



# Mitigating Toxicity in Online Gaming

Using Persuasive Design Strategies

# The Team



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# Our background



We are Master students in  
Human-Computer Interaction  
from Carnegie Mellon University.

Persuasive Design project ->  
Independent study ->  
Research project



# Toxicity in League of Legends Today

[20:22] Jax Mundo Twich (Nami): 3/7  
[20:30] Jax Mundo Twich (Nami): u toxic  
[20:31] Surrender vote failed for ally team 2 / 3.  
[20:31] Jax Mundo Twich (Nami): ok  
[20:31] Jax Mundo Twich (Nami): ?  
[20:32] Anivia Kid (Syndra): blitz too good :)  
[20:34] Jax Mundo Twich (Nami): go die  
[20:34] Jax Mundo Twich (Nami): go  
[20:34] Jax Mundo Twich (Nami): di  
[20:35] Jax Mundo Twich (Nami): e  
[20:35] Jax Mundo Twich (Nami): go  
[20:36] Jax Mundo Twich (Nami): die  
[20:36] Jax Mundo Twich (Nami): go  
[20:36] Jax Mundo Twich (Nami): die  
[20:37] Jax Mundo Twich (Nami): go  
[20:37] Jax Mundo Twich (Nami): die  
[20:37] Anivia Kid (Syndra): f  
[20:41] Jax Mundo Twich (Nami) purchased Vision Ward  
[20:43] happy game TcT (Caitlyn) is on the way  
[20:46] Jax Mundo Twich (Nami): 20min 7 death  
[20:46] Jax Mundo Twich (Nami): go die  
[20:47] Jax Mundo Twich (Nami): go  
[20:47] Jax Mundo Twich (Nami): die  
[20:48] Jax Mundo Twich (Nami): go  
[20:48] Jax Mundo Twich (Nami): die  
[20:49] Jax Mundo Twich (Nami): ok?

[26:01] thatBRYAN (Jinx): Elder Dragon - Spawning in 4:04  
[26:02] Sylas has stolen Miss Fortune's ultimate!  
[26:06] [All] WHIP AND NAE NAE (Viego): so?  
[26:11] [All] DaleSurrender (Jax): hope u all die biches  
[26:11] [All] ILGIORDANYT (Lux): don t talk  
[26:18] thatBRYAN (Jinx): yeah stop typing  
[26:19] [All] DaleSurrender (Jax): get cancer or coronavirus  
[26:19] [All] WHIP AND NAE NAE (Viego): ooooo sorry  
[26:24] [All] WHIP AND NAE NAE (Viego): ill do what i want you freak  
[26:25] [All] ILGIORDANYT (Lux): I 5  
[26:37] Tobinator04 (Brand) signals to be careful



# Toxicity in League of Legends Today

**74%**

*of individuals reported  
encountering toxic behavior*

**7/10**

*players have avoided playing certain  
games because of bad reputation*

**#1**

*most toxic MOBA gaming  
community*

Exposure to toxicity has many negative effects on mental and physical health along with decreased performance and player communication.

## **Our Question**

**How might we mitigate toxicity in a fast-paced gaming environment by promoting positive System 2 thinking?**

**We know** from existing literature that system 2 thinking encourages people to be more mindful in their behavior.

**We propose** that we can encourage mindfulness in fast-paced games to promote positive gaming behavior

**We will achieve this by** employing persuasive strategies that facilitate system 2 thinking using self-affirmation, priming, cognitive dissonance, self-reflection, etc.

# Persuasive Strategies

**Self affirmation** = Have players acknowledge the positive traits of themselves to create a buffer to external threats to identity

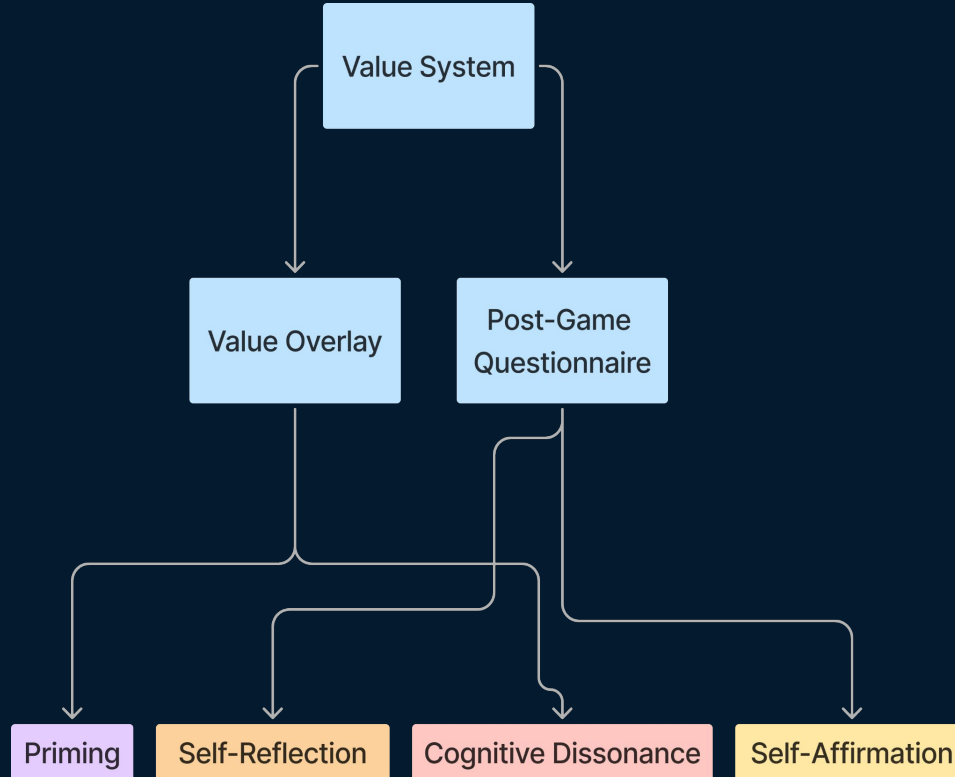
**Self reflection** = Provoke activities where players think of feelings and behaviors and the reasons that lie behind them

**Cognitive Dissonance** = A mental stress that occurs when a person's beliefs, values, or actions don't align with each other, leading to discomfort

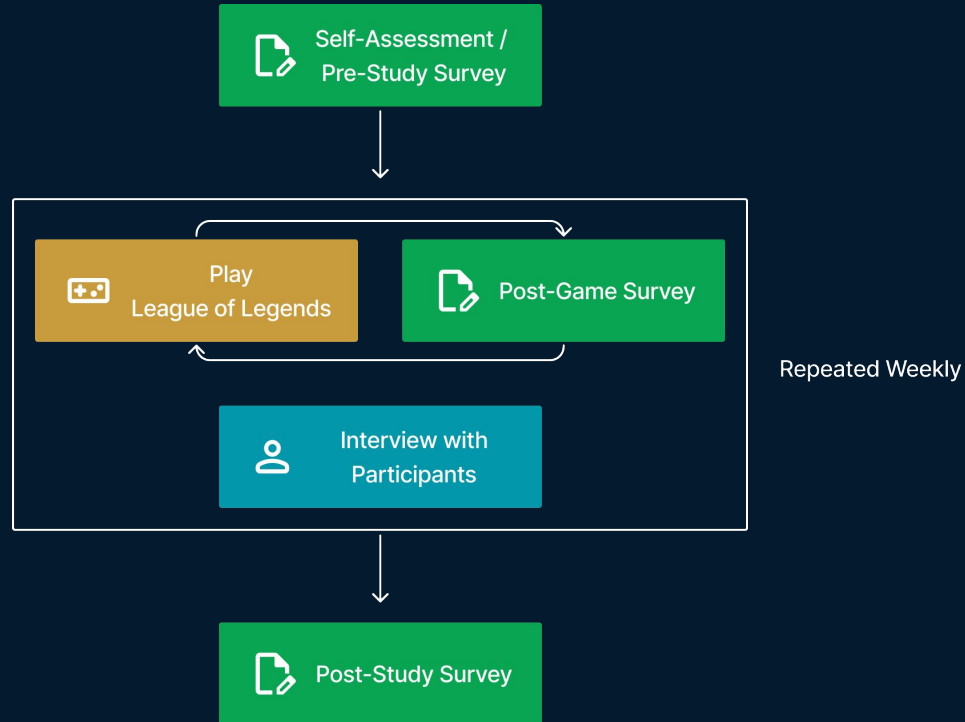
**Priming** = Exposure to relevant stimuli throughout study to influence people's impressions, judgements, goals, and actions without their awareness



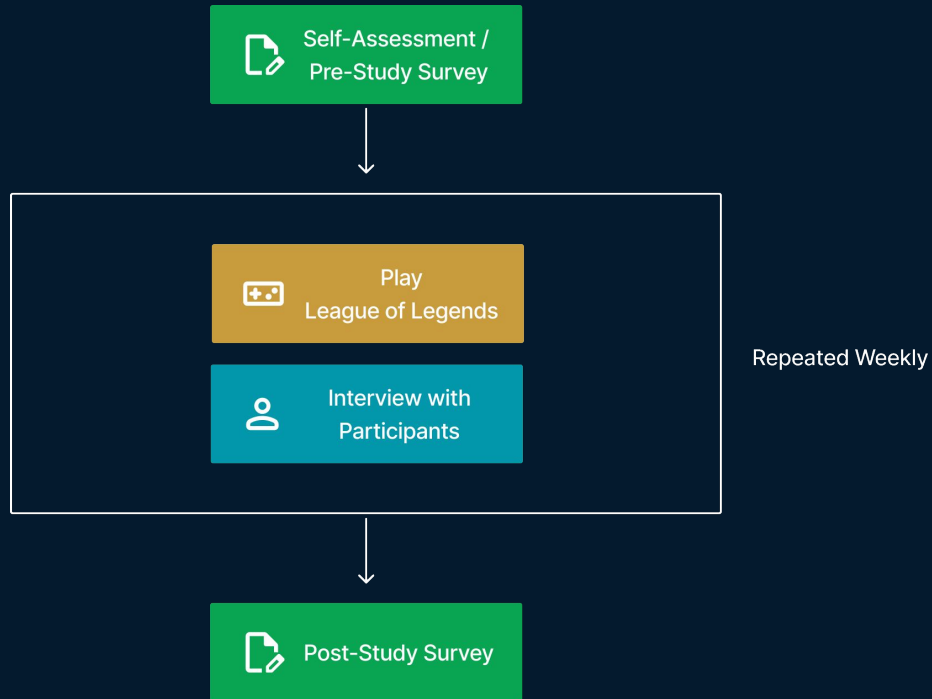
# Our Intervention



# Methods - Intervention Sample



# Methods - Representative Sample



# Representative Sample Analysis

Majority sentiment of representative sample participants showed that they **engaged in toxicity more than any other interaction**, showcasing the current status quo in League of Legends.

- More than half (~56%) of the sentiment within our representative sample was negative which correlates with majority of tags about engaging in toxicity of some form.
- ~30% of all tags with our control group were the tag “engaged in toxicity”.

# Our Research Questions

**RQ1:** Did our intervention lead to an increase in System 2 thinking?

**RQ2:** Did our intervention mitigate toxicity in the game?

**RQ3:** Unanticipated Findings (Case Studies, etc)

# Participants were motivated to uphold value

Continued exposure (priming + self reflection) to the value made participants internalize them.

*"Previously I said I get upset easily but **I can be disciplined when I put my mind to it.**" - P16*

*"I would say my perception of myself has remained the same, but I've become **more aware of how my actions align with my values**" - P20*

*"**I'm more self-reflective during the study** rather than just reacting to the game." - P27*

**245/287 (86%)**

*Responses reported aligning their actions to their value more than 50% of the game*

# Self and situational awareness due to the value

**13/27 (48%)**

*participants reported increased self-awareness from the value system*

**"Focus on what you can control" - P12**

**"Some of the people I was queuing up with were being toxic, and it was hard to confront them. I tried to stay calm and composed, often just ignoring their behavior." - P5**

**10/27 (37%)**

*reported that upholding the value made them enjoy the game more*

**"There are some games where it's just unwinnable, not fun, out of your control, but having that value of resilience has made me feel OK with playing another one." - P8**

**"I remind myself that mistakes are inevitable for both me and my friends, and that's okay as long as we're having fun and working together." - P5**

## Effects on teammate dynamics & gaming environment

Participants were motivated to align their actions with values that positively influenced team dynamics during the game. These efforts often resulted in **creating a cyclic effect where positive behaviors influenced others to respond in a similar way.**

“It kind of helps me to keep a cool head and then also help my teammates understand that we still could win this game.” (P4 - *Disciplined*)

“I wanna be the person that people see pushing on, and inspire them to persevere” (P8 - *Resilient*)

P25 and P20 observed that when they maintained a mild-mannered tone in team chat, others responded similarly.



## Effects on teammate dynamics & gaming environment

But the effectiveness of fostering a supportive atmosphere depended on the **collective actions of the team**. In intense moments, upholding positive values sometimes became less efficient.

"To get your team motivated when you're 21 kills down, there's almost nothing you can do." (*P7 - Resilient*)

P1 noted that they felt "alone" when their teammates weren't being resilient, when they were actively trying to be.

# Long-term effects & impact on personal life

Participants who stayed for longer demonstrated a shift towards more intentional and positive behaviors both in-game as well as in their personal life.

*"I have thought a lot about reliability in my friendships and relationships and how I can be there for my friends" (P2)*

*"I have been more disciplined about eating healthy and cooking meals, and am less susceptible to giving into cravings." (P27)*

*"I think I'm slowly just getting the hang of reminding myself to be more conscientious in how I speak to my friends both in and out of game." - P15*

**13/27 (48%)**

*participants reported that the value affected their lives outside of the game*

**Out of these 13...**

**70%**

*experienced these effects during week 3 and week 4*

# Case Study P15



## Between the ages of 18-24

- College Student
  - Education transitioning to Business

## Competitive Player

- Platinum 4 in solo

## Chosen Value was Resilience

**“League of Legends is my escape.”**

# Initial Assessment Survey

“When people are abusive to myself or teammates, **I want to see them suffer** and there is enjoyment in them not getting the win. I will sometimes go die in their lane, or purposefully let them die. I will go out of my way to not assist them. **I will self-destruct mentally** and after the game, I will change my role and change my playstyle to something that is purely for fun, and kind of trolling. I will not recover from feeling down and **feel worthless and hurt the rest of the day** until something good happens and lifts my spirit.”

-P15

# Post Study Survey

How would you describe the changes you've observed in your in-game behavior and communication over the past four weeks? If it all.

*"I am more honest about when i find something upsetting (like in that game i did really bad and the enemy was flaming me). i told my friend how it made me feel instead of trying to keep it all to myself. i have been playing things outside of my comfort zone, such as different champions, roles, and builds. i **used to only play what i think i am best at to avoid other people flaming me but now i just play what i want to play.**"*

-P15

**Thank  
you!**



**Questions?**



# Connect With Us!



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# Appendix

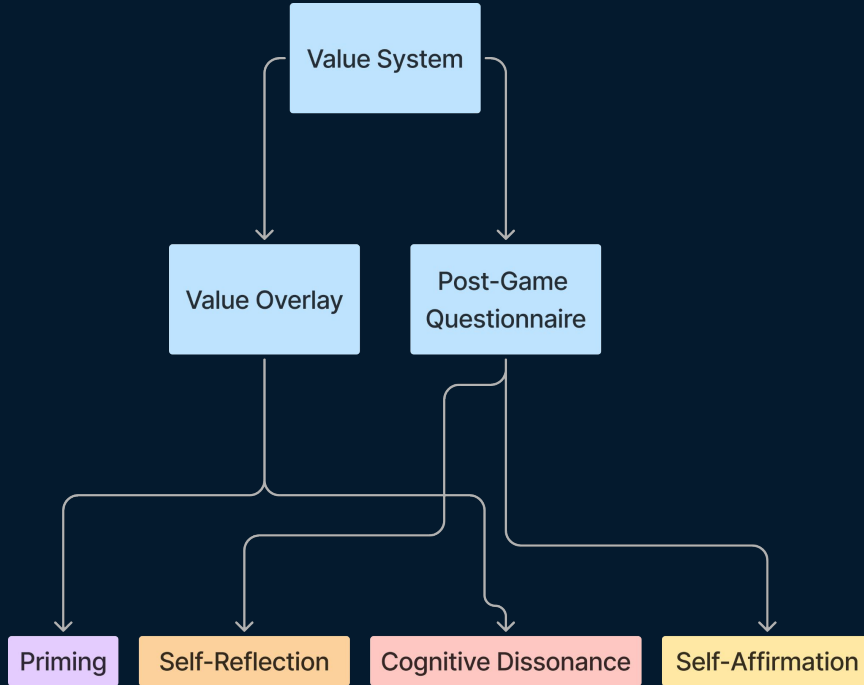
# Goals

**Understand the impacts of a positive reinforcement feature** for League of Legends players to reduce in-game toxicity.

**Understand in-game player behavior and thoughts** and identify opportunities to encourage more mindful thinking and habits.

**Write a research paper** highlighting our study findings and articulating how positive preemptive interventions can contribute to reducing game toxicity rather than just punitive ones.  
*(Currently in the process)*

# Our Intervention



Select the value that you would most like to grow in. You will reference this value throughout the length of the study, so please take a few moments to reflect.

- Friendly
- Courageous
- Reliable
- Disciplined
- Resilient

**Define the value you selected \***

Your answer

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**Why is this value important to you? (2-4 sentences) \***

Your answer

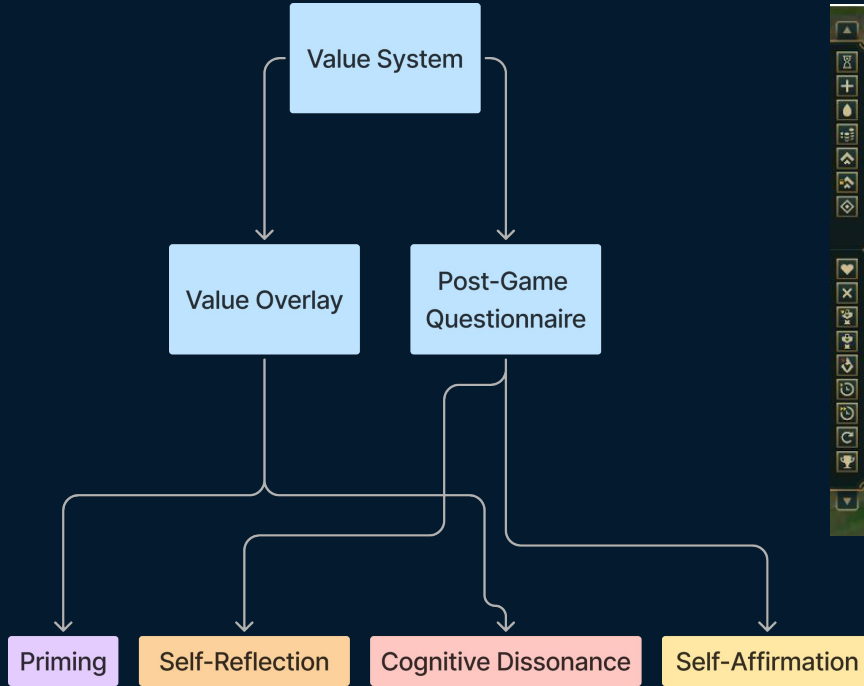
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**How do you demonstrate this value in game? Please try to provide concrete examples. (2-4 sentences)**

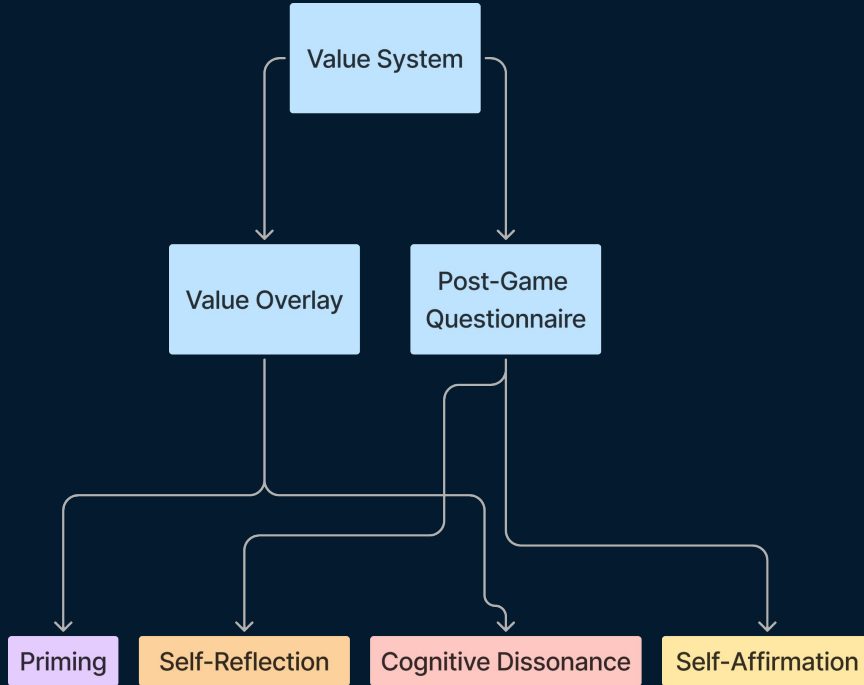
Your answer

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# Our Intervention



# Our Intervention



After each game

Upload a screenshot of your endgame screen here:

Choose file

Powered by Uploadcare

UUID:

Will auto populate once you upload image

URL:

Will auto populate once you upload image

Registered Email ID:

example@website.com

SUBMIT

Then fill out this quick survey

## Post-Game Questionnaire

This form is to be filled out after each game played throughout the week. This questionnaire is designed to gather your honest reflections following each game. Your responses will remain confidential.

### Instructions:

- Please take a few moments to reflect on your recent gaming session.
- Answer each question honestly by selecting the appropriate response on the scale provided.
- Feel free to provide additional comments or explanations where necessary.

*As a reminder, this is part of a research project at Carnegie Mellon University's Human-Computer Interaction Institute on League of Legends behavior. If you have any questions or concerns, please feel free to contact lyuli@andrew.cmu.edu.*

mdfarhaa@andrew.cmu.edu [Switch account](#)



\* Indicates required question

Email \*

Record mdfarhaa@andrew.cmu.edu as the email to be included with my response

What is your full name? \*

Your answer