

Research Proposal

Capstone 1: Experimental Design

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World of Warcraft Orientation

World of Warcraft (WoW) is a massively multiplayer online role-playing game (MMORPG), where players control their character and interact with each other in a virtual world.^[1] World of Warcraft was the world's most popular MMORPG by player count of nearly 10 million in 2009. The game had a total of over a hundred million registered accounts by 2014. By 2017, the game had grossed over \$9.23 billion in revenue, making it one of the highest-grossing video game franchises of all time.^[1]

To enter the game, players must create a character by choosing between the opposing factions of the Alliance or the Horde. The player selects the new character's race, such as orcs or trolls for the Horde, or humans or dwarves for the Alliance. Players must also select the class for the character, with choices such as mages, warriors, and priests available. Most classes are limited to particular races.^[1]

Among other aspects of gameplay in WoW, there are special areas of the world where free-for-all combat is permitted. Battlegrounds, for example, are similar to dungeons: only a set number of characters can enter a single battleground and each battleground has a set objective, such as capturing a flag or defeating an opposing general, that must be completed to win the battleground. Competing in battlegrounds rewards the character with high experience points as well as honor points that can be used to buy armor, weapons, and other general items that can aid a player in many areas of the game. Winning a battleground awards more honor and tokens than losing. In addition, players also earn honor when they or nearby teammates kill players in a battleground.^[1]

The World of Warcraft Data

The dataset being used for this analysis was published on Kaggle in early 2018: <https://www.kaggle.com/cblesa/world-of-warcraft-battlegrounds>. It was collected from battleground playthrough logs between March 2017 and January 2018 and the rows are ordered by the moment the data were collected. The datafile being used from the Kaggle publication is the wowbgs2.csv which contains statistics at the end of each battleground in 5384 rows across 14 columns. While time is not important for this analysis, it is important to note that this analysis is targeted before the most recent major releases of game content and of the time when this dataset was collected.

I have also saved a copy of the original dataset to my github account folder for this capstone:

<https://github.com/wolfy5878/DSI09Capstone1-ExperimentalDesign/blob/main/wowbgs2.csv>.

Raw version for Pandas for use in Jupyter notebook:

<https://github.com/wolfy5878/DSI09Capstone1-ExperimentalDesign/raw/main/wowbgs2.csv>.

The statistics (columns) captured in this dataset are:

- Battleground: Two letter code to indicate the kind of battleground (see decode below).
- Code: code for the battleground team instance (not needed for analysis).
- Faction: faction of the player (Horde or Alliance).
- Class: class of the player (warrior, paladin, hunter, rogue, priest, death knight, shaman, mage, warlock, monk, druid, demon hunter).
- KB: number of mortal kills given by the player.
- D: number of times that the player died.
- HK: number of killings where the player or his/her group contributed.
- DD: damage done by the player.
- HD: healing done by the player.
- Honor: honor awarded to the player.
- Win: 1 if the player won.
- Lose: 1 if the player lost.
- Rol: dps if the player is a damage dealer; heal if the player is focused on healing allies. Note that not all classes can be healers, just shaman, paladin, priest, monk and druid, but all classes can be damage dealers.
- BE: some weeks there is a bonus event, when the honor gained is increased. 1 if the battleground happened during that week.

The Battleground column has the following values:

AB: Arathi basin.
BG: Battle for Gilneas.
DG: Deepwind gorge.
ES: Eye of the storm.
SA: Strand of the ancients.
SM: Silvershard mines.
SS: Seething shore.
TK: Temple of Kotmogu.
TP: Twin peaks.
WG: Warsong gulch.

Research Design

Based on the data provided, can we determine whether playing as a certain class, as a certain role, aligned with a certain faction, or in a specific battleground will earn a character a higher amount of honor points than others?

A list of hypotheses to be explored:

1. On average, does playing a character in one type of role earn more than playing a character in the other type of role: damage versus healing?
 - a. H_0 = There is no difference between the honor points earned as a damage role character versus a healing role character.
 - b. H_a = There is a statistically significant difference between the honor points earned as a damage role character versus a healing role character.
2. On average, can a single class of character earn more honor points over the others? There are 12 different classes of characters to explore.
3. On average, can characters earn more honor points in a specific battleground over the others? There are 10 different battlegrounds to be explored.
4. On average by battleground, can a character of a single class earn more honor points than the other classes?

For the first hypothesis, I will use the Honor column values to analyze statistical significance across role values in the Rol column using a T-Test. For the remaining hypothesis, I will group by the Class and Battleground column values, respectively, utilizing the ANOVA testing to compare the average Honor values among groups. Specifically, I will be looking for any indication of a Simpson's Paradox existing in the last hypothesis testing.

Audience

If a player has a chosen class in mind that they want to play and are interested in leveling up quickly, a really good way to do that known throughout the WoW community is through battlegrounds to obtain more experience and honor points for better gear. The question being asked above will help a player to understand the best route to level up and gain more powerful gear through honor point collection in battlegrounds in WoW Classic based on the class they are playing.

Cited Sources:

1. https://en.wikipedia.org/wiki/World_of_Warcraft