# Why Do Teammates Hate Me? Cross-Cultural Tensions and Social Dynamics in Online Games

**Jialun "Aaron" Jiang**

GroupLens Research

University of Minnesota

Minneapolis, MN 55455

jiang481@umn.edu

**Svetlana Yarosh**

GroupLens Research

University of Minnesota

Minneapolis, MN 55455

lana@umn.edu

## Abstract

We discuss the multi-ethnic tension and social dynamics behind toxicity in online game Dota 2. We present a player survey and preliminary analysis of user-generated keywords and future work in interpreting the survey results.

## Author Keywords

Toxic Behaviors; Norms; Ethnicity; Online Games; Dota

## ACM Classification Keywords

K.4.2 Social Issues

## Introduction

Rapidly growing and gaining popularity around the world, online games serve as a microcosm of multi-ethnic interactions. It is important for players to interact with each other positively to have a good experience. However, tensions easily arise when different cultures meet, and players who intentionally create tension are called toxic players. In addition to game producers who has done significant work in reducing toxicity [7,8], players also regulate other players' behaviors through norms, i.e. shared way of feeling, thinking and behaving [1]. Players are punished if they do not conform to norms. In this work,
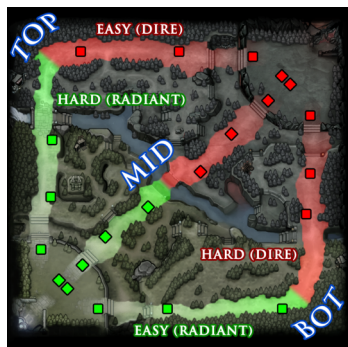
**Figure 1**: The map of Dota 2. Two teams of five players play compete on this map and try to destroy opponents' structures while defending their own. Teams are made up of strangers.
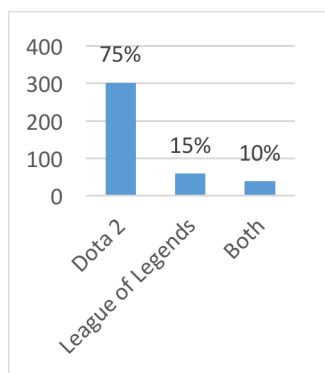


**Figure 2**: Number of players of each game (vertical axis) who participated in the survey.

we study the online game Dota 2, the most played game on Steam. Dota 2 players have been showing hostility towards certain ethnic groups by making memes on the Internet[1]. We are concerned with how the cross-cultural tensions evolve over time, and we hope the result will lead us towards an understanding of how the negative norms emerge.

First, we discuss our study in the context of previous research done in online games and social norms. Next, we briefly introduce the background of the game we study. Then we present the methodology and results of a player survey and keyword scraping based on the survey. We finish by discussing future work in analyzing the result of survey.

## Related Work

We provide a review of prior research in toxic behaviors and social norm emergence in online communities.

A few recent works studied such toxic behaviors in team competition online games. Shores et al. discovered that players in more highly competitive games modes tend to be more toxic and interactions with toxic players decreases the retention of new players [5]. Kwak et al. showed that explicit request to report toxic players will increase the number of reports and reported players are generally less likely to be punished in group-success oriented socio-political environment, but reports on behaviors that largely affect the result of the match are more likely to be punished [3].

The emergence of norms in an online context has been of interest to researchers. Savarimuthu et al. showed norms can be derived by agents themselves in a bottom-up approach rather than adhering to an enforced law in virtual agent societies [4]. Social norm can have an impact in online behaviors. Several empirical study in music markets, news aggregators, and online video show that people's preferences for online content can be swayed dramatically by consensus information from anonymous others. Sukumaran et al. also showed that an environment with cues designed for a certain standard could shift behavior towards that standard even though no others were present [6].

While researchers have studied toxic behaviors as social norms, little is known about how multi-ethnic tension affects norms and shift other players' behavior towards toxicity. Our investigation on this question helps researchers and game developers identify problems in multi-cultural games and create a positive environment.

## Methods

We carried out a survey for Dota 2 players on Reddit and Dota 2 Discussion in Steam Community. We also posted the survey on LiquidDota, based on the responses to the question that asks players which online Dota 2 community they frequently visit. In the survey, we asked players their satisfaction level of Dota 2, whether they have noticed any toxic behavior and if yes, any toxic behavior regarding players' ethnicity. We also asked players to give specific examples of toxic behaviors based on ethnicity and racial discriminatory words or phrases that they have seen.
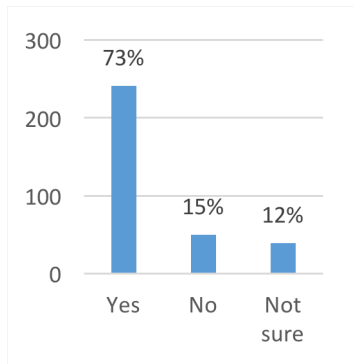
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[1] https://www.youtube.com/watch?v=9qbp2F-wN5M

**Figure 3**: Number of Dota 2 players who answered whether they have seen ethnicity-based toxicity (vertical axis).
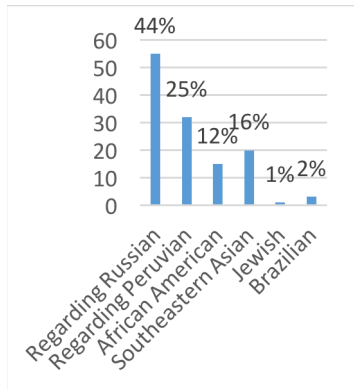


**Figure 4**: Number of participants who reported different types of keyword (vertical axis).

One of our initial hypotheses is that voice chat contributes to racial toxicity because it is difficult to cooperate with players who speak different languages. Therefore, in the survey we also asked players whether they liked voice chat and whether they think removing voice chat would help reduce toxicity.

We also carried out the survey to players from a very similar game, League of Legends. Questions in the survey are the same except for game titles. Survey was distributed in Reddit, League of Legends Official Board, and LiquidLegends.

We then performed web scraping in Dota 2 Discussion in Steam Community. We first scraped all posts regarding players from certain regions that were most complained, and we then scraped posts that contain each keyword from the words and phrases collected from the responses.

## Results

### Survey
Of 330 Dota 2 players who participated and finish the survey, 243 players (73%) said they were satisfied with the game. 317 players (96%) have noticed toxic behaviors in game, and 241 players (73%) have noticed ethnicity-related toxicity (Fig. 2,3).

Many respondents provided specific examples of ethnicity-related toxicity. Russia, Peru and Southeast Asia are among the most complained regions (Fig. 4).
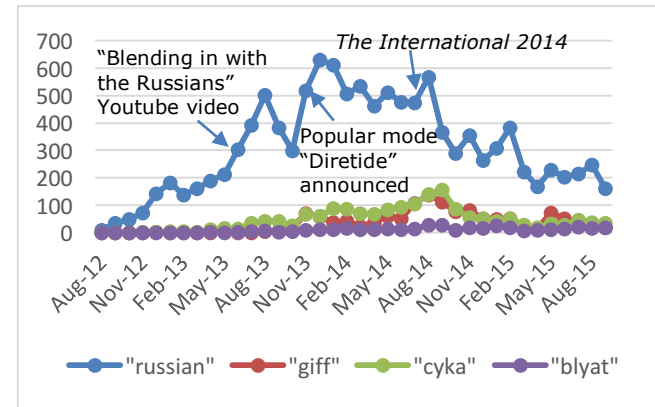


**Figure 5**: Trend of keywords regarding Russian from August 2012 to August 2015. Relevant events that may have influenced the trend are labeled with arrows.

Responses regarding voice chat did not support our hypothesis. Of the 202 respondents who answered the question "Do you like the in-game voice chat in Dota 2?" 116 respondents (58%) answered "Like" or "Like Very Much", and of the 181 respondents who answered the question that whether they think removing voice chat would help reduce toxicity, 161 (89%) answered "Disagree" or "Strongly Disagree."

### Web Scraping
With keywords collected from the survey, we are interested how the keyword occurrences change over time and what contributed to their occurrences because this can help us understand how norms evolve. We scraped all posts regarding Russian and posts with keywords related to Russian. The trend of posts regarding Russian and relevant keywords is shown in Fig. 5. Keywords are explained in Fig. 6.

| Russian Word | Meaning |
|---|---|
| giff | Mocking Russian accent in speaking the English word "give" |
| cyka | Russian curse word |
| blyat | Russian curse word |

**Figure 6**: Table of keywords collected in the survey and explanations. These keywords are used by non-Russian players in various settings.

## Discussion and Future Work

We hope to interpret some of these posting patterns in the context of game community events. For example, the increase in July 2013 is related to a viral video posted on YouTube on July 5, 2013, in which the author intentionally posed as Russian and disrupted Russian teammates in a joking manner. In future work, we will conduct interviews to understand how popular memes and game events increases the toxicity and cross-cultural tensions.

While we gathered a good number of responses from Dota 2 players, only 71 League of Legends players participated in our survey, of which 28 players (39%) claimed they have seen ethnicity-based toxicity in game. We are interested in the difference in the number of respondents, given the similar nature and mechanism of two games. We will investigate the underlying reason of through interviewing League of Legends players.

We can see that keywords suggested by players are rarely seen in public forums but are common in in-game chats. The reason behind is likely to be the moderators in public forums who are required to remove hostile posts. Considering this, we will gather available game replays and analyze public chats to better understand the context and reason behind the toxicity.

## Acknowledgements

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