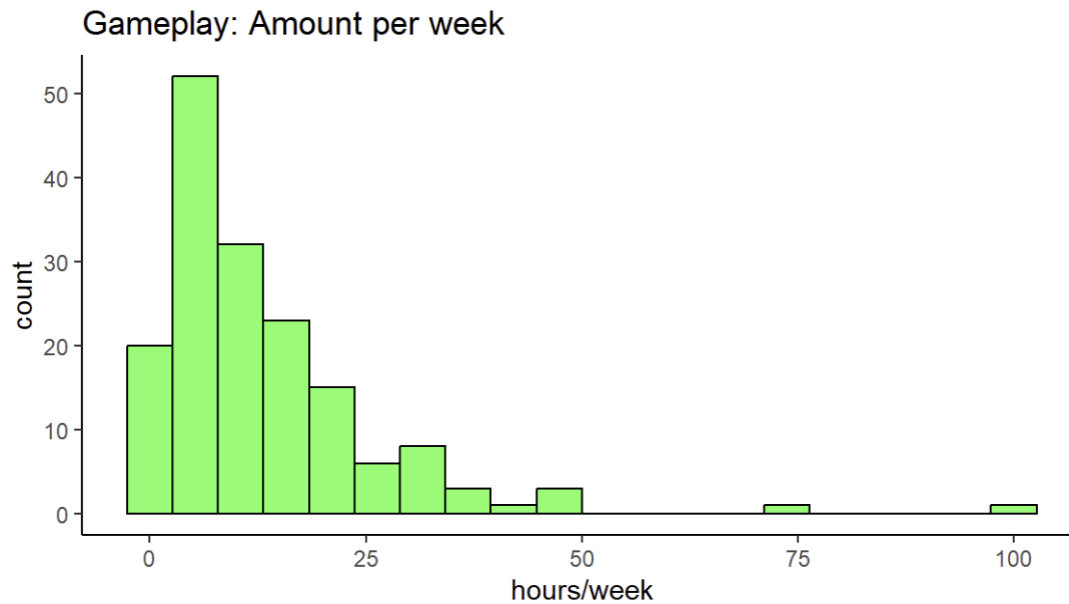
strong disagree	disagree	neutral	agree	strongly agree
105	31	19	8	2

Mentor experience	B4	Yes mentor (Agree): 10	No mentor (Neutral/ Disagree): 155
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Most students had not had any coaching experience.

GAMEPLAY DESCRIPTIVES

Amount (hours/ week) (G_hrs, INT)



Mean: 12.81 | Stdev: 13.04

Participants played games for about 10-13 hours per week.

From qualitative work, this is mostly in the evening or weekends/ breaks during school quarter.

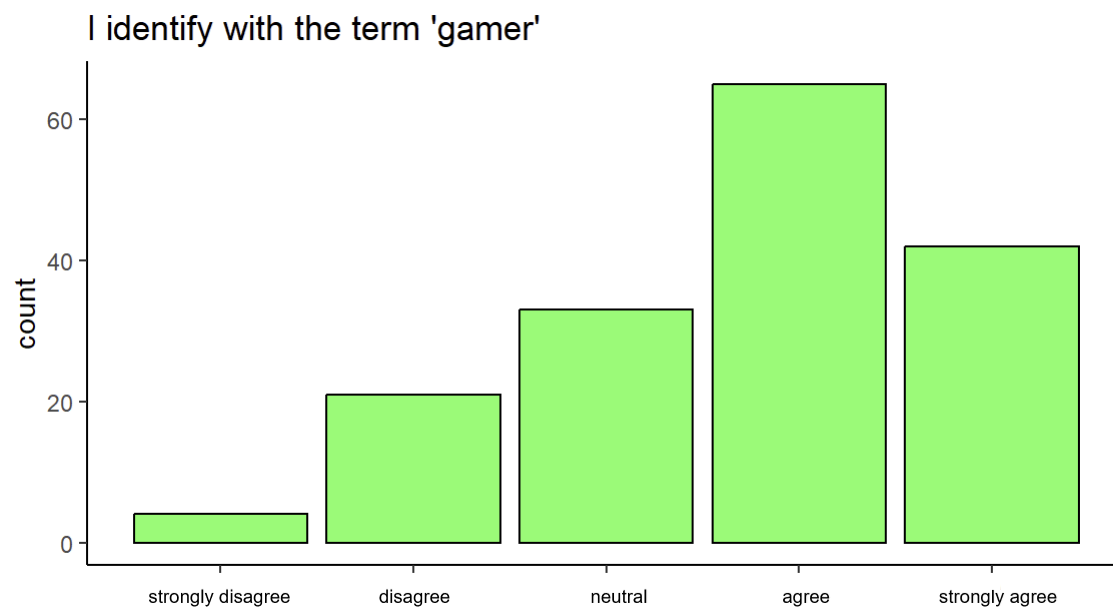
Length (years) (G_yrs, INT)



Mean: 10.27 | Stdev: 4.58

Participants had been playing for about 10 years.

Gamer Identity (G_gmr, ORD)



Median: 4 | IQR: 2

Most players identified with the term “gamer”.

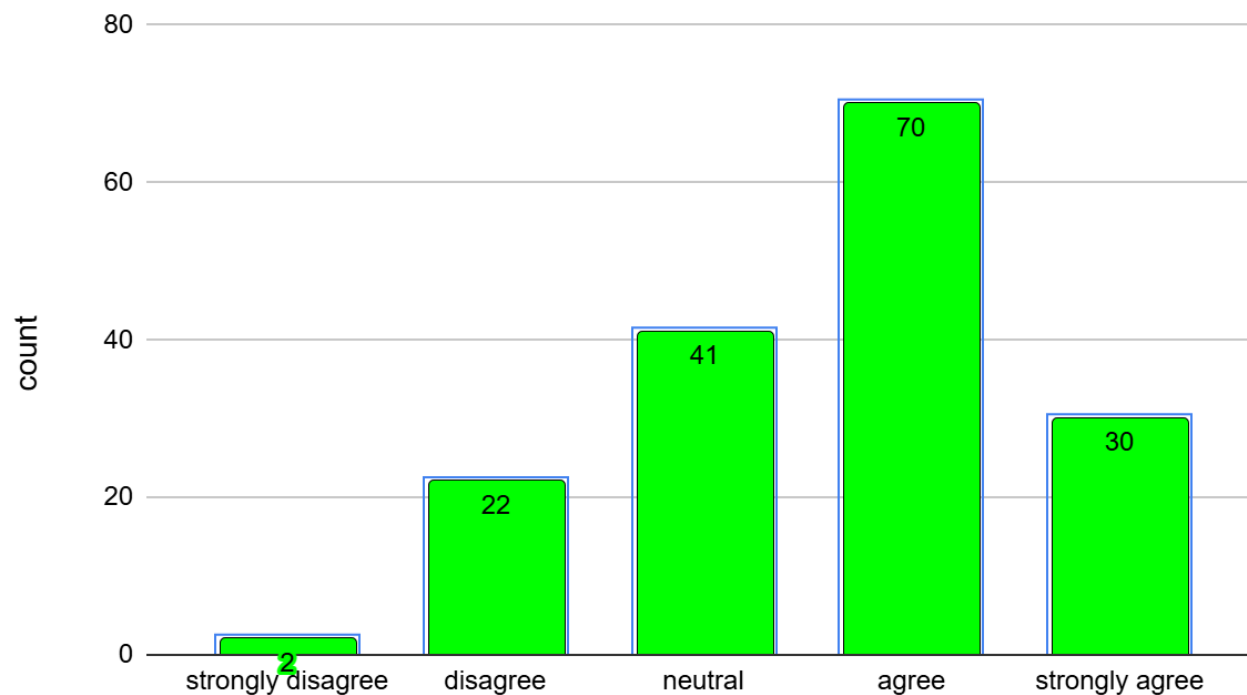
Perceived Skill (G_exp, INT)

This is a composite (sum) of perception of being good (G_gud, ORD) and perceived skill (G_skl, ORD)

“I am good at playing videogames” and “I am skilled at the games I play”

For interval, this frequency chart was done with the following boundaries: strongly disagree $\leq 2 <$ disagree $\leq 4 <$ neutral $\leq 6 <$ agree $\leq 8 <$ strongly agree.

Perceived Experience



112/165 (68%) of participants had the same value for both games in general and their games in particular.

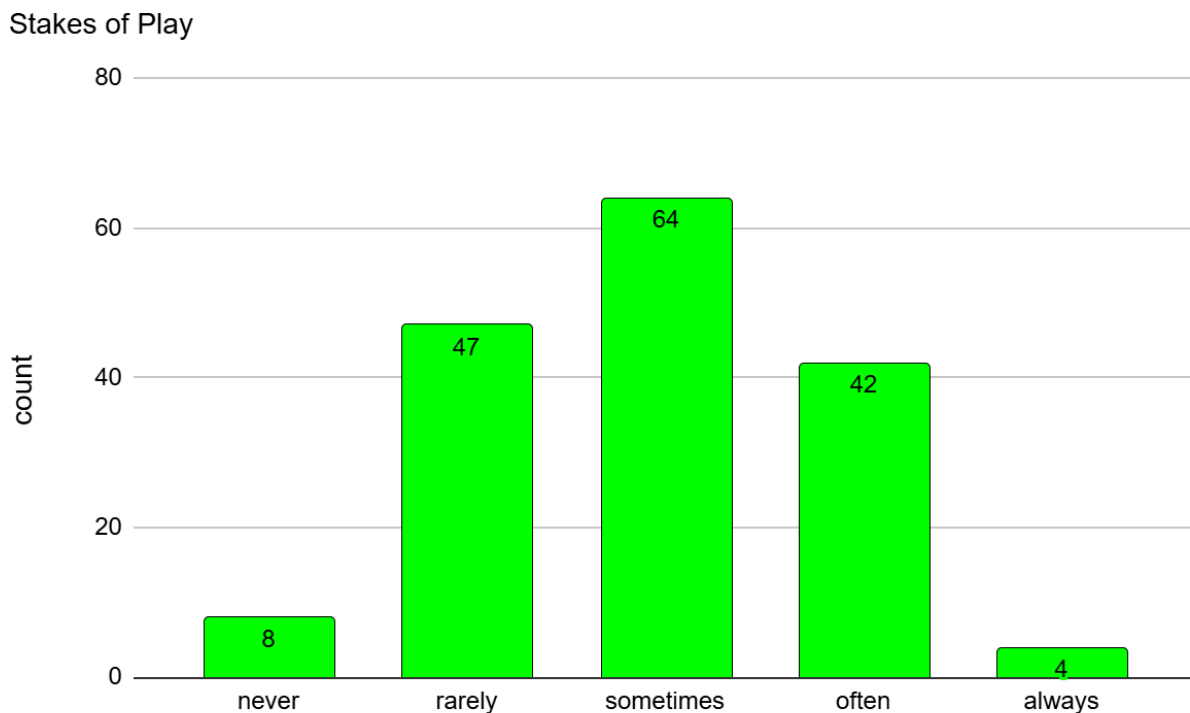
Mean: 6.98 | Stdev: 1.87

Most participants agreed they were good at the games they played or games in general.

Stakes of Play (G_stk, INT)

This is a composite (sum) of how often they play ranked games (G_rk, ORD) and challenges (G_ch, ORD), which were construed as the multiplayer and singleplayer versions, respectively, of stakes in gameplay.

For interval, this frequency chart was done with the following boundaries: never ≤ 2 < rarely ≤ 4 < sometimes ≤ 6 < often ≤ 8 < always



Mean: 5.33 | Stdev: 1.74

Participants sometimes played ranked competitive/ challenge modes, and more often it was ranked competitive settings.

Note more people played ranked (MP; $98/165 = 59\%$) more often than challenge modes (SP, $28/165 = 17\%$). This leaves $39/165$ (24%) that said the same for both. Because the aggregated G_stk ended up removing these distinctions, G_rk and G_ch were used separately for the remainder of the analyses.

Correlating ranked (G_rk) and challenge (G_ch) to genres indicated that for the most part “ranked” correlated stronger with competitive, multiplayer genres, while “challenge” correlated stronger with single player games or more casual and exploratory multiplayer games (party,

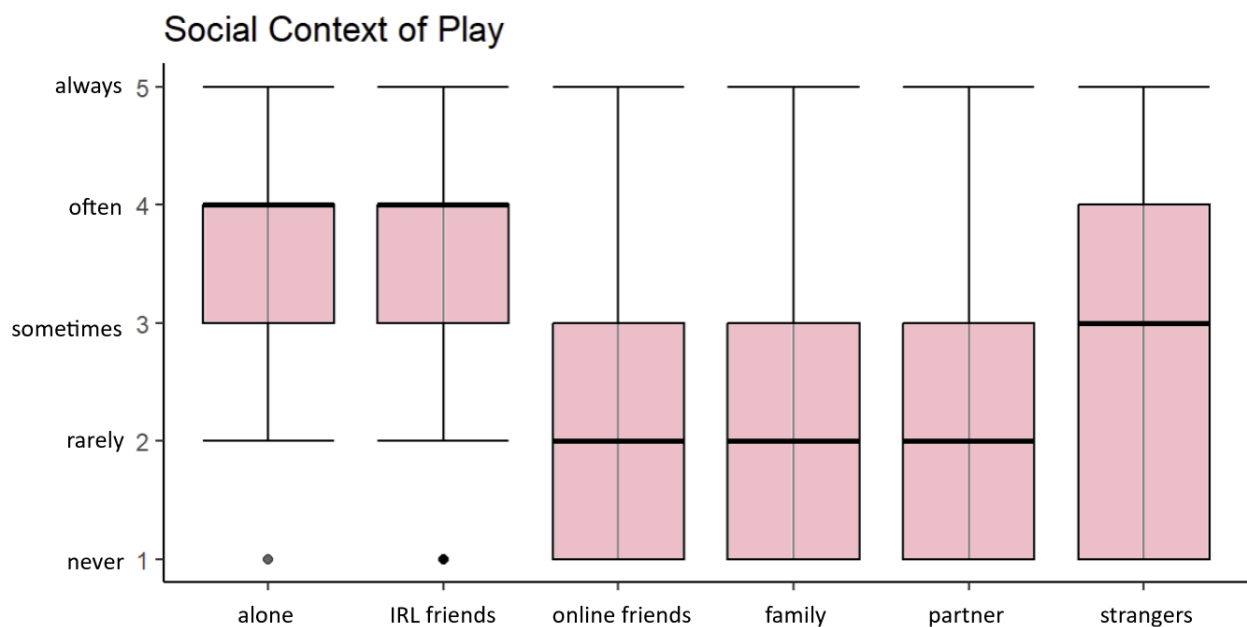
sandbox). This is still a major oversimplification though, because many games offer both single and multiplayer modes.

Within people who were playing as SP, there were also people who played ranked, (and the other way around), indicating these were capturing slightly different forms of play.

Social Context (C1 - C6, ORD)

“When you play videogames, how often do you play with the following?”

Where 5 = Always | 4 = Often | 3 = Sometimes | 2 = Rarely | 1 = Never

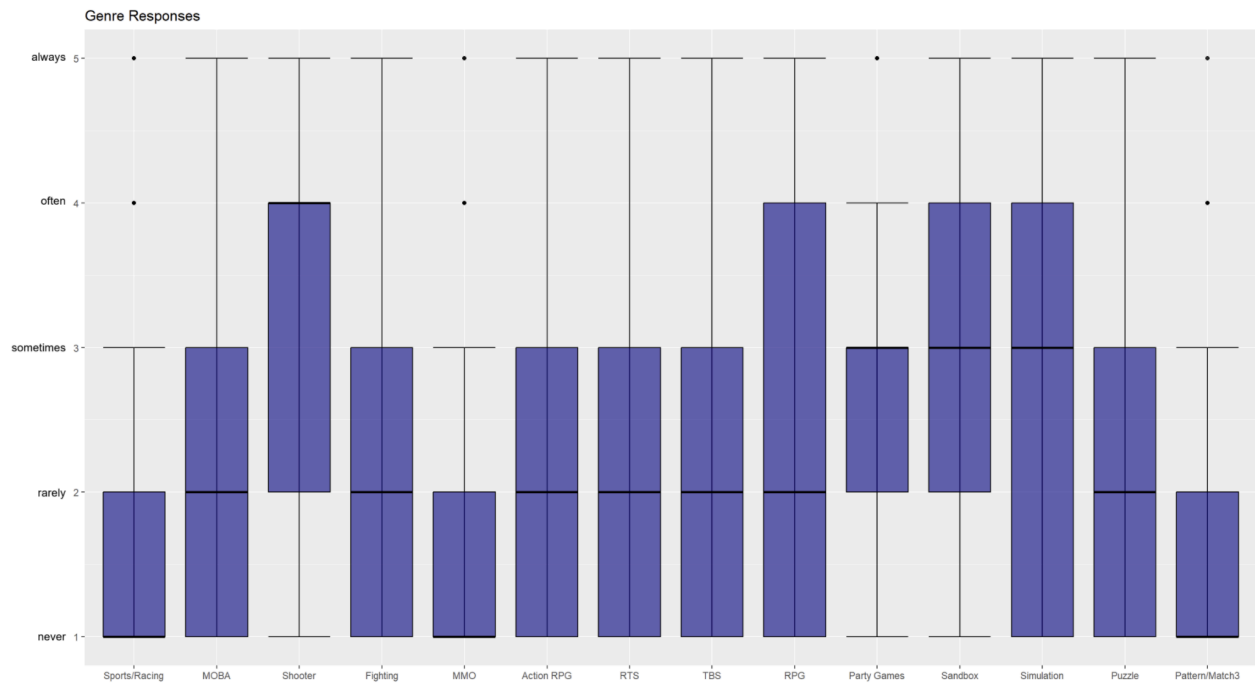


Variable	Variable name	median	IQR
Alone	C1	4	1
IRL friends	C2	4	1
Friends you met online	C3	2	2
Family	C4	2	2
Partners	C5	2	2
Strangers	C6	3	3

Most participants played alone or with their IRL friends.

Genre (G1 - G14, ORD)

Where 5 = Always | 4 = Often | 3 = Sometimes | 2 = Rarely | 1 = Never



Variable	Variable name	median	IQR	Included?
Sports/ racing	G1	1	1	
MOBA	G2	2	2	
Shooter	G3	4	2	x
Fighting	G4	2	2	
MMO	G5	1	1	
Action RPG	G6	2	2	x
RTS	G7	2	2	
TBS	G8	2	2	
RPG	G9	2	3	x
Party Games	G10	3	1	x
Sandbox	G11	3	2	x

Simulation	G12	3	3	x
Puzzle	G13	2	2	
Pattern/ Match 3	G14	1	1	

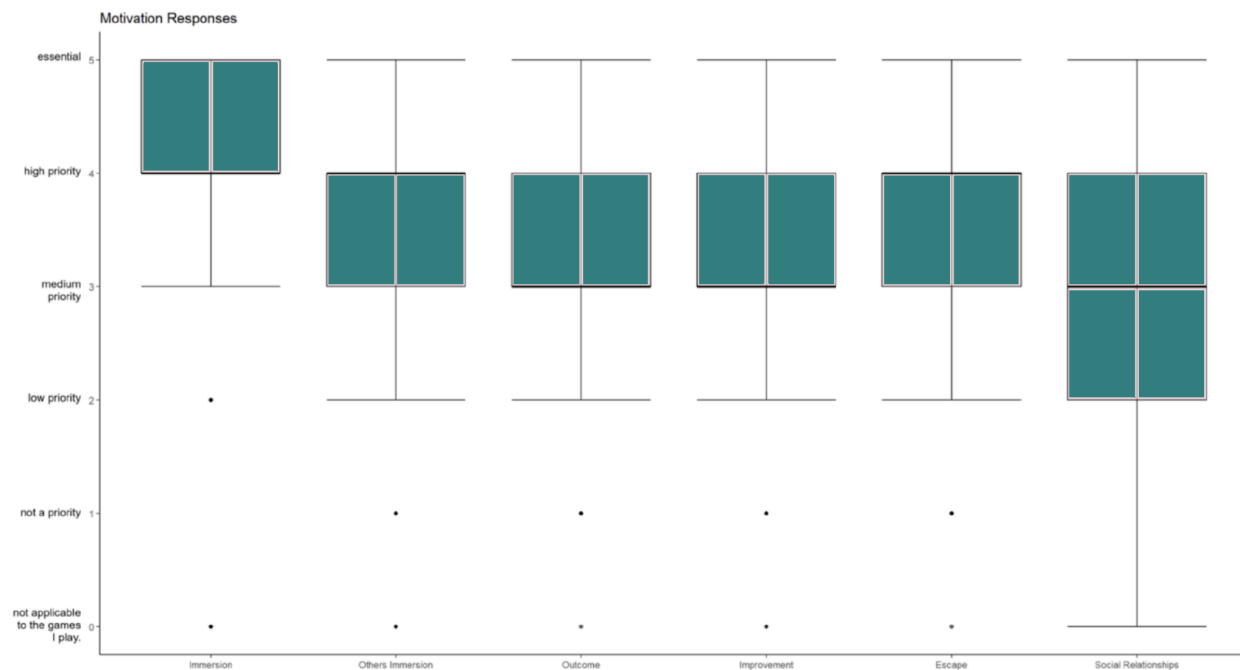
Shooters were the most often played genre of game, but RPGs, party games, sandbox, and simulation games were also sometimes- often played. Sports/ Racing, MMO, and Pattern/ Match 3 games were not played by most participants.

For ease of future analyses, I chose to use a subset of these genres, chosen roughly on how often it was played by most participants. Shooters are usually competitive multiplayer, aRPG and RPG are more likely single player, and Party, Sandbox and Simulation are more casual games with multiplayer options, although this is just an organization tool, not what they are meant to represent.

Motivation Priorities (M1-M6, ORD)

“When you are playing, how important are the following?”

Where 5 = Essential | 4 = High Priority | 3 = Medium Priority | 2 = Low Priority | 1 = Not a Priority | 0= Not applicable to the games I play.



Variable	Variable name	median	IQR
Immersion	M1	4	1
Others immersion	M2	4	1
Outcome	M3	3	1
Improvement (Achievement)	M4	3	1
Escape (venting)	M5	4	1
Social relationships	M6	3	2

Participants prioritized their own fun and immersion in the game, closely followed by the experience of others or escape/ cathartic motivations for play. Outcome, improvement, or the maintenance of social relationships came after that, but all motivations were considered at least a medium priority when playing.

BIVARIATE ANALYSES WITH GAMEPLAY METRICS

Notes on the type of tests run for these correlation matrices:

- Running an ANOVA would be telling us if there was a significant difference in variation of Y genre due to the prioritization of X motivation. That is, “The prioritization of playing with X motivation affects how often the player plays Y genre of game”. This is presumably because motivation to play affects genre played.
- Running a Goodman-Kruskal’s Gamma correlation coefficient would be telling us how these two variables correlate/ do they vary together. That is, “Prioritization of playing with X motivation varies by gamma with how often the player plays Y genre of game.” It does not assume directionality of the relationship, however, I would assume motivation affects the genre selected to play.
 - I selected running **Spearman’s rho correlation** because it would tell us conceptually the same thing as the Goodman-Kruskal’s Gamma, BUT because of the large(ish) sample size, equal/ tie ranks would be common (more than one person is likely to select the same answer). Spearman’s rho averages ranks, while Goodman-Kruskal’s Gamma eliminates equal ranks, leading to slightly

inflated correlations in equal-rank. Spearman's rho is also much easier to compute on Sheets. :P

Motivation (ORD) -> Genre (ORD)

M1-6. G3,6,9,10,11,12.

Spearman's rho correlations done for ORD or INT on ORD or INT for non-parametric variables.

Bonferroni correction sets $\alpha = .05/84 = 0.001$

Italics indicate non-significance.

	Immersion	Other's Immersion	Outcome	Improvement	Escape	Social Relationships
Sports/ racing	0.009	0.063	0.013	0.041	0.106	0.046
MOBA	0.062	0.135	0.206	0.310	-0.013	0.094
Shooter	0.080	0.139	0.123	0.246	0.036	0.165
Fighting	0.141	0.106	0.014	0.053	0.202	0.111
MMO	0.120	0.194	0.073	0.132	0.124	0.180
Action RPG	0.281	-0.022	0.100	0.114	-0.008	-0.086
RTS	0.085	0.065	0.009	0.000	0.065	0.099
TBS	0.337	0.098	0.076	0.099	0.170	0.191
RPG	0.345	-0.024	0.069	0.068	0.138	-0.084
Party Games	0.192	0.122	-0.007	-0.069	0.157	0.214
Sandbox	0.189	0.216	-0.222	-0.087	0.025	0.203
Simulation	0.174	0.150	-0.036	-0.075	0.174	0.127
Puzzle	0.187	0.039	-0.027	-0.095	0.145	0.121
Pattern/ Match 3	0.126	0.141	-0.028	-0.081	0.154	0.030

There are mostly very weak correlations between motivation and genre played. However, a few understandable correlations emerge:

- (Immersion x aRPG, TBS, RPG) These are all genres that generally have a strong aesthetic in terms of worldbuilding or narrative – for example, aRPGs often follow the Dark Souls convention of a dark, gritty hellscape, and RPGs often have detailed characters and stories.
- (Outcome x Sandbox) There usually isn't a pre-determined story or goal with sandbox games such as Minecraft, so players who prioritize winning are likely not going to find what they wanted with sandbox games.
 - Although Outcome could also indicate completing challenges, which would definitely be available in sandbox games.
 - Note though that this result was not statistically significant.
- (MOBA x improvement) MOBA (and Shooter) games do tend to have a lot of specific metrics for measuring improvement, which may make measuring and seeing improvement more readily available.
 - Another interpretation might be that those that prioritize improvement metrics (mastery) are drawn to MOBA and shooter type games with complex mechanics. However, I would expect fighting games to be similarly preferred in that case.

Social Context (ORD) -> Genres (ORD)

C1-6. G3,6,9,10,11,12. This is basically “The frequency of playing with X group affects how often the player plays Y genre.” This may be backwards– I assume that what players play is determined by who they are playing with. It could be that playing the game (activity) is more important and determines who they play with.

Spearman's rho correlations done for ORD or INT on ORD or INT for non-parametric variables.

Bonferroni correction sets $\alpha = .05/84 = 0.001$

	Alone	IRL Friends	Online Friends	Family	Partner	Strangers
Sports/ racing	0.009	0.063	0.098	0.164	0.068	0.020
MOBA	0.062	-0.175	0.263	0.020	0.175	0.260
Shooter	0.080	-0.198	0.139	-0.020	0.172	0.256
Fighting	0.141	0.077	0.171	0.199	0.094	-0.002

MMO	0.120	0.025	0.101	0.043	0.189	0.247
Action RPG	0.281	0.208	-0.015	0.057	-0.045	0.071
RTS	0.085	0.123	0.080	0.164	0.087	0.007
TBS	0.337	0.113	0.080	0.215	0.045	0.137
RPG	0.345	0.144	-0.051	0.125	-0.038	0.056
Party Games	0.192	-0.135	0.116	0.028	0.191	0.005
Sandbox	0.189	-0.049	0.290	0.098	0.155	-0.057
Simulation	0.174	0.057	0.006	0.015	0.126	-0.081
Puzzle	0.187	-0.014	0.106	0.048	0.112	-0.146
Pattern/ Match 3	0.126	0.081	0.182	0.138	0.148	-0.097

There are mostly very weak or nonsignificant correlations between social context and genre played. However, a few understandable correlations emerge:

- Alone x aRPG, TBS, RPG – Understandable. These are mostly played alone.
- Online friends x Sandbox – Not sure why. These might be because friends were formed as part of games and challenges in sandbox modes and kept because of positive experiences?
- Strangers x MOBA, shooter – Expected. These are played in PvP temporary random teams.

Motivation (ORD) -> Social Context (ORD)

M1-6. G3, C1-6

This is basically “The prioritization of playing with X motivation affects how often the player is played with Y group”. This is presumably because motivation to play affects who players play with.

Spearman’s rho correlations done for ORD or INT on ORD or INT for non-parametric variables.

Bonferroni correction sets $\alpha = .05/36 = 0.001$

	Immersion	Other's Immersion	Outcome	Improvement	Escape	Social Relationships
Alone	0.182	-0.170	-0.097	-0.046	0.097	-0.190
IRL Friends	-0.036	0.242	-0.122	-0.014	-0.061	0.287
Online Friends	0.096	0.115	0.121	0.174	0.174	0.151
Family	-0.037	0.009	-0.149	-0.019	0.093	0.104
Partner	-0.011	0.250	0.112	0.096	0.120	0.317
Strangers	-0.011	0.136	0.125	0.290	0.056	0.078

Prioritizing relationships has a weak correlation with playing with IRL friends or partners.

- Social relationships (and Other's Immersion to a lesser degree) – it follows that if these are big priorities or motivations for playing, that they would play primarily with people they care about, such as partners (bonding relationship) and friends they also know from outside the game (bridging relationship).
 - Interestingly though, online friends (perhaps more distant than IRL friends) and family are not included. Family may be understood as this was not part of the family's shared activities and thus not a way the family connects. But online friends is more surprising since presumably friendships made playing the game would be included in these socializing opportunities.
- Players who prioritize improvement and players who played with strangers. This could be because they end up practicing alone and end up playing with more strangers though.

Motivation (ORD, M1-6) -> Stakes (INT, G_rk, G_ch)

ANOVA was used because motivations were ordinal variables, mostly normally distributed (M1, 2 are not normal though). Bonferroni correction sets $\alpha = .05/6 = 0.008$

For MULTIPLAYER stakes or Ranked(G_rk)

Variable	code	ANOVA (F)	df	p-value	What does this mean
Immersion	M1	0.476	1, 163	0.491	Most variation in stakes is not due to motivation. Not statistically significant.
Other's Immersion	M2	1.029	1, 163	0.613	Most variation in stakes is not due to motivation. Not statistically significant.
Outcome	M3	9.768	1, 163	0.0021	Playing focused on outcome was correlated with playing for higher multiplayer stakes.
Improvement	M4	19.07	1, 163	2.23e-05	Playing for improvement purposes was correlated with playing for higher multiplayer stakes (ranked games)
Escape	M5	0.106	1, 163	0.745	Most variation in stakes is not due to motivation. Not statistically significant.
Social Relationships	M6	0.232	1, 163	0.631	Most variation in stakes is not due to motivation. Not statistically significant.

For SINGLEPLAYER stakes or Challenges (G_ch)

Variable	code	ANOVA (F)	df	p-value	What does this mean
Immersion	M1	3.754	1, 163	0.0544	Most variation in stakes is not due to motivation. Not statistically significant.
Other's Immersion	M2	0.257	1, 163	0.613	Most variation in stakes is not due to motivation. Not statistically significant.
Outcome	M3	0.224	1, 163	0.637	Most variation in stakes is not due to motivation. Not statistically significant.
Improvement	M4	2.496	1, 163	0.116	Most variation in stakes is not due to motivation. Not statistically significant.
Escape	M5	2.767	1, 163	0.0981	Most variation in stakes is not due to motivation. Not statistically significant.
Social Relationships	M6	1.345	1, 163	0.248	Most variation in stakes is not due to motivation. Not statistically significant.

M3> G_rk	Not a priority	low	medium	high	Outcome motivation (M3) > playing Ranked game (G_rk) Not a priority mean = 2 <u>Low priority mean = 2.48</u> Medium priority mean = 2.98 High priority mean = 3.25 <u>Essential priority mean = 3.56</u> > At the extremes, participants who prioritized outcome of a game played ranked games more frequently.
low	0.510				
medium	0.220	0.153			
high	0.153	0.076	0.281		
essential	0.097	<u>0.023</u>	0.097	0.287	

M4> G_rk	Not a priority	low	medium	high	improvement (M4) > playing Ranked game (G_rk)
low	0.6982				<u>Not a priority mean = 2.20</u> <u>Low priority mean = 2.45</u> Medium priority mean = 3.11 High priority mean = 3.31 Essential priority mean = 3.83 > Participants who prioritized individual improvement lowly player ranked games more infrequently.
medium	<u>0.0501</u>	<u>0.0411</u>			
high	<u>0.0223</u>	<u>0.0077</u>	0.4956		
essential	<u>0.0034</u>	<u>0.0015</u>	0.0501	0.1927	

Players who were highly invested in either the outcome of the game or individual improvement were correlated with playing ranked games (for higher stakes). However, this was only found in multiplayer contexts (playing ranked).

Motivation did not link significantly with playing games in harder challenge (SP) modes.

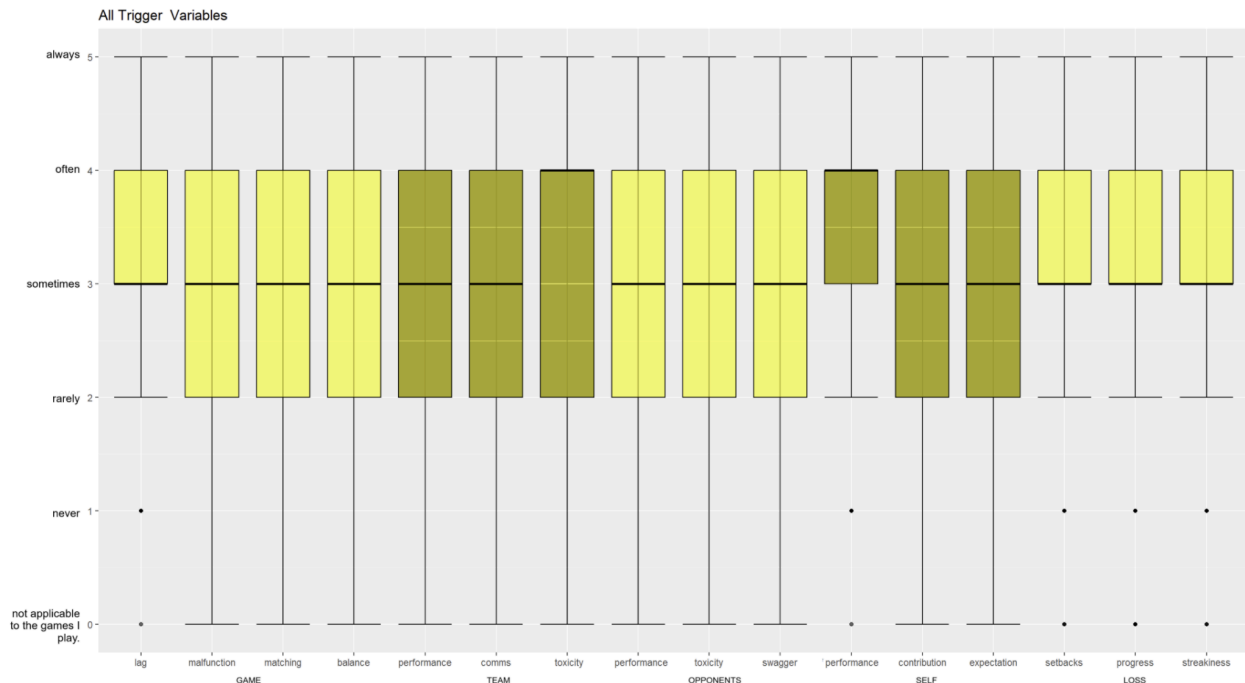
3. TRIGGERS

Triggers were mostly not normally distributed, so I use the non-parametric versions of all tests. This was chosen instead of using different tests.

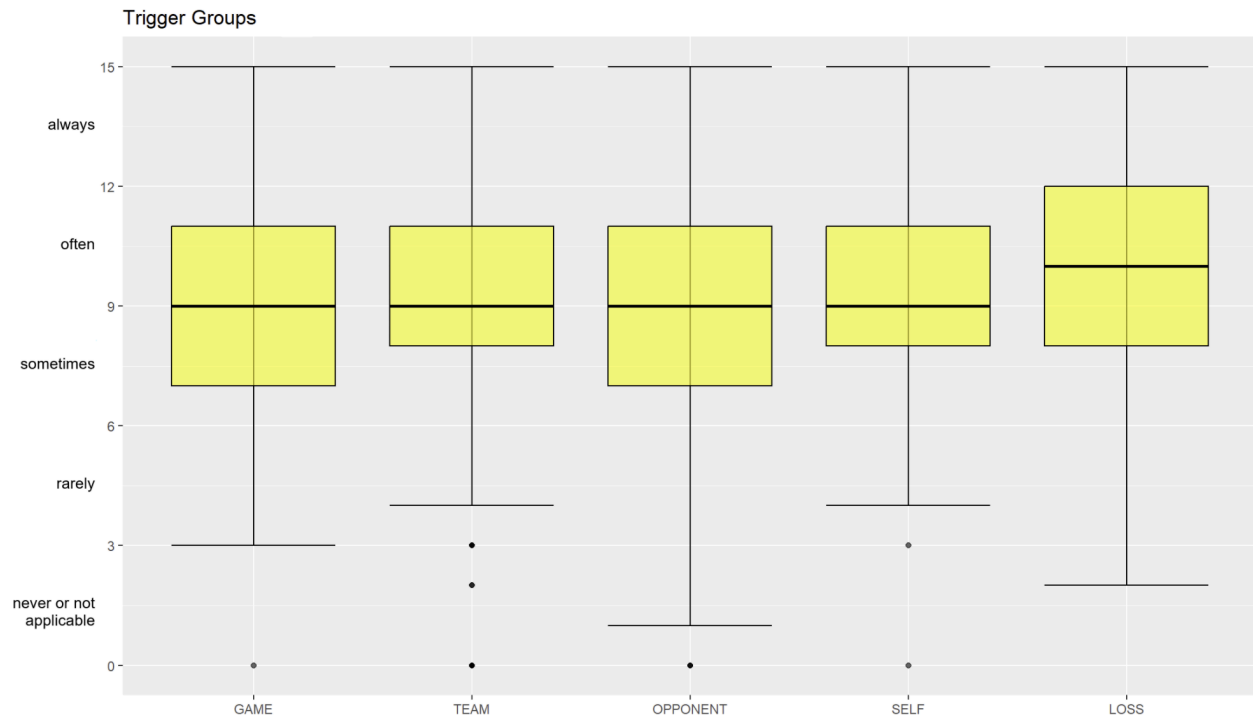
“Think of the games you are playing now or have played often in the past. When the following happen to you in game, how often do the following things bother or frustrate you? (not how often they happen to you)”

Central tendency

For interpreting INDIVIDUAL Variables: Where 5 = Always | 4 = Often | 3 = Sometimes | 2 = Rarely | 1 = Never. Alternating colors just to differentiate between groups of triggers.



For interpreting intervals in TRIGGER CATEGORIES: 12+ = Always | 9 = Often | 6 = Sometimes | 3 = Rarely | 0 = Never or not applicable



Variable	code	mean/ median	stdev/ IQR	Normally distributed?
<u>GAME*</u>	<u>T1_0</u>	12.17	3.39	NO
game lag	T1_1	3	1	NO
game malfunction	T1_2	3	2	YES
game matching system	T1_3	3	2	YES
game balance	T1_4	3	2	YES
<u>TEAM</u>	<u>T2_0</u>	8.90	3.16	NO
team performance	T2_1	3	2	YES
team communication	T2_2	3	2	NO
team toxicity	T2_3	4	2	NO
<u>OPPONENT</u>	<u>T3_0</u>	8.76	3.34	YES

opponent performance	T3_1	3	2	YES
opponent toxicity	T3_2	3	2	NO
opponent swagger	T3_3	3	2	YES
<u>SELF</u>	<u>T4_0</u>	9.24	2.50	NO
self performance	T4_1	4	1	NO
self contribution	T4_2	3	2	YES
self expectation ruined	T4_3	3	2	NO
<u>LOSS</u>	<u>T5_0</u>	9.78	2.64	NO
setbacks	T5_1	3	1	NO
lost progress	T5_2	3	1	NO
loss streakiness	T5_3	3	1	NO

*For intervals on GAME: 16+ = Always | 12 = Often | 8 = Sometimes | 4 = Rarely | 0 = Never or not applicable. However, for the chart, T1_2 (game malfunctions/ bugs) was removed for easier visual comparison. T1_2 was selected as the item that loaded least well with the others.

While all proposed triggers were often triggering, the ones that stand out are game lag, team toxicity, self performance, and all the LOSS triggers.

This uses a Kruskal- Wallis as an omnibus test to see if there is a significant difference in frequency depending on the trigger. Bonferroni correction sets $\alpha = .05/5 = 0.01$

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
Game	T1_0	21.15	3	9.801e-05	One of these is different (probably game lag)
Team	T2_0	12.685	2	0.00176	One of these is different (probably team toxicity)
Opponent	T3_0	5.4858	2	0.06438	These are similar!
Self	T4_0	41.88	2	8.053e-10	One of these is different (probably self performance)
Loss	T5_0	3.0119	2	0.2218	These are similar!

A KW test across the categories (T1_0, T2_0, T3_0, T4_0, T5_0) returns a KW of 103.26, df 4, pvalue 2.2e-16, which means a definitely significant and big difference, but this is meaningless because the scales are different– Game triggers (T1_0) have 4 items while the others only have 3.

Running it without the Game triggers returns KW 9.7131, df 3, pvalue 0.02115, which is not significant.

Even though the central tendencies are similar, there are definite differences between items on this in-house trigger measure. Loss was the most consistently high-leaning tilt trigger (meaning people were more reliably and often triggered when encountering lost progress. Other major contributors were self-performance (SELF), encountering toxicity on their own team (TEAM), and game lag (GAME)

Trigger Bundling

For all of the trigger analyses I bundled trigger variables into groups for the sake of simpler analyses. Triggers were bundled as such:

- **Game (T1_0):** game lag, malfunction, matching system, balance (4)
 - These reflect frustration towards the game or getting tilted due to the game itself.
 - These could be broken into tilt due to error (lag, malfunction), wherein players are upset because a computer glitch or bug in game code causes an unexpected interaction; or tilt by design of the game (match-making system, balance), wherein players are upset due to how the intended mechanics or matchmaking system of the game are designed in a way that is perceived as unfair.
- **Team (T2_0):** team performance, communication, toxicity (3)
 - These reflect frustration due to the cooperative team the player is playing with.
- **Opponent (T3_0):** Opponent performance, toxicity, swagger (3)
 - These reflect frustration due to the competitive opponents the player is facing.
 - Only one of these (opponent performance) accounts for computer behavior.
- **Self (T4_0):** self performance, contribution, expectation ruined
 - These reflect frustration due to their own performance or ability while playing.
- **Loss (T5_0):** setbacks, lost progress, and streakiness (3)
 - These reflect frustrated due to losing a game or losing progress.

An interval was created for each of these by *summing the ordinal trigger items*. Sums were used instead of averages to preserve information as possible. Notes though that The “Game” trigger comprised of 4 variables instead of 3, as all others were. This does not affect most analyses, but does make comparisons a bit more difficult.

Interesting relationships:

- Toxicity from the team and opponents (T2_3, T3_2) had a medium, almost strong correlation. This understandably indicates that toxicity is not appreciated, regardless of the source.
 - Actually, there were weak associations between all team and opponent variables, indicating, contrary to our previous tilt work, that the source of the tilting behavior was not necessarily important.
- Streakiness (T5_3) had a medium correlation to Opponents (T3_0), specifically Opponent performance (T5_1). This makes sense though, as repeated losses would lead to the perception that the opponents were stronger.
- Game lag and matching system (T1_1, T1_3) and malfunction and balance (T1_2, T1_4)-- these pairs did not correlated together, but did with all other “game” variables. This is interesting because rather than a clear divide between the game variables, there were just missing links between certain ones.
- Lost Progress and Streakiness (T5_2, T5_3) did not correlate together, but both correlated with setbacks. This is interesting because streakiness measured repeated losses or setbacks, while setbacks and lost progress were designed as the sing

Demographic group differences:

Age (INT) -> Triggers (INT)

How do tilt triggers vary by age?

Spearman’s r is used because age is NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/5 = 0.01$

Variable	code	Spearman’s r	p-value	What does this mean
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Game	T1_0	0.05459809	0.4875	Very low positive correlation, not statistically significant.
Team	T2_0	0.03506662	0.6558	Very low positive correlation, not statistically significant
Opponent	T3_0	0.06889668	0.3807	Very low positive correlation, not statistically significant
Self	T4_0	0.02019586	0.7974	Very low positive correlation, not statistically significant
Loss	T5_0	0.0890249	0.257	Very low positive correlation, not statistically significant

These conclusions hold even if using game lag (T1_1), team toxicity (T2_3), and self performance (T4_1) for those groups.

Age is not related to what gets players tilted.

Properly: Most of the variation in what gets people tilted the most often is not accounted by age, but this is not a statistically significant result at a 5% P-value.

Gender (NOM) -> Triggers (INT)

ANOVA is used because gender is a nominal, normally distributed in this sample.

Bonferroni correction sets $\alpha = .05/5 = 0.01$

Variable	code	ANOVA (F)	Df+ residual	p-value	What does this mean
Game	T1_0	0.963	3, 161	0.412	Most variation is not due to gender difference. Not statistically significant
Team	T2_0	1.865	3, 161	0.138	Most variation is not due to gender difference. Not statistically significant
Opponent	T3_0	1.556	3, 161	0.202	Most variation is not due to gender difference. Not

					statistically significant
Self	T4_0	0.261	3, 161	0.854	Most variation is not due to gender difference. Not statistically significant
Loss	T5_0	0.218	3, 161	0.883	Most variation is not due to gender difference. Not statistically significant

Gender is not related to why people get tilted.

Properly: Most of the variation in what gets people tilted the most often is not accounted by gender, but this is not a statistically significant result at a 5% P-value.

Education (ORD) -> Triggers (INT)

Kruskal-Wallis used because education is an ordinal variable, treated as a nominal variable, NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/5 = 0.01$.

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
Game	T1_0	1.3331	4	0.8557	Most variation is not due to education difference. Not statistically significant
Team	T2_0	5.3515	4	0.2531	Most variation is not due to education difference. Not statistically significant
Opponent	T3_0	6.2058	4	0.1843	Most variation is not due to education difference. Not statistically significant
Self	T4_0	2.0676	4	0.7233	Most variation is not due to education difference. Not statistically significant
Loss	T5_0	1.4914	4	0.8282	Most variation is not due to education difference. Not statistically significant

Education is not related to what gets people tilted.

Properly: Most of the variation in what gets people tilted the most often is not accounted by education level, but this is not a statistically significant result at a 5% P-value.

Ethnicity (NOM) -> Triggers (INT)

These tests were only run with asian, caucasian, hispanic/latine, and mixed (compiled as the eth variable) because all others had fewer than 5 participants in the group or were included in the mix category. Participants were only counted once (in order to preserve the K-W assumption of independent samples). Bonferroni correction sets $\alpha = .05/5 = 0.01$.

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
Game	T1_0	3.2498	3	0.3547	Most variation is not due to ethnicity difference. Not statistically significant.
Team	T2_0	1.5564	3	0.6693	Most variation is not due to ethnicity difference. Not statistically significant.
Opponent	T3_0	2.5324	3	0.4695	Most variation is not due to ethnicity difference. Not statistically significant.
Self	T4_0	2.5196	3	0.4718	Most variation is not due to ethnicity difference. Not statistically significant.
Loss	T5_0	1.168	3	0.7607	Most variation is not due to ethnicity difference. Not statistically significant.

Ethnicity is not related to what gets people tilted.

Properly: Most of the variation in what gets people tilted the most often is not accounted by ethnicity, but this is not a statistically significant result at a 5% P-value.

Personality (INT) -> Triggers (INT)

Correlation matrix with Pearson's r . (This should probably be Spearman's r instead because most of personality was nonparametric, but Pearson's r was much easier to do.) *Bonferroni correction sets $\alpha = .05/55 = 0.001$. Italicized values are NOT significant.*

Pearson-product r is a correlation between 0-1 for strength, +/- for direction of relationship, and p-value.

	Social compe tence	nonac ceptan ce	emotio nal aware ness	goal conce ntratio n	recove ry	clarity	Emotio nal regulat ion (tende ncy)	impulsi vity	empat hy	Rumin ation (perso nality)	Reflect ion
Game	0.010	0.067	-0.135	-0.087	-0.109	-0.136	-0.210	0.296	-0.179	-0.031	-0.039
Team	0.091	0.055	0.004	-0.102	-0.022	-0.027	-0.156	0.191	-0.033	0.029	-0.069
Oppon ent	0.036	0.060	0.051	-0.198	-0.119	-0.071	-0.228	0.149	-0.002	0.129	-0.080
Self	-0.004	0.243	0.029	-0.244	-0.109	-0.112	-0.240	0.275	0.013	0.147	-0.060
Loss	-0.093	0.122	0.029	-0.247	-0.073	-0.051	-0.191	0.117	0.043	0.137	-0.009

There are very only very weak relationships between personality traits and what got people tilted.

- (emotional regulation tendency x ALL TRIGGER) Although these are all very weak correlations, the tendency to emotionally regulate is related to and not being as frequently tilted by any trigger when it comes up. Note though that this relationship doesn't happen with emotional awareness alone – it's the tendency to act upon and regulate anyways that results in resilience to tilt.
- (goal concentration x all but game) Although these are all very weak correlations, being able to concentrate on a goal is related to not being as frequently tilted by any trigger. This tendency to be able to concentrate even though upset may be related to the idea of “locking in” from interviews. Note this doesn't happen with game situations at all though—there's no plan when the game doesn't behave as it's supposed to or designed to be unfair.
- (impulsivity x GAME, SELF) There is a weak relationship between impulsivity and being triggered by the game or by self. This might be because someone more impulsive in character might be quicker to jump to the decision that the game is hopeless or their performance is inferior.

Amount of Gameplay(G_hrs, INT) -> Triggers (INT)

Spearman's r is used because is gameplay amount was NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/5 = 0.01$

Variable	code	Spearman's r	p-value	What does this mean
Game	T1_0	0.003897809	0.9604	Very low positive correlation, not statistically significant.
Team	T2_0	0.07460664	0.3409	Very low positive correlation, not statistically significant.
Opponent	T3_0	0.0421333	0.591	Very low positive correlation, not statistically significant.
Self	T4_0	0.04177517	0.5942	Very low positive correlation, not statistically significant.
Loss	T5_0	-0.06673511	0.3944	Very low negative correlation, not statistically significant.

How much a player plays every week is not related to what triggers them.

Length of Experience (G_yrs, INT) -> Triggers (INT)

Pearson's r is used because is gameplay amount IS normally distributed in this sample. Bonferroni correction sets $\alpha = .05/5 = 0.01$

Variable	code	Pearson's r	p-value	What does this mean
Game	T1_0	0.11365	0.1461	Very low positive correlation, not statistically significant.
Team	T2_0	0.142391	0.06808	
Opponent	T3_0	0.2038929	0.008619	More years spent playing is correlated with getting tilted more often by

				opponent behavior.
Self	T4_0	0.04084565	0.6024	
Loss	T5_0	0.1623631	0.0372	

There is a weak but statistically significant variation due to how long the player has been playing (years). The longer a player has been playing, the more likely they are to be tilted by their opponents?

Gamer Identity and Expertise (G_sum, INT) -> Triggers (INT)

G_sum is an interval, composite variable constructed by summing the three likert(1-5) ordinal scales gamer identity (G_gmr), and perceived experience (G_gud, G_skl). These were originally used to measure if participants identified as a “gamer” and whether they believed they were skilled at playing games.

Spearman's r is used because is G_sum is NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/5 = 0.01$

Variable	code	Spearman's r	p-value	What does this mean
Game	T1_0	0.1154733	0.1397	Very low positive correlation, not statistically significant.
Team	T2_0	0.15212	0.05111	
Opponent	T3_0	0.1414185	0.07001	
Self	T4_0	0.1094892	0.1615	
Loss	T5_0	0.09324413	0.2336	

Gamer identity is not related to what gets players tilted.

Properly: Most of the variation in what gets people tilted the most often is not accounted for by whether or not they identify as a gamer or believe they are skilled at gaming.

Genre (ORDx6) -> Triggers (INT)

This is basically “The frequency of playing X genre affects how often the player is triggered by Y trigger.”

These were run with only selected genres: shooter(G3), aRPG (G6), RPG (G9), Party Games (G10), Sandbox (G11), Simulation (G12), Puzzle (G13). (See Genre.)

Kruskal-Wallis used because genre is an ordinal variable NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/30 = 0.002$

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
For Shooter (G3)					
Game	T1_0	5.7953	4	0.215	Most variation is not due to education differences. Not statistically significant
Team	T2_0	16.466	4	0.002453	Playing shooters more is correlated with more often tilted by the team.
Opponent	T3_0	10.559	4	0.032	
Self	T4_0	11.325	4	0.02314	
Loss	T5_0	7.3877	4	0.1168	
For action RPG (G6)					
Game	T1_0	5.4884	4	0.2407	
Team	T2_0	1.9335	4	0.748	
Opponent	T3_0	0.94691	4	0.9177	
Self	T4_0	1.7333	4	0.7847	
Loss	T5_0	9.1242	4	0.05807	
For RPG (G9)					
Game	T1_0	2.6904	4	0.6109	
Team	T2_0	2.0011	4	0.7355	
Opponent	T3_0	2.9678	4	0.5632	

Self	T4_0	4.1911	4	0.3808	
Loss	T5_0	6.8406	4	0.1446	
For Party (G10)					
Game	T1_0	0.59375	4	0.9638	
Team	T2_0	0.45599	4	0.9776	
Opponent	T3_0	3.0637	4	0.5472	
Self	T4_0	0.56756	4	0.9666	
Loss	T5_0	2.4523	4	0.6532	
For Sandbox (G11)					
Game	T1_0	4.8374	4	0.3044	
Team	T2_0	6.7135	4	0.1518	
Opponent	T3_0	3.9202	4	0.4169	
Self	T4_0	3.214	4	0.5227	
Loss	T5_0	3.0932	4	0.5424	
For Simulation (G12)					
Game	T1_0	7.829	4	0.09804	
Team	T2_0	6.4347	4	0.169	
Opponent	T3_0	7.993	4	0.09183	
Self	T4_0	2.2153	4	0.6962	
Loss	T5_0	5.0371	4	0.2835	

Follow up Dunn tests (pairwise Wilcoxon rank-sum test, the nonparametric version of the ttest) were conducted with Benjamini-Hochberg corrections for false discovery rate (more common in social sciences work and more permissive than Bonferroni). These were rounded to the 4th decimal rather than copied directly. P-value accepted: 0.05

G3>	never	rarely	someti	often	Shooter genre (G3) > Team Trigger
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T2_0			mes		(T2_0) Never mean = 7.27 Rarely mean = 7.64 Sometimes mean = 8.50 <u>Often mean = 10.25</u> Always mean = 9.21 > Participants who played shooters often (but not always) were more likely to be triggered by their own team.
rarely	0.9429				
sometims	0.6312	0.6700			
often	<u>0.0141</u>	<u>0.0098</u>	<u>0.0248</u>		
always	0.2910	0.3423	0.6043	0.1541	

In general, frequency of playing a genre was not linked to how often someone was tilted by something. Playing shooters more often though, tended to get tilted by teammates more often. Follow up ttests indicate that participants who played shooter often but not always were more likely to be triggered by their own team.

Social Context (ORDx6) -> Triggers (INT)

C1-6. This is basically “The frequency of playing with X group affects how often the player is triggered by Y trigger.”

Kruskal-Wallis used because social contexts are ordinal variables mostly NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/30 = 0.002$

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
For Alone (C1)					
Game	T1_0	3.8445	4	0.4275	Most variation is not due to frequency of playing this genre. Not statistically significant.
Team	T2_0	4.1403	4	0.3874	
Opponent	T3_0	1.9523	4	0.7445	
Self	T4_0	3.7249	4	0.4445	
Loss	T5_0	4.2201	4	0.377	
For IRL friends (C2)					

Game	T1_0	4.2614	4	0.3718	
Team	T2_0	3.3997	4	0.4933	
Opponent	T3_0	5.5134	4	0.2386	
Self	T4_0	9.2753	4	0.05457	
Loss	T5_0	3.8267	4	0.43	
For Online friends (C3)					
Game	T1_0	10.306	4	0.03557	
Team	T2_0	10.586	4	0.03163	
Opponent	T3_0	3.7882	4	0.4354	
Self	T4_0	7.1173	4	0.1298	
Loss	T5_0	3.6525	4	0.4551	
For Family (G4)					
Game	T1_0	2.5268	4	0.6398	
Team	T2_0	1.0806	4	0.8973	
Opponent	T3_0	1.4006	4	0.8441	
Self	T4_0	4.0825	4	0.395	
Loss	T5_0	0.87498	4	0.9281	
For Partners (G5)					
Game	T1_0	6.9774	4	0.1371	
Team	T2_0	4.1118	4	0.3911	
Opponent	T3_0	7.4601	4	0.1135	
Self	T4_0	8.6618	4	0.07013	
Loss	T5_0	5.8906	4	0.2075	
For Strangers (C6)					
Game	T1_0	6.887	4	0.142	

Team	T2_0	11.533	4	0.02119	
Opponent	T3_0	8.6063	4	0.07173	
Self	T4_0	9.7059	4	0.04568	
Loss	T5_0	1.8502	4	0.7633	

Who players are playing with does not seem to affect what gets them tilted.

Is it social content or features of the game that shape tiltability?

Neither social context nor the features of the game (genre) seems to shape by what a player gets tilted.

Motivation (ORDx6) -> Triggers (INT)

M1-6. This is basically “The prioritization of playing with X motivation affects how often the player is triggered by Y trigger.”

ANOVA is used because motivation was mostly normally distributed in this sample. Bonferroni FWER correction sets $\alpha = .05/6 = 0.008$. $\alpha = .05/30 = 0.002$

Variable	code	ANOVA (F)	df	p-value	What does this mean
For Immersion (M1)					
Game	T1_0	0.225	1, 163	0.636	Variations in triggers are not due to game motivations. Not statistically significant.
Team	T2_0	0.174	1, 163	0.677	
Opponent	T3_0	0.179	1, 163	0.673	
Self	T4_0	0.016	1, 163	0.9	
Loss	T5_0	2.778	1, 163	0.0975	
For Other's Immersion (M2)					

Game	T1_0	0.002	1, 163	0.966	
Team	T2_0	5.153	1, 163	0.0245	
Opponent	T3_0	3.137	1, 163	0.0784	
Self	T4_0	7.103	1, 163	0.00847	
Loss	T5_0	1.682	1, 163	0.196	
For Outcome (M3)					
Game	T1_0	9.814	1, 163	0.00205	Prioritizing outcome of the match leads to getting tilted by game bugs more often.
Team	T2_0	3.229	1, 163	0.0742	
Opponent	T3_0	5.821	1, 163	0.0169	
Self	T4_0	7.039	1, 163	0.00877	
Loss	T5_0	4.127	1, 163	0.0438	
For improvement (M4)					
Game	T1_0	4.775	1, 163	0.0303	
Team	T2_0	5.938	1, 163	0.0159	
Opponent	T3_0	4.19	1, 163	0.0423	
Self	T4_0	11.07	1, 163	0.00108	Prioritizing individual improvement or improvement leads to getting tilted by player's own mistakes more often.
Loss	T5_0	0.767	1, 163	0.383	

For Escape (M5)					
Game	T1_0	0.488	1, 163	0.486	
Team	T2_0	0.015	1, 163	0.904	
Opponent	T3_0	0.31	1, 163	0.578	
Self	T4_0	0.645	1, 163	0.423	
Loss	T5_0	0.848	1, 163	0.359	
For Social Relationships (M6)					
Game	T1_0	0.874	1, 163	0.351	
Team	T2_0	4.117	1, 163	0.0441	
Opponent	T3_0	3.438	1, 163	0.0655	
Self	T4_0	8.9	1, 163	0.00329	Prioritizing outcome of the match leads to getting tilted by player's own mistakes more often. – almost significant
Loss	T5_0	0.201	1, 163	0.654	

Follow up ttests were conducted with Benjamini-Hochberg corrections for false discovery rate (more common in social sciences work and more permissive than Bonferroni). These were rounded to the 4th decimal rather than copied directly. P-value accepted: 0.05

M3> T1_0	Not a priority	low	medium	high	Outcome (M3) > Game Trigger (T1_0) Not a priority mean = 11.33 Low priority mean = 10.61 Medium priority mean = 11.84 High priority mean = 12.09 <u>Essential priority mean = 14.26</u> > Participants who considered the
low	0.7681				
medium	0.7907	0.2116			

high	0.7681	0.2070	0.7681		outcome of games as essential were frequently tilted by issues with the game not functioning as it should or in a fair way.
essential	0.2116	<u>0.0017</u>	<u>0.0129</u>	<u>0.0273</u>	

M4> T4_0	Not a priority	low	medium	high	improvement (M4) > Self Trigger (T4_0) <u>Not a priority mean = 7.10</u> Low priority mean = 8.28 Medium priority mean = 9.20 High priority mean = 9.73 <u>Essential priority mean = 10.33</u> > Participants who did not prioritize improvement were less likely to be tilted by their own performance. Participants who saw improvement as essential though, were also more likely to be tilted by their own performance.
low	0.225				
medium	<u>0.028</u>	0.139			
high	<u>0.013</u>				
essential	<u>0.011</u>	<u>0.017</u>	0.136	0.353	

When prioritizing Individual improvement players are more likely to be tilted to their own mistakes.

Additionally, when prioritizing the Outcome of the game, players are more likely to be tilted by the game's own bugs.

A few almost-significant results indicate that participants who prioritized social relationships as essential were more likely to get tilted by their own performance. However, these are not quite significant.

4. RESPONSES

Responses were overwhelmingly not normally distributed due to so I use the non-parametric versions. This was chosen instead of using different tests.

“Think about when you are feeling tilted by something in game. How often while playing do you engage in the following?”

Central tendency

For interpreting intervals in RESPONSES: 12+ = Always | 9 = Often | 6 = Sometimes | 3 = Rarely | 0 = Never or not applicable

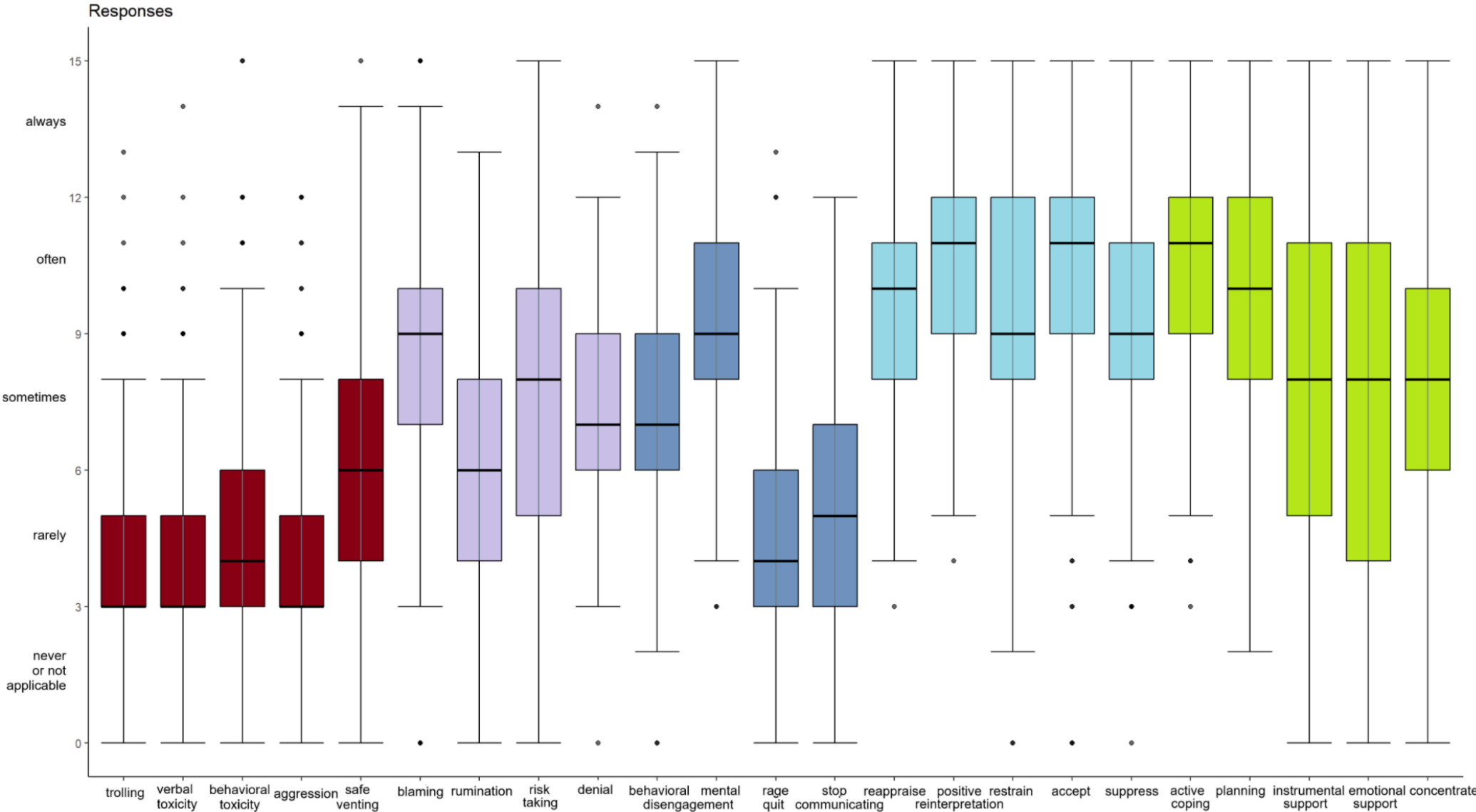
Response Variable	code	mean/ median	stdev/ IQR	Normally distributed?
REGULATORY RESPONSES				
reappraisal	R1_0	9.76	2.40	NO
positive reinterpretation and growth	R2_0	10.44	2.60	NO
active coping	R3_0	10.43	2.39	NO
planning	R4_0	10.12	2.61	NO
restraint coping	R5_0	9.50	2.74	YES
instrumental support	R6_0	8.03	3.81	NO
emotional support	R7_0	7.58	3.65	NO
religion	R8_0	4.72	3.30	NO
concentrating	R9_0	7.58	3.19	NO
acceptance	R10_0	10.66	3.04	NO
suppression	R11_0	9.28	2.88	NO
denial	R12_0	7.30	2.41	NO

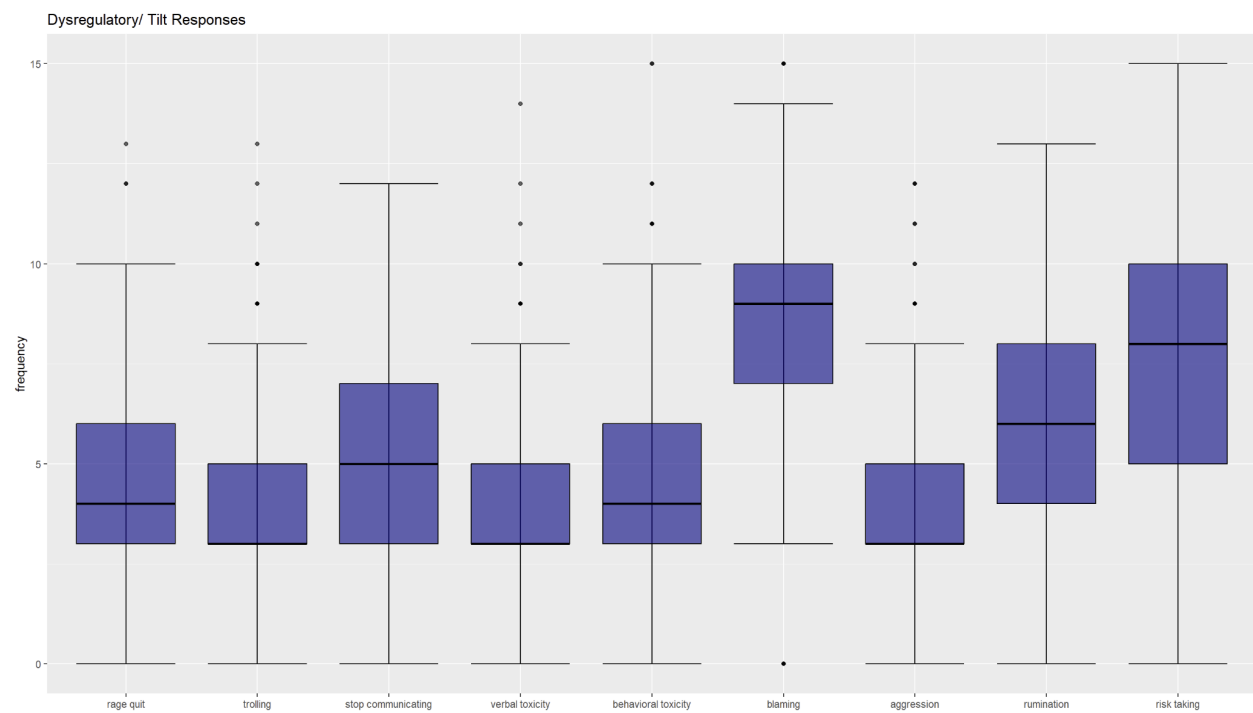
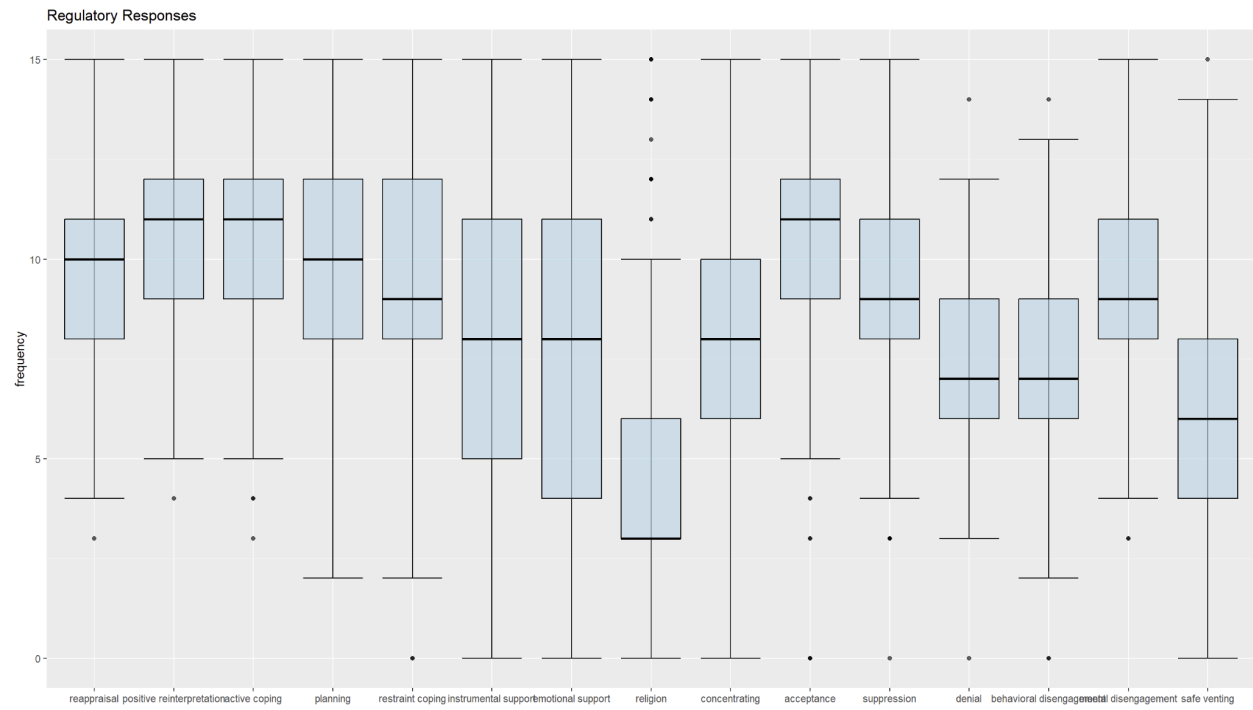
behavioral disengagement	R13_0	7.36	2.48	YES
mental disengagement	R14_0	9.21	2.35	NO
safe venting	R15_0	6.50	2.71	NO
DYSREGULATORY RESPONSES				
rage quit	D1_0	4.80	2.26	NO
trolling	D2_0	4.50	2.33	NO
stop communicating	D3_0	5.45	2.76	NO
verbal toxicity	D4_0	4.33	2.29	NO
behavioral toxicity	D5_0	4.87	2.80	NO
blaming	D6_0	8.30	2.83	NO
aggression	D7_0	4.36	2.21	NO
rumination (response)	D8_0	6.42	2.54	NO
risk taking	D9_0	7.54	3.05	NO

Regulatory variables were, on average, more popular. Standouts include religion, which was not as commonly used. Reappraisal and strategizing were also more common than seeking support or disengaging. Mental (getting distraction) disengagement was more common/frequently used than behavioral disengagement.

Dysregulatory responses were reported as more infrequently used or not applicable. Amongst the dysregulatory/ tilt variables, blaming and risk taking stand out as more often used.

This might be because students were uncomfortable admitting to it, or because these students have already found ways to deal with tilt in pro-social ways that worked for them.





Response Bundling

For most of responses analysis, I bundled response variables into groups for the sake of simpler analyses. Responses were bundled as such:

- **Toxic (rTOX):** trolling, venting, aggression, behavioral and verbal toxicity (5)
 - These are mostly negative, externalized behaviors: that is, they are forms of actively lashing out, attacking others, or actively making other's gaming experience worse.
- **Copium (rCOP):** denial, blaming, rumination, risk taking (4)
 - These are mostly negative, internal thought processes: that is, they are not directly negative, but not productive ways of rejecting or dealing with the emotions or problems.
 - This could be broken up into denial and blaming, which are more deflection strategies, and rumination and risk-taking, which are more negative to the player themselves.
 - The label "copium" was used to imply that there is some coping attempted, but it's not very useful and the players probably know that.
- **Disengage (rDNG):** behavioral and mental disengagement, rage quitting, stop communicating (4)
 - These are exit and lump strategies that involve putting less effort into the game and passively making others' gaming experience worse.
- **Refrain (rREF):** reappraise, positive reinterpretation, restraint coping, accept, suppress (5)
 - These are positive, internal thought processes: that is, these are strategies that focus on changing how the player thinks or feels. While not directly doing something, players are at least acknowledging the feelings that arise.
 - This could be further broken into reappraise and positive reinterpretation, which are reframing strategies, and restrain and suppression, which are restraint and focused on not acting too quickly or letting others in on their emotional state.
- **Action (rACT) or Lock in:** active coping, planning, instrumental and emotional support, concentrate (5)
 - These are positive, active behaviors that involve doing something about the situation or emotion directly or concentrating.

- Instrumental and emotional support could be separated into a “support” strategy, but was included here because seeking support is necessarily actively doing.
- The label “lock in” was used because it is a colloquial term for concentrating or focusing.

An interval was created for each of these by *averaging (mean) the interval-level response variable*. An average was used instead of a sum because bundles consisted of 4-5 variables each, and a sum interval would not allow the same scale for comparison. This means that these bundles are the average of a sum of frequency data.

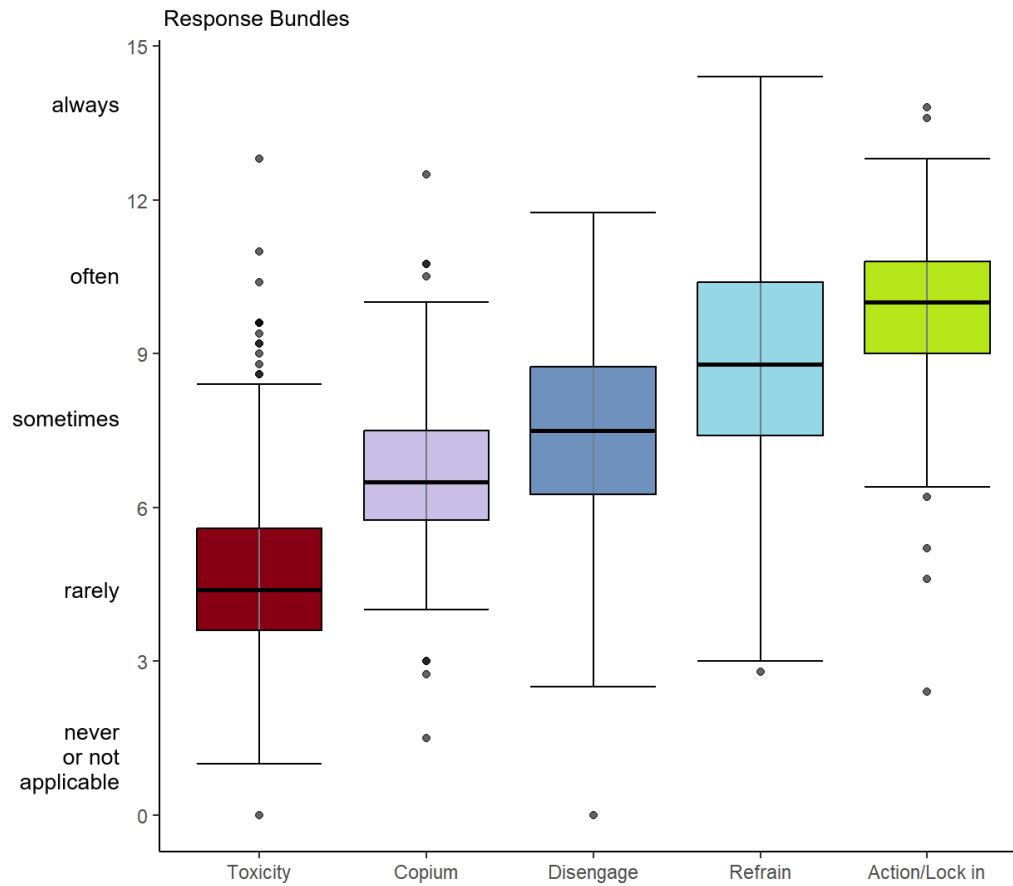
Note also that the “religion” response was removed entirely due to its low occurrence. If included, it would probably be included with “support” (action) alongside seeking support from other people for either instrumental or emotional purposes.

A **factor analysis** of all variables indicated that for the most part, each of the items correlated strongest with their intended variable (as expected, since most of these were taken wholesale from a validated instrument).

A few interesting notes:

- The only ones with smaller than weak associations in their midst were:
 - Denial: “I tell myself ‘It’s just a game’” (D12_3) adapted from “I say to myself ‘This isn’t real’”
 - Mental Disengagement: “I play a different game or mode to get my mind off thing” (D14_2)
- Tilt/ dysregulatory responses were closer associated together than the regulatory ones were. This was more or less expected since they are all supposed to capture the more dysregulatory reactions to tilt.
- Although “venting” was meant to be a regulatory strategy that allowed participants to express venting in a way that didn’t adversely harm their game mates, this variable correlated better with dysregulatory variables such as blaming, aggression, and stopping communication. This was a surprise, but it indicates that venting at all, even when done while muted, is an indicator of tilt.
 - (safe) venting included “I get upset and let my emotions out.”, “I feel a lot of emotional distress and I find myself expressing those feelings a lot” and “I yell or exclaim out loud but mute myself if on a voice call with other people.
 - This “muted” version was more weakly tied (.7 vs .8) to the aggregated “venting” item.
 - It’s possible participants answered the former two without muting and the third as muting because it specified it.

- Note that bundles were not decided based on how they correlated in the factor analysis. That would require a more thorough factor analysis.



Response Bundle Variable	code	mean	stdev	Comprised of these response variables:
Toxicity	rTOX	4.91	1.98	trolling (D2_0), verbal (D4_0), behavioral toxicity (D5_0), aggression (D7_0), venting (R15_0)
Copium	rCOP	6.71	1.61	blaming (D6_0), rumination (D8_0),

				risk taking (D9_0), denial (R12_0)
Disengage	rDNG	7.39	1.84	behavioral (R13_0), mental disengagement (R14_0), rage quitting (D1_0), stop communicating (D3_0)
Refrain	rREF	8.75	2.32	Reappraise (R1_0), positive reinterpretation (R2_0), restrain (R5_0), accept (R10_0), suppress (R11_0)
Active/ Lock in	rACT	9.93	1.62	active coping (R3_0), planning (R4_0), instrumental (R6_0) and emotional support (R7_0), concentrate (R9_0)

Demographic group differences:

Age (INT) -> Responses (INT)

Spearman's r is used because age is NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/24 = 0.002$

Variable	code	Spearman's r	p-value	What does this mean
reappraisal	R1_0	0.6994936	0.3735	Very low positive correlation, not statistically significant.

positive reinterpretation and growth	R2_0	-0.06557199	0.4042	Very low negative correlation, not statistically significant.
active coping	R3_0	-0.05320639	0.4986	Very low negative correlation, not statistically significant.
planning	R4_0	-0.003019969	0.9694	Very low negative correlation, not statistically significant.
restraint coping	R5_0	-0.07488505	0.3406	Very low negative correlation, not statistically significant.
instrumental support	R6_0	0.1622681	0.0379	Very low positive correlation, not statistically significant.
emotional support	R7_0	0.1710542	0.02853	Very low positive correlation, not statistically significant.
religion	R8_0	0.08400807	0.2848	Very low positive correlation, not statistically significant.
concentrating	R9_0	0.1033675	0.1878	Very low positive correlation, not statistically significant.
acceptance	R10_0	-0.07295622	0.3532	Very low negative correlation, not statistically significant.
suppression	R11_0	-0.03366559	0.6687	Very low negative correlation, not statistically significant.
denial	R12_0	0.1619439	0.03829	Very low positive correlation, not statistically significant.
behavioral disengagement	R13_0	-0.02535842	0.7472	Very low negative correlation, not statistically significant.
mental disengagement	R14_0	0.01690902	0.8298	Very low positive correlation, not statistically significant.
safe venting	R15_0	0.1064611	0.1748	Very low positive correlation, not statistically significant.
rage quit	D1_0	0.1373421	0.07948	Very low positive correlation, not statistically significant.

trolling	D2_0	0.05190468	0.5092	Very low positive correlation, not statistically significant.
stop communicating	D3_0	0.05532898	0.4816	Very low positive correlation, not statistically significant.
verbal toxicity	D4_0	0.04472405	0.5696	Very low positive correlation, not statistically significant.
behavioral toxicity	D5_0	0.05791226	0.4614	Very low positive correlation, not statistically significant.
blaming	D6_0	0.0402347	0.609	Very low positive correlation, not statistically significant.
aggression	D7_0	-0.02514004	0.7493	Very low negative correlation, not statistically significant.
rumination (response)	D8_0	0.006326184	0.9359	Very low positive correlation, not statistically significant.
risk taking	D9_0	-0.02871672	0.7151	Very low negative correlation, not statistically significant.

Age is not related to the responses that participants used.

Properly: Most of the variation in what gets people tilted the most often is not accounted by age, but this is not a statistically significant result at a 5% P-value.

Gender (NOM) -> Responses (INT)

ANOVA is used because gender is a nominal, normally distributed in this sample. Bonferroni correction sets $\alpha = .05/24 = 0.002$.

Variable	code	ANOVA (F)	df	p-value	What does this mean
reappraisal	R1_0	1.34	3, 161	0.263	Most variation is not due to gender difference. Not statistically significant
positive reinterpretation and growth	R2_0	0.389	3, 161	0.761	Most variation is not due to gender difference. Not statistically significant
active coping	R3_0	0.502	3, 161	0.681	Most variation is not due to

					gender difference. Not statistically significant
planning	R4_0	1.791	3, 161	0.151	Most variation is not due to gender difference. Not statistically significant
restraint coping	R5_0	1.484	3, 161	0.221	Most variation is not due to gender difference. Not statistically significant
instrumental support	R6_0	0.193	3, 161	0.901	Most variation is not due to gender difference. Not statistically significant
emotional support	R7_0	0.389	3, 161	0.761	Most variation is not due to gender difference. Not statistically significant
religion	R8_0	1.426	3, 161	0.237	Most variation is not due to gender difference. Not statistically significant
concentrating	R9_0	1.265	3, 161	0.288	Most variation is not due to gender difference. Not statistically significant
acceptance	R10_0	0.515	3, 161	0.672	Most variation is not due to gender difference. Not statistically significant
suppression	R11_0	1.663	3, 161	0.177	Most variation is not due to gender difference. Not statistically significant
denial	R12_0	0.613	3, 161	0.608	Most variation is not due to gender difference. Not statistically significant
behavioral disengagement	R13_0	0.514	3, 161	0.673	Most variation is not due to gender difference. Not statistically significant
mental disengagement	R14_0	0.151	3, 161	0.929	Most variation is not due to gender difference. Not statistically significant
safe venting	R15_0	0.808	3, 161	0.491	Most variation is not due to gender difference. Not

					statistically significant
rage quit	D1_0	3.918	3, 161	0.00983	There is a statistically significant variation due to gender.
trolling	D2_0	7.473	3, 161	0.000103	There is a statistically significant variation due to gender.
stop communicating	D3_0	2.283	3, 161	0.0811	Most variation is not due to gender difference. Not statistically significant
verbal toxicity	D4_0	5.618	3, 161	0.00109	There is a statistically significant variation due to gender.
behavioral toxicity	D5_0	6.922	3, 161	0.000206	There is a statistically significant variation due to gender.
blaming	D6_0	0.299	3, 161	0.826	Most variation is not due to gender difference. Not statistically significant
aggression	D7_0	2.951	3, 161	0.0344	Most variation is not due to gender difference. Not statistically significant
rumination (response)	D8_0	3.108	3, 161	0.0281	Most variation is not due to gender difference. Not statistically significant
risk taking	D9_0	4.65	3, 161	0.00381	Most variation is not due to gender difference. Not statistically significant

Follow up ttests were conducted with Benjamini-Hochberg corrections for false discovery rate (more common in social sciences work and more permissive than Bonferroni). P-value accepted: 0.05

Gend > D1_0	male	female	Gend > rage quit (D1_0) Male mean = 5.30 Female mean = 4.22 > Male-identifying participants rage quit more often than female-identifying participants.
female	<u>0.017</u>	-	
enby	0.207	0.589	

Gend > D2_0	male	female	Gend > trolling (D2_0) Male mean = 5.17 Female mean = 3.63 > Male-identifying participants trolled more often than female-identifying participants.
female	<u>0.00017</u>	-	
enby	0.14127	0.92551	

Gend > D4_0	male	female	Gend > verbal toxicity (D4_0) Male mean = 4.90 Female mean = 3.57 > Male-identifying participants engaged in verbal toxicity more often than female-identifying participants.
female	<u>0.0017</u>	-	
enby	0.2597	0.8721	

Gend > D5_0	male	female	Gender > behavioral toxicity (D5_0) Male mean= 5.68 Female mean = 3.79 > Male-identifying participants engaged in behavioral toxicity more often than female-identifying participants.
female	<u>0.00013</u>	-	
enby	0.34952	0.54829	

Men respond by rage-quitting, trolling, verbal and behavioral toxicity more than women.

Properly: There is a statistically significant (at the 95% confidence interval/ P-value < 0.05) variation in responses to rage quitting, trolling, verbal and behavioral toxicity amongst gender differences. Follow up T-tests indicate male-identifying participants engaged in all of these more than female-identifying participants.

Education (ORD) -> Responses (INT)

Kruskal-Wallis used because education is an ordinal variable NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/24 = 0.002$.

Variable	code	Kruskal- Wallis	df	p-value	What does this mean
reappraisal	R1_0	8.461	4	0.07608	Most variation is not due to education differences. Not statistically significant

positive reinterpretation and growth	R2_0	3.0625	4	0.5474	
active coping	R3_0	7.6365	4	0.1058	
planning	R4_0	3.2376	4	0.5189	
restraint coping	R5_0	2.7943	4	0.5928	
instrumental support	R6_0	7.213	4	0.1251	
emotional support	R7_0	3.4287	4	0.4888	
religion	R8_0	2.3296	4	0.6754	
concentrating	R9_0	2.9645	4	0.5638	
acceptance	R10_0	3.1941	4	0.5259	
suppression	R11_0	0.13276	4	0.9979	
denial	R12_0	8.2164	4	0.08397	
behavioral disengagement	R13_0	0.85997	4	0.9302	
mental disengagement	R14_0	2.8109	4	0.59	
safe venting	R15_0	1.7499	4	0.7816	
rage quit	D1_0	3.453	4	0.4851	
trolling	D2_0	1.8495	4	0.7634	
stop communicating	D3_0	2.7962	4	0.5925	
verbal toxicity	D4_0	1.7823	4	0.7757	
behavioral toxicity	D5_0	2.0163	4	0.7328	

blaming	D6_0	3.6832	4	0.4506	
aggression	D7_0	2.0697	4	0.7229	
rumination (response)	D8_0	0.9058	4	0.9237	
risk taking	D9_0	4.5909	4	0.3319	

Education is not related to what gets people tilted.

Properly: Most of the variation in what gets people tilted the most often is not accounted by education level, but this is not a statistically significant result at a 5% P-value.

Ethnicity (NOM) -> Responses (INT)

Kruskal-Wallis used because ethnicity is an ordinal variable NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/24 = 0.002$

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
reappraisal	R1_0	5.8674	3	0.1182	Most variation is not due to ethnicity differences. Not statistically significant.
positive reinterpretation and growth	R2_0	8.7632	3	0.03261	
active coping	R3_0	11.748	3	0.008297	There is <i>nearly</i> a significant variation due to ethnicity
planning	R4_0	10.936	3	0.01208	
restraint coping	R5_0	2.5315	3	0.4696	
instrumental support	R6_0	7.8402	3	0.04943	
emotional support	R7_0	5.3517	3	0.1478	

religion	R8_0	1.4802	3	0.6868	
concentrating	R9_0	8.4203	3	0.03808	
acceptance	R10_0	0.28027	3	0.9637	
suppression	R11_0	3.9215	3	0.2701	
denial	R12_0	5.408	3	0.1442	
behavioral disengagement	R13_0	1.498	3	0.6827	
mental disengagement	R14_0	7.8435	3	0.04936	
safe venting	R15_0	0.71385	3	0.8699	
rage quit	D1_0	0.76279	3	0.8583	
trolling	D2_0	1.9895	3	0.5746	
stop communicating	D3_0	0.60229	3	0.8959	
verbal toxicity	D4_0	2.9028	3	0.4069	
behavioral toxicity	D5_0	2.6035	3	0.4569	
blaming	D6_0	1.5813	3	0.6636	
aggression	D7_0	4.537	3	0.209	
rumination (response)	D8_0	3.7058	3	0.295	
risk taking	D9_0	6.5792	3	0.08659	

Ethnicity is not related to how players respond to tilt.

Properly: At a 95% confidence level, most of the variation in how players respond to tilt is not accounted for by ethnicity.

Personality (INT) -> Responses (INT)

Correlation matrix with Pearson's r . (This should probably be Spearman's r instead because most of personality was nonparametric, but Pearson's r was much easier to do.) *Bonferroni correction sets $\alpha = .05/264 = 0.0002$. Italics indicate non-significance.*

Pearson-product r is a correlation between 0-1 for strength, +/- for direction of relationship, and p -value.

	Social compe tence	nonac ceptan ce	emotio nal aware ness	goal conce ntratio n	recove ry	clarity	Emotio nal regulat ion (tende ncy)	impulsi vity	empat hy	Rumin ation (perso nality)	Reflect ion
reappraisal	0.158	0.027	0.194	0.052	0.290	0.311	0.359	-0.144	0.154	-0.142	0.261
positive reinterpretation and growth	0.286	-0.002	0.128	0.073	0.249	0.196	0.294	-0.117	0.188	-0.052	0.277
active coping	0.184	-0.004	0.109	0.000	0.157	0.147	0.301	-0.104	0.193	0.122	0.259
planning	0.196	0.018	0.205	0.054	0.147	0.200	0.263	-0.113	0.214	0.184	0.265
restraint coping	-0.093	0.118	-0.024	-0.102	-0.093	0.107	0.035	0.021	0.080	0.123	0.080
instrumental support	0.272	0.135	0.079	0.048	0.022	0.150	0.072	0.121	0.086	0.069	0.143
emotional support	0.163	0.095	-0.042	0.030	-0.063	0.031	-0.030	0.179	0.087	-0.084	0.084
religion	0.179	-0.042	-0.103	0.086	-0.062	0.061	0.079	0.122	-0.195	-0.139	0.156
concentrating	0.010	0.121	0.032	-0.039	-0.153	0.053	-0.055	0.165	-0.067	0.051	0.123
acceptance	0.131	0.024	0.263	-0.023	0.105	0.178	0.172	-0.035	0.289	0.074	0.135
suppression	-0.238	0.043	-0.060	-0.073	-0.070	-0.025	0.068	-0.116	-0.007	0.147	0.018
denial	-0.005	0.122	-0.171	-0.161	-0.148	-0.114	-0.194	0.156	-0.121	0.030	-0.056

behavioral disengagement	-0.154	0.014	-0.081	-0.161	-0.151	-0.027	-0.093	0.063	-0.005	-0.005	-0.032
mental disengagement	-0.006	0.150	0.044	-0.138	0.142	-0.050	0.058	-0.015	0.178	0.129	0.061
safe venting	0.011	0.072	-0.102	-0.078	-0.209	-0.235	-0.299	0.420	-0.195	-0.014	0.024
rage quit	0.037	-0.106	-0.237	0.055	-0.125	-0.106	-0.186	0.162	-0.252	-0.195	-0.177
trolling	0.112	-0.032	-0.220	0.099	-0.082	-0.135	-0.134	0.229	-0.284	-0.174	-0.061
stop communicating	0.068	-0.017	-0.155	0.019	-0.128	-0.177	-0.253	0.301	-0.205	-0.083	-0.042
verbal toxicity	0.099	-0.088	-0.121	0.057	-0.085	-0.081	-0.082	0.225	-0.259	-0.126	-0.006
behavioral toxicity	0.175	-0.024	-0.123	0.067	-0.046	-0.076	-0.101	0.210	-0.269	-0.138	-0.050
blaming	0.016	0.042	0.037	0.002	0.025	0.018	0.039	0.084	-0.097	-0.013	0.133
aggression	-0.005	-0.040	-0.206	0.109	-0.222	-0.163	-0.156	0.287	-0.223	-0.156	-0.085
rumination (response)	-0.112	0.077	-0.126	-0.101	-0.281	-0.213	-0.221	0.268	-0.040	0.198	0.006
risk taking	0.092	-0.107	-0.037	0.050	-0.084	-0.135	-0.063	0.174	-0.143	-0.078	0.024

These are mostly very weak relationships

- (emotional regulation tendency, reflection x reappraisal, positive reinterpretation, active coping, planning) There is a very weak relationship between better tendency to emotionally regulate and choosing an active regulation strategy. This is interesting because it indicates tilt is indeed affected by self-regulation tendencies.
 - There is a weaker but statistically insignificant relationship with reflection and these strategies. This is interesting because it indicates reflection is partway there.
- (impulsivity x safe venting, stop communication, aggression, rumination) There is a weak relationship between impulsivity and engaging in safe venting practices, stopping communication, and aggressive regulation. This might be because someone is quick to rant, express their frustration physically and overthink long after the game, but they don't

want others to be similarly affected by their tilt and mute or stop communicating about the game as much.

- (emotional regulation tendency, safe venting, stop communication) There is a weak relationship between the tendency to self regulate and NOT venting (and very weak for stopping communication). This is interesting as a foil for impulsivity – someone taking the time to self-regulate on the norm would not be someone impulsive.
- (empathy x rage quit, trolling, verbal, behavioral toxicity) There is a very weak relationship between empathy and NOT choosing to rage quit, troll, or be toxic. This makes sense because these strategies would be taking deliberate action to hurt other people.
- (social competence x positive reinterpretation and growth) This is a weak relationship but might reflect the “giving people the benefit of the doubt” kind of action.
- (empathy x acceptance) This is a weak relationship that might just be accepting the situation because they are aware it’s what’s happening with other people.

Amount (G_hrs, INT) -> Responses (INT)

Spearman’s r is used because gameplay amount was NOT normally distributed in this sample.

Bonferroni correction sets $\alpha = .05/24 = 0.002$

Variable	code	Spearman’s r	p-value	What does this mean
reappraisal	R1_0	0.04042783	0.6062	Very low positive correlation, not statistically significant.
positive reinterpretation and growth	R2_0	-0.03150907	0.6879	Very low negative correlation, not statistically significant.
active coping	R3_0	-0.003893177	0.9604	
planning	R4_0	-0.01503597	0.848	
restraint coping	R5_0	-0.0782533	0.3178	
instrumental support	R6_0	-0.1288283	0.09912	

emotional support	R7_0	-0.02305036	0.7689	
religion	R8_0	-0.1119733	0.1522	
concentrating	R9_0	0.0200423	0.7983	
acceptance	R10_0	0.188068	0.01556	Not quite significant
suppression	R11_0	-0.0004318626	0.9956	
denial	R12_0	-0.09242131	0.2377	
behavioral disengagement	R13_0	-0.2358201	0.002294	More time per week spent playing is correlated with less behavioral disengagement.
mental disengagement	R14_0	0.1214658	0.1201	
safe venting	R15_0	-0.001202115	0.9878	
rage quit	D1_0	0.04014489	0.6087	
trolling	D2_0	0.1375849	0.07802	
stop communicating	D3_0	0.0230293	0.7691	
verbal toxicity	D4_0	0.1799387	0.02074	Not quite significant
behavioral toxicity	D5_0	0.196031	0.01162	Not quite significant
blaming	D6_0	0.06928058	0.3766	
aggression	D7_0	0.1794812	0.02107	Not quite significant
rumination (response)	D8_0	0.1616185	0.03809	Not quite significant
risk taking	D9_0	0.1603066	0.0397	Not quite significant

In general how much a player plays every week is not related to how they respond to tilt.

However, there is a statistically significant (at the 5% Pvalue) variation in how often a player chooses to behaviorally disengage due to how much a player plays. Someone who plays more per week is less likely to likely to give up.

Length of Experience (G_yrs, INT) -> Responses (INT)

Pearson's r is used because is gameplay length IS normally distributed in this sample.

Bonferroni correction sets alpha = .05/24 = 0.002

Variable	code	Pearson's r	p-value	What does this mean
reappraisal	R1_0	0.09074534	0.2464	Very low positive correlation, not statistically significant.
positive reinterpretation and growth	R2_0	-0.02728467	0.7279	
active coping	R3_0	0.05398747	0.491	
planning	R4_0	0.04698231	0.549	
restraint coping	R5_0	-0.1720966	0.02708	Not quite significant
instrumental support	R6_0	0.04733931	0.546	
emotional support	R7_0	0.03509145	0.6545	
religion	R8_0	-0.07744302	0.3228	
concentrating	R9_0	-0.01594441	0.8389	
acceptance	R10_0	-0.01777661	0.8207	
suppression	R11_0	-0.03660961	0.6406	
denial	R12_0	-0.09015084	0.2495	
behavioral disengagemen	R13_0	-0.1939638	0.01255	Not quite significant

t				
mental disengagement t	R14_0	0.08052388	0.3039	
safe venting	R15_0	0.0321942	0.6814	
rage quit	D1_0	0.03751435	0.6324	
trolling	D2_0	0.04253431	0.5875	
stop communicating	D3_0	0.008538366	0.9133	
verbal toxicity	D4_0	0.1728254	0.02643	Not quite significant
behavioral toxicity	D5_0	0.1868107	0.01628	Not quite significant
blaming	D6_0	0.1435965	0.06576	
aggression	D7_0	0.04659028	0.5524	
rumination (response)	D8_0	0.01193692	0.8791	
risk taking	D9_0	0.05371977	0.4932	

How long a player has been playing games does not affect how they choose to respond.

This indicates there's nothing inherent in playing games that lends itself to regulating emotions in a particular way.

Gamer Identity and Expertise (G_sum, INT) -> Response (INT)

G_sum is an interval, composite variable constructed by summing the three likert(1-5) ordinal scales gamer identity (G_gmr), and perceived experience (G_gud, G_skl). These were originally used to measure if participants identified as a "gamer" and whether they believed they were skilled at playing games.

Spearman's r is used because is G_sum is NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/24 = 0.002$

Variable	code	Spearman's r	p-value	What does this mean
reappraisal	R1_0	0.2031238	0.008879	Very low positive correlation, not statistically significant.
positive reinterpretation and growth	R2_0	0.1412253	0.0704	
active coping	R3_0	0.2147807	0.0056	
planning	R4_0	0.2740774	0.0003676	Gamer identity and expertise is weakly correlated with planning when tilted.
restraint coping	R5_0	0.000879634	0.9911	
instrumental support	R6_0	0.1226934	0.1164	
emotional support	R7_0	0.02248085	0.7744	
religion	R8_0	0.07016221	0.3705	
concentrating	R9_0	-0.006326107	0.9357	
acceptance	R10_0	0.05926928	0.4495	
suppression	R11_0	-0.007413111	0.9247	
denial	R12_0	-0.1234284	0.1142	
behavioral disengagement	R13_0	-0.158748	0.04169	
mental disengagement	R14_0	0.09402774	0.2296	
venting	R15_0	0.01088449	0.8896	
rage quit	D1_0	0.00309268	0.9686	

trolling	D2_0	0.09955814	0.2033	
stop communicating	D3_0	0.03059137	0.6965	
verbal toxicity	D4_0	0.2052275	0.008184	
behavioral toxicity	D5_0	0.2766385	0.000322	Gamer identity and expertise is weakly correlated with behavioral toxicity when tilted.
blaming	D6_0	0.03858878	0.6227	
aggression	D7_0	0.02335927	0.7658	
rumination (response)	D8_0	0.120097	0.1244	
risk taking	D9_0	0.1884805	0.01533	

Gaming identity and perceived experience are very weakly correlated to planning and behavioral toxicity. While these are statistically significant, they are very weak correlations.

- Planning is exciting! It shows that part of the gaming identity and having skill and experience playing is tied to constantly planning for the next move, even when frustrated.
- Behavioral toxicity is also interesting, because it indicates that performing toxic behaviors becomes is also part of the gaming identity. This may be due to a belief that having skill and experience allows them to “flex” or show off in ways that can be seen as toxic to others.

Genre (ORDx6) -> Responses (INT)

This is basically “The frequency of playing X genre affects how often the player is responds by Y type of response”

These were run with only selected genres: shooter(G3), Fighting (G4), RPG (G9), Sadox (G11), Simulation (G12), Puzzle (G13)

Kruskal-Wallis used because genre is an ordinal variable NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/30 = 0.002$.

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
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For Shooter (G3)					
Toxicity	rTOX	6.5997	4	0.1586	Most variation is not due to genre differences. Not statistically significant
Copium	rCOP	9.0707	4	0.05936	
Disengage	rDNG	4.8886	4	0.2989	
Refrain	rREF	6.5765	4	0.16	
Action	rACT	5.8201	4	0.213	
For action RPG (G6)					
Toxicity	rTOX	3.7445	4	0.4417	
Copium	rCOP	5.3515	4	0.2531	
Disengage	rDNG	2.9928	4	0.559	
Refrain	rREF	0.74324	4	0.9459	
Action	rACT	1.8287	4	0.7672	
For RPG (G9)					
Toxicity	rTOX	7.053	4	0.1331	
Copium	rCOP	6.101	4	0.1917	
Disengage	rDNG	3.8964	4	0.4202	
Refrain	rREF	7.2568	4	0.1229	
Action	rACT	4.3316	4	0.363	
For Party (G10)					
Toxicity	rTOX	2.6475	4	0.6184	
Copium	rCOP	1.3896	4	0.846	
Disengage	rDNG	3.252	4	0.5166	
Refrain	rREF	1.6459	4	0.8005	
Action	rACT	4.4032	4	0.3542	

For Sandbox (G11)					
Toxicity	rTOX	14.988	4	0.004726	
Copium	rCOP	6.214	4	0.1837	
Disengage	rDNG	9.303	4	0.05396	
Refrain	rREF	7.7174	4	0.1025	
Action	rACT	4.4454	4	0.3491	
For Simulation (G12)					
Toxicity	rTOX	3.4038	4	0.4927	
Copium	rCOP	6.1647	4	0.1872	
Disengage	rDNG	5.9265	4	0.2047	
Refrain	rREF	10.858	4	0.02821	
Action	rACT	3.8307	4	0.4294	

Frequency of playing a genre was not linked to how someone chose to respond to tilt.

Social Context (ORDx6) -> Responses (INT)

C1-6. This is basically “The frequency of playing with X group affects how often the player is responds by Y type of response”

Kruskal-Wallis used because genre is an ordinal variable NOT normally distributed in this sample. Bonferroni correction sets $\alpha = .05/30 = 0.002$

Variable	code	Kruskal-Wallis	df	p-value	What does this mean
For Alone (C1)					
Toxicity	rTOX	7.2567	4	0.1229	Most variation is not due to social context differences. Not statistically significant
Copium	rCOP	2.3476	4	0.6721	
Disengage	rDNG	2.783	4	0.5948	

Refrain	rREF	1.1321	4	0.8892	
Action	rACT	3.7338	4	0.4432	
For IRL Friends (C2)					
Toxicity	rTOX	6.4498	4	0.168	
Copium	rCOP	4.7681	4	0.3119	
Disengage	rDNG	5.1675	4	0.2705	
Refrain	rREF	6.4001	4	0.1712	
Action	rACT	2.2461	4	0.696	
For online friend (C3)					
Toxicity	rTOX	3.4756	4	0.4816	
Copium	rCOP	7.3221	4	0.1198	
Disengage	rDNG	4.9055	4	0.2971	
Refrain	rREF	6.6583	4	0.1551	
Action	rACT	3.1829	4	0.5277	
For Family (C4)					
Toxicity	rTOX	7.5206	4	0.1108	
Copium	rCOP	3.2776	4	0.5125	
Disengage	rDNG	3.5583	4	0.4691	
Refrain	rREF	3.8388	4	0.4283	
Action	rACT	5.3968	4	0.2489	
For Partners (C5)					
Toxicity	rTOX	5.5905	4	0.2319	
Copium	rCOP	4.7142	4	0.3179	
Disengage	rDNG	7.7515	4	0.1011	
Refrain	rREF	9.3937	4	0.05198	

Action	rACT	3.2363	4	0.5191	
For Strangers (C6)					
Toxicity	rTOX	10.504	4	0.03274	
Copium	rCOP	7.5176	4	0.1109	
Disengage	rDNG	12.126	4	0.01644	
Refrain	rREF	3.6145	4	0.4607	
Action	rACT	8.6207	4	0.07131	

Frequency of playing with a particular group was not linked to how someone chose to respond to tilt.

Is it social content or features of the game that shape responses?

Neither social context nor the features of the game (genre) seems to shape how players responded to tilt.

Motivation (ORDx6) -> Responses (INT)

M1-6. This is basically "The prioritization of playing with X motivation affects how often the player is responds by Y type of response"

ANOVA is used because motivation is ordinal, mostly normally distributed in this sample.

Bonferroni correction sets $\alpha = .05/30 = 0.002$

Variable	code	ANOVA (F)	df	p-value	What does this mean
For Immersion (M1)					
Toxicity	rTOX	0.223	1, 163	0.638	Most variation is not due to motivation differences. Not statistically significant
Copium	rCOP	0.155	1, 163	0.694	
Disengage	rDNG	4.011	1, 163	0.0469	
Refrain	rREF	0.117	1,	0.733	

			163		
Action	rACT	2.799	1,163	0.0962	
For Other's Immersion (M2)					
Toxicity	rTOX	3.798	1,163	0.053	
Copium	rCOP	1.641	1,163	0.202	
Disengage	rDNG	5.178	1,163	0.0242	
Refrain	rREF	4.602	1,163	0.0334	
Action	rACT	2.642	1,163	0.106	
For Outcome (M3)					
Toxicity	rTOX	3.7	1,163	0.0562	
Copium	rCOP	0.154	1,163	0.696	
Disengage	rDNG	10.73	1,163	0.00129	Prioritizing outcome of the game/match leads to getting choosing to disengage more often.
Refrain	rREF	0.024	1,163	0.878	
Action	rACT	0.016	1,163	0.901	
For improvement (M4)					
Toxicity	rTOX	13.55	1,163	0.000316	Prioritizing individual improvement leads to responding with toxicity more often
Copium	rCOP	3.776	1,163	0.0537	
Disengage	rDNG	28.22	1,163	3.51e-07	Prioritizing individual improvement leads to

					responding with disengagement
Refrain	rREF	0.159	1,163	0.69	
Action	rACT	3.85	1,163	0.0514	
For Escape (M5)					
Toxicity	rTOX	1.49	1,163	0.224	
Copium	rCOP	15.85	1,163	0.000103	Prioritizing escape leads to responding with deflection or self-defeating more often.
Disengage	rDNG	10.29	1,163	0.00161	Prioritizing escape leads to responding with disengagement more often.
Refrain	rREF	0.162	1,163	0.688	
Action	rACT	3.341	1,163	0.0694	
For Social Relationships (M6)					
Toxicity	rTOX	11.9	1,163	0.000713	Prioritizing social relationships leads to responding with toxicity more often.
Copium	rCOP	3.506	1,163	0.0629	
Disengage	rDNG	7.457	1,163	0.00701	
Refrain	rREF	3.086	1,163	0.0809	
Action	rACT	1.594	1,163	0.209	

Follow up ttests were conducted with Benjamini-Hochberg corrections for false discovery rate (more common in social sciences work and more permissive than Bonferroni). These were rounded to the 4th decimal rather than copied directly. P-value accepted: 0.05

M3> rDNG	Not a priority	low	medium	high	Outcome (M3) > Disengage response (rDNG) Not a priority mean = 5.25 Low priority mean = 6.75 Medium priority mean = 7.21 High priority mean = 7.78 Essential priority mean = 7.85 > Participants who prioritized outcome of the games seemed to disengage more; however, none of these are actually significant? The omnibus says there is a difference but individual ttests indicate no difference. This is possibly an instance in
low	0.33				
medium	0.20	0.51			
high	0.12	0.12	0.24		
essential	0.12	0.12	0.27	0.86	

M4 > rTOX	Not a priority	low	medium	high	improvement motivation (M4) > Toxicity response (rTOX) <u>Not a priority mean = 3.28</u> Low priority mean = 4.61 Medium priority mean = 4.99 High priority mean = 5.01 <i>Essential priority mean = 6.06</i> > Participants who did not prioritize improvement were less likely respond with toxicity. Participants who saw improvement as essential though, were also more likely to be toxicity.
low	0.1122				
medium	<u>0.0465</u>	0.4486			
high	<u>0.0465</u>	0.4486	0.9520		
essential	<u>0.0047</u>	<u>0.0465</u>	0.1007	0.1007	

M4 > rDNG	Not a priority	low	medium	high	improvement motivation (M4) > Disengage response (rDNG) <u>Not a priority mean = 5.43</u> Low priority mean = 6.89 Medium priority mean = 7.18
low	<u>0.0441</u>				

medium	<u>0.0095</u>	0.5236			High priority mean = 7.86 <u>Essential priority mean = 8.68</u> > Participants who did not prioritize improvement were less likely disengage Participants who saw improvement as essential though, were also more likely to be disengage.
high	<u>0.0004</u>	<u>0.0376</u>	0.0780		
essential	<u>4.6e-05</u>	<u>0.0030</u>	<u>0.0055</u>	0.1370	

M5 > rCOP	Not a priority	low	medium	high	Escape (M5) > Copium response (rCOP)
low	0.3314				Not a priority mean = 5.10 Low priority mean = 5.95 Medium priority mean = 6.44 High priority mean = 6.69 <u>Essential priority mean = 7.63</u> > Participants who prioritized escape/emotional catharsis as essential were more likely to respond by “copium” methods, which seem like they would do something but are also not particularly useful.
medium	0.1152	0.3314			
high	0.0654	0.1530	0.3823		
essential	<u>0.0033</u>	<u>0.0033</u>	<u>0.0033</u>	<u>0.0186</u>	

M5 > rDNG	Not a priority	low	medium	high	Escape (M5) > Disengage response (rDNG)
low	0.061				Not a priority mean = 5.45 Low priority mean = 7.77 Medium priority mean = 6.92 High priority mean = 7.45 <u>Essential priority mean = 8.21</u> > Participants who prioritized escape/emotional catharsis as essential were more likely to respond by disengaging.
medium	0.194	0.211			
high	0.061	0.634	0.211		
essential	<u>0.010</u>	0.595	<u>0.010</u>	0.152	

M6 > rTOX	Not a priority	low	medium	high	Social Relationships (M6) > Toxicity response (rTOX) Not a priority mean = 4.48
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low	0.7563				Low priority mean = 4.69 Medium priority mean = 4.48 High priority mean = 5.32 <u>Essential priority mean = 6.21</u> > Participants who prioritized social relationships as essential were more likely to respond with toxicity.
medium	0.9927	0.6995			
high	0.2537	0.2537	0.1429		
essential	<u>0.0345</u>	<u>0.0258</u>	<u>0.0096</u>	0.2336	

When prioritizing the Outcome of the game, Individual improvement, or Escape while playing, players are more likely to respond with disengagement behaviors.

Additionally, when prioritizing the individual improvement or Social Relationships, players are more likely to respond with toxicity.

When prioritizing Escape though, players are more likely to respond with tactics that deflect or explain away their involvement.

>> This indicates that players feel a certain amount of control and responsibility for their play when playing with these motivations.

Note that only tilting strategies were linked, not the more regulatory responses.

5. PARTIAL CORRELATIONS FOR TRIGGERS-RESPONSES

Response bundles are used for most of these analyses. A more detailed breakdown is only provided for the zero order relationship of Trigger -> Responses.

Correlation matrix: Triggers (INT) -> Responses (INT)

5 triggers x 24 responses

Correlation matrix with Pearson's r. *Bonferroni correction sets alpha = .05/120 = 0.0004*

		Game	Team	Opponent	Self	Loss
toxic	venting	0.474	0.362	0.384	0.341	0.249
	trolling	0.342	0.242	0.185	0.214	0.129
	aggression	0.333	0.362	0.243	0.288	0.145
	verbal toxicity	0.285	0.271	0.175	0.178	0.056
	behavioral toxicity	0.320	0.352	0.190	0.253	0.083
copium	denial	0.266	0.298	0.178	0.293	0.228
	blaming	0.134	0.301	0.175	0.223	0.170
	rumination (response)	0.280	0.227	0.210	0.306	0.250
	risk taking	0.237	0.254	0.222	0.197	0.102
disengage	behavioral disengagement	0.210	0.225	0.269	0.191	0.330
	mental disengagement	0.001	0.100	0.157	0.194	0.181
	rage quit	0.308	0.258	0.134	0.100	0.185
	stop communicating	0.275	0.327	0.256	0.242	0.127
	reappraisal	0.063	0.158	0.075	0.070	0.074

refrain

	positive reinterpretation and growth	-0.050	0.076	-0.026	0.028	0.003
	restraint coping	0.020	0.080	-0.004	0.115	0.128
	acceptance	-0.003	0.091	-0.031	-0.042	0.029
	suppression	0.075	0.133	0.053	0.144	0.142
active	active coping	-0.006	0.103	0.066	0.063	0.046
	planning	-0.132	-0.010	0.051	0.049	-0.036
	instrumental support	0.111	0.244	0.177	0.193	0.186
	emotional support	0.070	0.264	0.167	0.173	0.169
	concentrating	0.159	0.142	0.121	0.113	0.217
	religion	0.253	0.236	0.148	0.112	0.141

Most of these are weak relationships.

- (game x venting, rage quit, trolling, toxicity, aggression) Getting tilted by the game has a weak relationship with aggressive, reactive tilting behavior.
- (team x denial, venting, stop communicating, behavioral toxicity, aggression) These are generally more restrained behaviors, or at least (aside from toxicity) not affecting others on their team?
- (opponents x venting) Perhaps ranting with the team on the opponents?
- (self x denial, venting, rumination) Rumination showing up here indicated that participants are most likely able to continue to think about their own mistakes.
- (loss x behavioral disengagement) This is a very understandable reaction and often recommended – when losing multiple times in a row, this is a clear sign to “take a break”

0 order: Triggers (INT) -> Responses (INT)

5 triggers x 5 response bundles.

Correlation matrix with Pearson's r . *Bonferroni correction sets $\alpha = .05/25 = 0.002$*

Nonsignificant results are marked with italics.

	Game	Team	Opponent	Self	Loss
Toxicity	0.441	0.399	0.297	0.321	0.167
Copium	0.306	0.353	0.317	0.282	0.311
Disengage	0.334	0.398	0.291	0.369	0.269
Refrain	0.071	0.221	0.169	0.173	0.175
Active	0.035	0.179	0.020	0.104	0.127

Game, Team, Opponent, and Self triggers are weakly correlated with Toxic, Copium, and Disengage responses. Loss triggers are weakly correlated with copium responses.

Note that the more regulatory groups (refrain and active) had nonsignificant or no correlations at this level.

Gameplay Habits (Partial tables or Trigger -> Responses, divided by different gameplay habits)

1. Amount of gameplay (G_hrs, INT)

These partial tables differentiate the effect amount of gameplay has on the trigger and response relationship.

LOW Gameplay Amount (<=5 hours/ week)					(n=59)
	Game	Team	Opponent	Self	Loss
Toxicity	0.388	0.339	0.114	0.112	0.086
Copium	0.379	0.420	0.379	0.273	0.251
Disengage	0.355	0.471	0.241	0.311	0.328
Refrain	0.118	0.367	0.237	0.128	0.125
Active	0.181	0.403	0.140	0.086	0.229
MEDIUM (5-10 hrs/wk)					(n=40)
	Game	Team	Opponent	Self	Loss

Toxicity	0.316	0.379	0.376	0.348	0.173
Copium	0.185	0.471	0.382	0.498	0.395
Disengage	0.268	0.543	0.528	0.483	0.373
Refrain	-0.211	0.021	-0.163	0.204	0.150
Active	-0.027	0.337	0.081	0.407	0.192
HIGH (more than 10 hrs/wk)					(n=66)
	Game	Team	Opponent	Self	Loss
Toxicity	0.570	0.463	0.399	0.498	0.252
Copium	0.326	0.202	0.221	0.163	0.297
Disengage	0.418	0.221	0.210	0.386	0.177
Refrain	0.204	0.208	0.305	0.209	0.236
Active	-0.070	-0.184	-0.136	-0.026	0.023

- (looking across responses) Participants who played fewer than five hours a week were more likely to respond by disengaging. Those that played more (5-10 hours) had the widest range of responses. Participants who played over ten hours a week were more likely to have toxic responses.
 - Disengage falling off makes sense – continuing to play despite the triggers implies they are either doing emotional work or getting tilted. Also because they're playing a lot. That means they're not disengaging.
 - Toxicity report @Agnes – newer players are more likely to just leave. This is player churn– once there is an established (toxic culture) it wards off/ chases off newer players.
 - This might be a bit of a goldilocks effect where just a little means they aren't playing enough to require more than taking a break, while playing too much leads to toxic responses.
- (looking down triggers) With more gameplay, participants seemed to be more affected by the team (or people in general, including opponents and themselves) to the game. But with a lot of gameplay, participants seem to be affected primarily by the game.
 - This might be because they're playing more and not playing with the same groups.

- Or because they are better able to understand how the design of the game and systems are creating the scenarios that are tilting, rather than the people.
- (compared to zero order) Amount of gameplay seems to replicate and amplify the zero order relationship.
 - At a medium amount of gameplay correlations to refrain and active responses show up as overall stronger correlations.
 - At medium amount of gameplay Refrain is *negatively* correlated with Game trigger, indicating that players who play a medium amount are actually the most likely to not not use refrain strategies when frustrated by the game. Medium gameplay is a distorter This might be a negative goldilocks situation and the state of “getting good” that is particularly frustrating.
 - OR, it could be they don’t feel like refraining and just leave. Disengage is hyped up here.

2. Length of gameplay (G_yrs, INT)

LOW Length of years played (<= 5 years of experience playing games)					(n=28)
	Game	Team	Opponent	Self	Loss
Toxicity	0.423	0.422	0.021	0.170	0.303
Copium	0.147	0.295	0.008	-0.103	0.218
Disengage	0.393	0.530	0.165	0.223	0.456
Refrain	0.067	0.191	-0.057	-0.098	0.043
Active	-0.014	0.160	0.011	-0.129	0.162
MEDIUM (5-10 yrs)					(n=68)
	Game	Team	Opponent	Self	Loss
Toxicity	0.342	0.286	0.284	0.277	0.020
Copium	0.293	0.393	0.413	0.478	0.303
Disengage	0.269	0.315	0.394	0.436	0.252
Refrain	0.023	0.295	0.225	0.284	0.193
Active	-0.004	0.264	0.023	0.108	0.168

HIGH (>10 yrs)					(n=69)
	Game	Team	Opponent	Self	Loss
Toxicity	0.519	0.467	0.378	0.416	0.204
Copium	0.395	0.328	0.333	0.288	0.352
Disengage	0.362	0.403	0.225	0.393	0.131
Refrain	0.115	0.163	0.213	0.215	0.228
Active	0.105	0.109	0.025	0.237	0.071

- (looking across responses) More experienced players (in years) have a greater variety of response strategies (or for copium, more ways of justifying their frustration without actually tackling it)? This replicates the zero order relationship for the most part at higher length of experience.
- (looking down triggers) With more experience/ years, participants seemed to be more affected by their team (or people in general, including opponents and themselves) in the game.
 - Low length of gameplay might just be that they are usually focused on learning the game and their own team, without much regard to how they are contributing to the team or how their opponents are.
 - Or because they are better able to understand how the design of the game and systems are creating the scenarios that are tilting, rather than the people.
 - Higher expectations of themselves and those familiar with.

3. Stakes of play (G_rk, G_ch)

Often/Always play ranked gams					(n=70)
	Game	Team	Opponent	Self	Loss
Toxicity	0.443	0.271	0.122	0.188	0.146
Copium	0.415	0.338	0.299	0.310	0.376
Disengage	0.265	0.327	0.131	0.318	0.254
Refrain	0.085	0.306	0.275	0.291	0.413
Active	0.001	0.136	-0.013	0.070	0.158

Don't often play ranked games (Never - Sometimes)					(n=95)
	Game	Team	Opponent	Self	Loss
Toxicity	0.373	0.436	0.406	0.357	0.182
Copium	0.162	0.324	0.297	0.209	0.247
Disengage	0.324	0.379	0.350	0.341	0.275
Refrain	0.011	0.131	0.069	0.050	-0.005
Active	0.021	0.168	0.009	0.089	0.101
Often/ Always play challenges					(n=22)
	Game	Team	Opponent	Self	Loss
Toxicity	0.452	0.389	0.219	0.260	0.124
Copium	0.375	0.256	0.444	0.079	0.401
Disengage	0.395	0.246	0.206	0.270	0.224
Refrain	-0.076	0.296	0.214	0.250	0.442
Active	-0.425	-0.224	-0.335	-0.028	-0.599
Don't often play challenges games (Never - Sometimes)					(n=143)
	Game	Team	Opponent	Self	Loss
Toxicity	0.449	0.403	0.314	0.315	0.163
Copium	0.306	0.371	0.309	0.285	0.287
Disengage	0.347	0.435	0.322	0.349	0.256
Refrain	0.099	0.217	0.174	0.132	0.129
Active	0.097	0.222	0.056	0.092	0.185

- Ranked – less responses to opponent
 - Possibly because of fewer communication channels with opponents. More upset with themselves and their team (because these are more in control.) Control code in interview?
- Not playing ranked or challenge modes moves away from getting tilted by losing and setback triggers and towards (at least in challenges) the game itself.

○

4. Genre (ORD)

Often or Always play SHOOTER games					(n=87)
	Game	Team	Opponent	Self	Loss
Toxicity	0.458	0.248	0.214	0.242	0.222
Copium	0.386	0.255	0.343	0.285	0.399
Disengage	0.383	0.232	0.208	0.288	0.230
Refrain	0.102	0.150	0.149	0.175	0.304
Active	-0.020	0.044	-0.070	-0.010	0.062
Often or Always play ACTION RPG games					(n=36)
	Game	Team	Opponent	Self	Loss
Toxicity	0.591	0.484	0.505	0.367	0.311
Copium	0.300	0.508	0.541	0.251	0.240
Disengage	0.354	0.318	0.447	0.118	0.217
Refrain	-0.049	0.078	0.129	-0.058	0.027
Active	-0.159	-0.137	-0.050	-0.219	-0.069
Often or Always play RPG games					(n=40)
	Game	Team	Opponent	Self	Loss
Toxicity	0.518	0.478	0.213	0.402	0.222
Copium	0.232	0.425	0.240	0.312	0.241
Disengage	0.251	0.385	0.187	0.368	0.311
Refrain	-0.070	-0.004	0.054	0.135	0.139
Active	-0.030	0.115	-0.014	0.130	0.071
Often or Always play PARTY games					(n=52)
	Game	Team	Opponent	Self	Loss
Toxicity	0.541	0.415	0.251	0.309	0.073

Copium	0.253	0.315	0.393	0.357	0.505
Disengage	0.428	0.280	0.052	0.320	0.295
Refrain	-0.063	-0.040	-0.030	0.199	0.277
Active	-0.184	0.247	-0.019	0.084	0.303
Often or Always play SANDBOX games					(n=30)
	Game	Team	Opponent	Self	Loss
Toxicity	0.492	0.291	0.243	0.355	0.144
Copium	0.312	0.244	0.270	0.206	0.273
Disengage	0.303	0.306	0.243	0.484	0.174
Refrain	0.021	0.157	0.223	0.134	0.172
Active	-0.082	0.122	0.012	0.070	0.006
Often or Always play SIMULATION games					(n=69)
	Game	Team	Opponent	Self	Loss
Toxicity	0.359	0.374	0.307	0.189	-0.006
Copium	0.041	0.192	0.290	0.111	0.080
Disengage	0.274	0.425	0.336	0.462	0.208
Refrain	-0.169	0.139	0.213	0.167	0.129
Active	-0.192	-0.044	-0.153	-0.122	-0.044

- (looking down triggers) Participants who often played Shooters, aRPGs, Party, and Sandbox games all had medium correlations with game triggers, while all of these had medium correlations with specifically game triggering toxicity.
 - For shooters and aRPGs and Sandbox games, this might be because the mechanics of the game are complex and when something doesn't play out as it should, it's frustrating.
 - For Party games, this is probably due to the heavy chance?
 - Why are Shooter x Team suppressed from the zero order? From interviews this sounded like the prototypical temporary team thing?
- aRPG amplifies the zero order relationships? Why? Aren't these mostly SP? Team and opponent don't even make sense.

- There is this in Opponent performance: “despite my best efforts, the other team/ opponent just seems to be doing better (or the computer seems to be reading inputs rather than reacting)” which might account for some of the opponent relationships.
- Nothing in team though
- (Compared to zero order)
 - Shooter removes team and self based responses– there’s an argument this is the “no FF/ don’t make things worse/ refrain philosophy” effect and players are learning from the experiences. But there’s no jump in the copium responses.
 - RPG, Party, Sandbox remove opponent based relationship – possibly because there’s not really an opponent.
 - Simulation removes copium responses.

5. Social Context (ORD)

Often or always play ALONE					(n=109)
	Game	Team	Opponent	Self	Loss
Toxicity	0.415	0.373	0.334	0.331	0.149
Copium	0.242	0.294	0.297	0.264	0.237
Disengage	0.348	0.423	0.368	0.426	0.298
Refrain	0.039	0.146	0.174	0.117	0.149
Active	0.022	0.167	0.096	0.127	0.158
Often or always play with IRL FRIENDS					(n=99)
	Game	Team	Opponent	Self	Loss
Toxicity	0.494	0.399	0.279	0.338	0.207
Copium	0.370	0.310	0.282	0.321	0.392
Disengage	0.337	0.396	0.250	0.381	0.366
Refrain	-0.038	0.202	0.116	0.267	0.209
Active	0.049	0.120	-0.009	0.165	0.266
Often or always play with ONLINE FRIENDS					(n=33)
	Game	Team	Opponent	Self	Loss

Toxicity	0.433	0.244	0.211	0.323	0.275
Copium	0.455	0.267	0.501	0.323	0.396
Disengage	0.254	0.223	0.139	0.400	0.237
Refrain	0.080	0.069	0.273	0.164	0.118
Active	-0.013	-0.001	-0.061	-0.109	-0.090
Often or always play with FAMILY					(n=20)
	Game	Team	Opponent	Self	Loss
Toxicity	0.441	0.399	0.297	0.321	0.167
Copium	0.306	0.353	0.317	0.282	0.311
Disengage	0.334	0.398	0.291	0.369	0.269
Refrain	0.071	0.221	0.169	0.173	0.175
Active	0.035	0.179	0.020	0.104	0.127
Often or always play with a PARTNER					(n=45)
	Game	Team	Opponent	Self	Loss
Toxicity	0.503	0.229	0.145	0.307	0.123
Copium	0.289	0.088	0.276	0.464	0.331
Disengage	0.447	0.309	0.195	0.268	0.045
Refrain	0.035	0.273	0.109	0.065	0.035
Active	-0.047	0.048	-0.152	-0.016	-0.063
Often or always play with STRANGERS					(n=61)
	Game	Team	Opponent	Self	Loss
Toxicity	0.401	0.392	0.247	0.258	0.226
Copium	0.249	0.325	0.468	0.192	0.323
Disengage	0.314	0.298	0.199	0.314	0.329
Refrain	0.122	0.248	0.290	0.136	0.123
Active	-0.059	-0.084	-0.147	-0.154	-0.022

- (looking across responses) Participants who are often playing alone or with a partner don't seem to engage with copium (deflection or poor strategies) responses?

- Not sure why! Maybe it's that they don't have a variety of people to complain and rant with?
- Medium in particularly online x opponents
- (looking down triggers) Participants playing with friends (IRL or online)/ bridging relationships seem more affected by their own performance
 - Possibly because they're more aware of their own performance because of the discussion going on.
- Playing within existing social networks (friends and family) replicate the zero order.
 - Playing with online friends removes the team-related relationships.
 - Playing with strangers amplifies copium.
 - Participants who play alone respond with toxicity or disengaging– anonymity argument?
 - Anonymous – no accountability.
 - Or, people will just leave and not engage with.
 - Playing with others leads to greater resilience?
 - Actually, not even, these are all pretty slight changes.

6. Motivation (ORD)

High or Essential IMMERSION motivation					(n=142)
	Game	Team	Opponent	Self	Loss
Toxicity	0.495	0.376	0.286	0.333	0.215
Copium	0.308	0.353	0.319	0.319	0.325
Disengage	0.363	0.397	0.314	0.401	0.295
Refrain	0.064	0.198	0.178	0.193	0.219
Active	-0.018	0.114	0.018	0.098	0.063
High or Essential OTHER'S IMMERSION motivation					(n=90)
	Game	Team	Opponent	Self	Loss
Toxicity	0.477	0.279	0.127	0.248	0.255
Copium	0.431	0.325	0.247	0.300	0.506
Disengage	0.407	0.294	0.206	0.403	0.296

Refrain	0.081	0.111	0.162	0.135	0.179
Active	0.053	0.112	-0.061	0.157	0.075
High or Essential OUTCOME motivation					(n=80)
	Game	Team	Opponent	Self	Loss
Toxicity	0.420	0.447	0.328	0.239	0.017
Copium	0.268	0.421	0.363	0.209	0.244
Disengage	0.232	0.509	0.337	0.270	0.159
Refrain	-0.009	0.325	0.269	0.181	0.126
Active	-0.041	0.212	-0.090	-0.012	0.074
High or Essential IMPROVEMENT motivation					(n=69)
	Game	Team	Opponent	Self	Loss
Toxicity	0.416	0.334	0.165	0.142	0.077
Copium	0.326	0.392	0.237	0.096	0.341
Disengage	0.316	0.343	0.265	0.098	0.126
Refrain	0.208	0.343	0.317	0.246	0.214
Active	-0.024	0.078	-0.107	-0.170	0.004
High or Essential ESCAPE motivation					(n=91)
	Game	Team	Opponent	Self	Loss
Toxicity	0.452	0.395	0.234	0.297	0.140
Copium	0.341	0.367	0.308	0.352	0.235
Disengage	0.301	0.506	0.232	0.367	0.287
Refrain	0.015	0.139	0.078	0.257	0.301
Active	-0.071	0.133	-0.059	0.172	0.156
High or Essential SOCIAL RELATIONSHIPS motivation					(n=56)
	Game	Team	Opponent	Self	Loss
Toxicity	0.543	0.408	0.292	0.263	0.285
Copium	0.374	0.258	0.313	0.245	0.341
Disengage	0.386	0.389	0.216	0.252	0.194

Refrain	-0.092	-0.092	-0.009	0.098	0.142
Active	-0.154	0.028	-0.173	-0.095	-0.137

- (looking across responses) Participants who prioritized immersion (for themselves and others) and escape were particularly drawn towards copium responses.

- This could be because they want to have fun so they deflect blame away from themselves to continue justifying their engagement.

- Outcome, improvement and Social Relationships suppresses the self- trigger.

- This sounds like mastery mindset for improvement (which was the one that actually suppressed it. Outcome and Social are smaller correlations)
- Playing for fun/ hanging out with friends > game itself for social. Play focused on other people.
- Also playing with a focus on your own improvement, escape, or the outcome of the game seemed to make people most frustrated by their team. These were also associated with refrain responses too, but they were not significant.

- (Zero order comparison). Motivation more or less replicates zero order relationships.

- Others removes opponent-based.
- Escape promoting refrain in loss is weird???

6. INTERVIEW SAMPLE DESCRIPTIVES

Sample size: n= 30

Duration: **61 min per interview** (mean) excluding two that lasted 111 min (64 min including these two)

All interviews were conducted by the lead research over Zoom. Interviews took on average (mean) 61 minutes, aside from two interviews that ran 111 minutes (1.85 hours) long. Two interviewees requested to not have their interviews recorded, but did assent to notes taken—analyses were conducted on these notes for these two interviews. Otherwise, transcripts were generated using Zoom’s machine-transcription feature. These were then cleaned by one of 3 research assistants or the primary researcher to remove excessive spacing, fix spelling for game terms, and generally for transcript readability. Due to issues with Dedoose qualitative coding software, transcripts were printed and coded longhand.

Of the 10 survey participants who indicated having mentorship experience, only 4 volunteered for the interview, and only 2 responded to interview requests.

The interview sample was of about the same average age and gender ratio as in the survey. The ethnic breakdown was roughly the same, although there were relatively more people of multiethnic descent. On average, interview participants played 3 more hours per week and had been playing for 1 year longer, and were very slightly more confident in their gaming skills. In terms of social context, interviewees reported playing less frequently with partners and somewhat more with strangers than the overall survey sample. Interviewees prioritized their own immersion and the outcome of the game/ match more than survey participants. Finally, interviewees were slightly more certain that what triggered them varied by the game they were playing, and were more neutral on whether their motivations for playing affected how they responded to tilt.

Interview vs Survey sample

	Interview Sample (n=30)	Survey Sample (n=165)
age	21.10	21.14
gender	33% female, 56% male, 6% nonbinary	41% female, 53% male, 4% nonbinary
ethnicity	73% asian, 26% caucasian, 16% latine (20% mixed)	76% asian, 16% caucasian, 11% latine (9% mixed)
amount (hrs/wk)	16.15 hours/week	12.81 hours/week
length (yrs)	11.07 years	10.27 years
Perceived expertise	8 (agree they are skilled)	6.98 (agree they are skilled)
ranked	3 (sometimes)	3 (sometimes)
challenges	2 (rarely)	2 (rarely)

Reference for interview participants:

Interview ID	age	gender	Primary games	MP/SP	Tilt IRL?
1	39	male	Kingdom Come	SP	noIRL, does have a few comments about bleeding out and trolling in IRL not being the same as in game
3	20	female	Splatoon (MP), Breath of the Wild (SP)	SP	noIRL
4	22	male	Marvel Rivals (MP)	MP	IRL
5	26	male	Soulslike (SP) Deadlock (MP)	SP	noIRL
6	20	female	League of Legends	MP	IRL
7	18	female	Stardew Valley, AC, Smash	MP	noIRL
8	21	female	RPGs, JRPGs, rhythm, Overwatch	both	Did not address

9	24	male	Helldivers, GTA, BlackOps	both	IRL
10	18	male	Valorant, TFT, Top 5% Osu player	both	noIRL
12	20	nonbinary	RPGs	SP	IRL
13	22	male	Valorant	MP	IRL
14	20	female	Minecraft	both	noIRL
15	19	female	Life is Strange, Smash (local CO OP)	both	IRL
16	19	male	Soulslike, Tohou Bullet Hell, Monster Hunter (MP), fighting games	both	IRL
17	22	female	Phigros, rhythm (SP), Roblox (MP)	both	noIRL
18	18	female	League of Legends (supp MP), Undertale	both	IRL
20	19	male	sp games. Good descriptions with DnD and	both	noIRL
21	19	male	Valorant	MP	IRL
22	22	male	Valorant, Monster Hunter, marvel Rivals (MP), Elden Ring, Flight Sims	both	noIRL
23	22	male	League (MP), jRPG, Sims, Fire Emblem (SP)	both	IRLbut specifically not tilt because tilt = ruminating
24	18	female	Baldur's Gate (SP), Splatoon (MP).	SP	IRL
25	21	male	FPS (MP), Cyberpunk, Stardew (SP)	both	noIRL
26	22	male	CS2, R6S, Roguelites. Terraria.	SP	noIRL
27	20	male	Brawl Stars, Fortnite, Helldivers, Marvel Rival (MP) Fallout NV, Red Dead Redemption (SP)	both	IRL – hesitant
28	22	male	League, Marvel Rivals, TFT. Starcraft	MP	IRL
29	21	female	League, Chinese city builder, Genshin, Infinity Nikki	SP	noIRL

30	19	nonbinary	Rocket League, Stardew Valley	both	noIRL
32	21	male	SP -- JRPG, DarkSouls, Nintendo MP -- Shooters, Smash	both	IRL but hesitant on tilt
33	18	female	Valorant, Infinity Nikki	both	noIRL—lang yes, tilt no.
34	21	male	Balatro, Assassins Creed (SP), Lethal Company, Repo Repo (MP)	both	noIRL—experience yes, lang no.

7. CODEBOOK

	code	description
Describing Play		unsorted quotes related to describing how they play or the context of play or how they understand play.
	game philosophy	any rules/ guidelines they keep or have made for themselves or how they approach gaming.
	rules - parentsAbandon	use to mark any rules their parents had they have abandoned or no longer consider
	rules - parentsKept	use to mark any rules their parents had they have adapted or engrained.
	Platform - time/place	time/ place/ platform notes. Track on spreadsheet
	parentUnderstanding	Mark quotes where they talk about how their parents understood their reasons for playing or their understanding of their parents rules.
	history	Mark off sections where they talk about their history with play
Describing Tilt		unsorted quotes related to describing tilt, experiences or opinions of tilt.
	avoid	Mark what they say about titles to avoid or why.
	MP - trigger	Mark triggers for tilt in multiplayer games
	SP - trigger	Mark triggers for tilt in single player games
	expectation	Mark the instances where they talk about tilt (trigger or response) as being about expectation management or disconnect between expectation and observation.
	tilt - anecdotes	Mark any anecdotes about what tilt looks like
	tilt - definition	Mark their definitions of tilt or their agreement with my definition
	tilt other - bad/ good	Mark descriptors of how someone else has dealt with tilt poorly/ well
Social Context		

	SP - context	Anything describing who they're around even when playing alone/ copresent play.
	banter	describing the kind of banter and comments going on or other group dynamics
	banter - comms	Descriptions where banter is intentionally kept to a minimum or consists primarily of in-game communication.
	coregulation	examples of how groups/ friends try to help regulate each other.
	different groups	This marks any comparisons the participants themselves make about group dynamics.
	toxicity	what does toxicity look like and what are their justifications or how they understand toxicity.
Motivati ons		unsorted quotes related to describing motivations for play
	genre - reasons	mark comments they have about why they play the games they do.
	achievement	anything about playing to get better or rank up
	fun/ define fun	anything defining what they consider fun
	shifting priorities	Anything about how priorities/ motivations for gaming have changed
	story/ experience	motivations about story or experience of play
	time spender	games as just a way to kill time/ availability
	socialization	motivations around playing with friends.
	escape	anything about escape/ venting at the end of the day.
	mechanics	motivations around specific mechanics or how mechanics feel in games.
	nostalgia	When they discuss playing games because they've always done so. Include sunk cost here.
Respon ses		unsorted quotes related to describing how they respond to tilt
	MP - response	Mark responses for tilt in multiplayer games
	SP - response	Mark responses for tilt in single player games

	break - all	Mark all instances where they talk about taking a break or stopping playing.
	break - day	Mark the instances where they're talking about ""taking a break"" as a sign to stop or switch activities for the day/ extended period
	break - why	Mark the instances where they're talking about why they are taking a break, such as refocus or what they want to do
	rage	anything regarding raging
	different reactions	This is just a general code for how they describe how they respond differently now compared to before
	response selection	this marks any comparisons the participants themselves make about response selection, why they do different things between triggers.
	strategies - all	Mark the instances where they're talking about strategies for dealing with tilt in general they have considered or would advise others
	strategies - prevention	Mark strategies they have regarding preventing tilt
Control		Excerpt anything that discusses control or agency in play
Time		Excerpt anything that discusses time and how time plays into deciding something.
Just a Game		unsorted quotes referring to being "just a game"
	justgame - all	mark literally every time "Just a Game"" or its variants come up."
	justgame - real	Mark the instances where they're talking about "just a game" in terms of the stakes of playing in terms of real/ not real
	justgame - stakes	Mark the instances where they're talking about "just a game" in terms of the stakes of playing in terms of ranked/ not ranked.
	justgame – notserious	Mark the instances where they're talking about "just a game" in terms of not being as “serious” or being more “casual”
	justgame – troublestalk	Mark the instances where they're talking about "just a game" as troubles talk and a way to stop or excuse or move on.

Stakes		Any discussion of stakes/ ranked not related to just a game quotes.
Mentors hip		Mark any coaching or mentorship they had and the insights it brought them.
IRL	IRL - all	Mark the instances where they're talking about IRL equivalents to tilt.
	IRL - triggers	Mark triggers for tilt IRL
	IRL - responses	Mark responses for tilt IRL
	gaming as metaphor	Mark all instances where they're talking about using gaming language as a metaphor
	noIRL	Mark the instances where they're talking about why they don't use consider tilt IRL or use gaming language IRL
!Quotew orthy		literally whenever they give us a good anecdote. Don't need to actually get all of them. Good or bad memories, if there is an anecdote you like, make sure it's tagged here along with any other codes that might apply.
		Notes