The questionable sufficiency of the League of Legends tutorial and the difference between strategies based on rank

Jordan Kalanovski
S5310988
Creative Technology
Bournemouth University, UK
s5310988@bournemouth.ac.uk

ABSTRACT

This research paper aims to examine the effectiveness of the League of Legends tutorial for novice players and assess the potential improvements that could be achieved through additional information. To this end, we will conduct UX user studies and employ various methodologies and data collection techniques to compare the performance of novice players with that of experienced players (ranked Silver to Master). These ranks represent a majority (71.7%) of the League of Legends player base. Before going into it, we will analyze the actions taken by players without a rank up to those with the rank of Diamond from the 2017 season (95.7% of the player base). This will allow us to identify changes in gameplay across all levels. The data will be extracted from 516 hours of gameplay using Python and Pandas.

KEYWORDS

Game UX & Usability, Game Data Analytics, Statistically Significant LoL Tutorial Improvements, A/B testing for prominent actions within ranks, Survey on LoL Enjoyment

1 Introduction and Background

The study, "Learn to play, noob!": The identification of ability profiles for different roles in an online multiplayer video game in order to improve the overall quality of the new player experience," by Máté Köles and Zoltán Péter, had a significant impact on the additional support received by one of the UX study groups. This study focuses on six different ability sets and their prevalence in different roles

The study "The first hour experience" by Gifford K. Cheung, Thomas Zimmermann, and Nachiappan Nagappan discusses the importance of initial attraction for games. According to the study, players who do not enjoy their initial experience with a game are less likely to continue playing and may even contribute to the game's negative reputation. This is especially relevant for League of Legends, where the tutorial is relatively shallow and does not provide a comprehensive introduction to the game. While this approach may make the tutorial easier for new players, it can also be detrimental to their development and understanding, particularly in the presence of high-level "smurf" accounts. Even if a player manages to avoid negative experiences in their early games, they may encounter more toxicity as they are matched with higher-level players.

The study "Toxic Behaviors in Team-Based Competitive Gaming: The Case of League of Legends" by Yubo Kou also supports the implementation of a more comprehensive tutorial. The study highlights that toxic behavior often results from inexperienced or poor decision-making by players, which can lead to frustration and anger among teammates. By providing a more in-depth tutorial, new players may be better equipped to make informed decisions and avoid causing frustration among their teammates. This could help to create a more positive and enjoyable gaming environment, as well as improving the performance and overall player experience of novice players. Additionally, a more comprehensive tutorial may make new players less vulnerable to high-level "smurf" accounts and more likely to win against more experienced players.

"A common concern among League of Legends players is the perceived imbalance between players within the same rank. To address this issue, it may be useful to consult the study "Surrender at 20? Matchmaking in league of legends" by Mark Claypool, Jonathan Decelle, Gabriel Hall, and Lindsay O'Donnell. The study found that, even when teams are objectively similar in skill, players often subjectively perceive the game as unfair in favor of their opponents. This phenomenon, known as "perceived loss," may contribute to the occurrence of toxic behavior, as previously discussed. When players lose their lanes, they may become toxic and contribute to a cycle of toxicity within the game. This could have implications for the data of the current research paper, highlighting the importance of considering the impact of perceived imbalances on player behavior."

2 Telemetry Analysis

The point of the telemetry analysis in this research is as a supporting role more than anything else.

It is helping establish points about priorities in league of legends and to see if the difference in rank is caused by players micro or macro decisions

2.1 Methodology

The data was separated by ranks and was looked over to analyze if there was any meaningful change in the stats between ranks and if teamplay or individual skill is more important.

2.2 Findings

The top five most common categories (with a p value of no more than 1%) when it comes to winning between ranks are who gets first tower, deaths, time spend alive, words bought, and wards placed. Honorable mentions will receive the category of kills , assists , first inhibitor and gold per minute all of them have an all-around high correlation with wining but they have more than 1% chance of being wrong, although a lot of them are under 5% so they are still considered scientifically significant in this graph you could see which ranks have values with less than one percent but weren't common between all ranks or have a really high correlation to wining as demonstrated by figure 2.2.1:

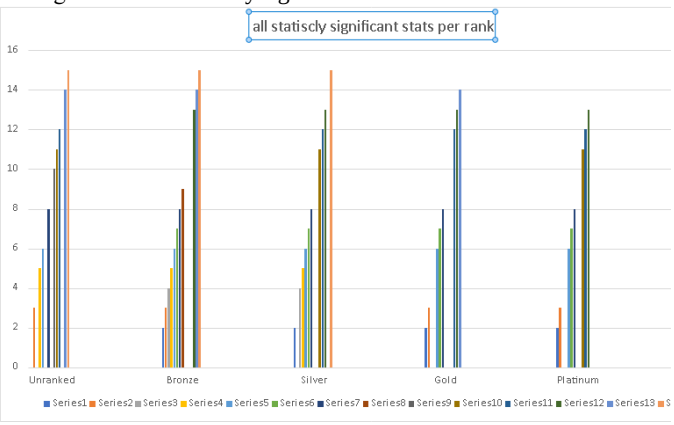

figure 2.2.1

You can see the corresponding series demonstrated in this list 2.2.2: as well as which are the most common ones and how they rank against themselves based on correlation as demonstrated in table 2.2.4

stats.win
stats.firstBloodKill
stats.firstTowerKill
stats.firstInhibitorKill
stats.kills
stats.deaths
stats.assists
stats.longestTimeSpentLiving
stats.visionScore
stats.goldEarned
stats.champLevel
stats.visionWardsBoughtInGame
stats.wardsPlaced
stats.wardsKilled
gameDuration

number based on correlation	Bronze	Silver	Gold	Platinum	Diamond
1	6	6	6	6	
2	8	3	8	8	
3	3	8	3	3	
4	12	13	13	13	
5	13	12	12	13	
Most correlation per rank exept top 5	0.26	0.27	0.32	0.35	0
	assists	asists	assists	assists	assists /not signi
					kills

list 2.2.2 table 2.2.4

With this you can prove that the game stays consistent thorough ranks and since the high volume of team-oriented graphs we can assume that while league players need to have a great micro, so they do not lose the game by feeding the enemy the macro is way more important.

3 UX User Study

In this research paper, there is a multitude of UX user studies trying to achieve different interconnected problems that could arise when novice players try League of Legends. The two studies consist of a total of twenty-five entries. Ten of the participants took part in an In-game test where they were separated into two different teams of five. The first group being a control group aiming to check how useful the tutorial is by comparing their results to already experienced players in the ranks of Silver to Master. The second group was also compared to the first and to the ranks of Silver to Masters, but they received five minutes of an in-depth tutorial on top of playing the tutorial provided by Riot Games. The data was collected in two sets of three groups. Two of the groups contained two participants and a moderator that poses as a participant and one group where there was only one participant and the moderator. This is a conscious choice that ensures the moderator would be able to concentrate on the participant without getting overwhelmed. The last fifteen entries were taken independently from the previous UX study and are part of a small questionnaire that aims to check whether the game was able to present itself as fun and if it brings a desire from fresh players to continue playing it.

3.1 Methodology

3.1.1 A/B testing

In this study, we used an A/B testing design to compare the performance of two groups of novice players. Group two received additional support from a moderator who provided a brief tutorial on basic concepts such as objectives, ward placement, and roles and positions. The moderator also demonstrated proper CSing and other important mechanics. The tutorial lasted approximately five minutes and the moderator concealed their involvement in the study. We used in-person usability testing to collect data, as this allowed us to observe the participants' input and emotional state more closely. To minimize the risk of behavior, change and the Hawthorne effect, we employed a pseudo perceived unmoderated usability testing design in which the participants were told that another person would observe them while they played but were not told that the moderator was already present. The participants were given specific objectives to aim for during their gameplay, such as playing bot, playing ADC, achieving 100 CS, destroying a tower, and slaying an objective (e.g., Dragon, Herald, Baron). This helped to keep the participants engaged and minimize the risk of them becoming stuck in the game. We collected data through observation, as this allowed us to track proper play and techniques more accurately and was not dependent on self-reported information from the participants.

3.1.2 Survey on enjoyability and game retention

The second UX study in this research paper was a survey on the enjoyability and retention of the game for new players. Participants for this study were selected based on their play time, with only those who had played League of Legends for less than 10 hours being eligible. This selection criterion was chosen to focus on the initial appeal of the game for new players. The survey employed descriptive research with a multiple-choice questioner.

3.2 Results

3.1.1 A/B testing

The results of this user study showed that group two, which received additional tutorial support before the game, had a significantly greater understanding of game basics and intermediate challenges, as well as improved performance on metrics such as experience gold. In addition, group two showed more emotional investment in the game and regular expressions of enjoyment, while group one was more detached and even expressed boredom. These findings suggest that the additional tutorial support had a positive impact on the overall game experience for new players.

3.2.2 Survey on enjoyability and game retention

The results of the survey showed that the overall response from new players was predominantly negative, with some cases of uncertainty and a small number of positive responses.

3.3 Analysis

Upon analyzing the data, it became clear that even a few minutes of tutorial instruction can have a significant impact on the performance of new players. The results showed that new players who received additional tutorial support had performance levels comparable to those of experienced players, as demonstrated by figure 3.3.1:

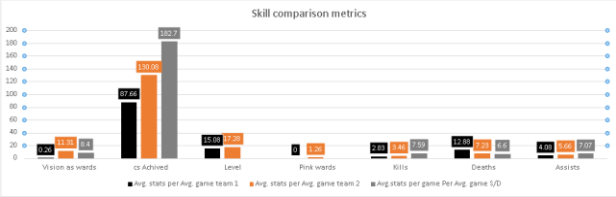

Figure 3.3.1: Skill comparison metrics

The following table presents some of the differences observed in the study. It is divided into three sections: a control group (group 1) that only received the tutorial, a treatment group (group 2) that received additional tutorial support, and a group of experienced players (ranks Silver to Master) from the same patch in season 12. The data from the experienced player group includes a sample of 3,251,402 games featuring a combination of all 22 ADC champions, with a minimum of 13,000 games per champion and a maximum of 346,694. The data from the experienced player group represents a substantial portion of players and minimizes the risk of error, with a minimum of 13,000 games per champion and a maximum of 346,694. Players in group two demonstrated a deeper understanding of the game through their superior performance in all metrics, including gold and experience loss mitigation by playing safely rather than dying, ward placement, farming, last hitting, and wave management. These improvements, combined with the significant difference in level between the two groups, indicate that group two had a better grasp of the game's mechanics and strategies. These factors are reflected in the rest of the paper and the following graph, figure 3.3.2:

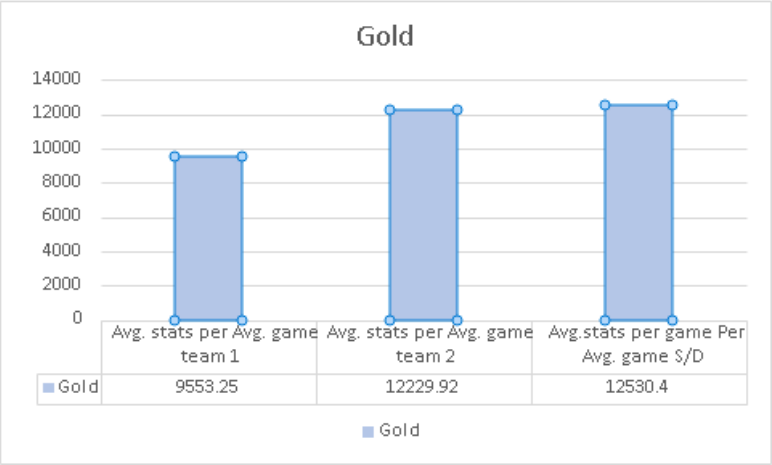

Figure 3.3.2

Gold is one of the most important stats with only experience being able to contest the spot of the best stat so seeing this big of a

difference is astonishing and the benefits of the information portrayed to group 2 is close to undeniable and yet there are more statistics that we haven't even talked about. One of the most important ones is the understanding of the basics of the game. Group 2 shows massive improvement in understanding the role different lanes have in the lane and the champions that are meant to go there, they show that all of the group knows what champion ADCs are and in which lane ADCs are supposed to go which Is a major improvement from group 1 where 20% of participants knew which lane bot was and only 60% were able to pick an ADC. No players were able to achieve 100 cs from group 1 whereas in group 2 40% were able to achieve it with games even being one minute shorter on average compared to the control groups' games. One metric that the tutorial teaches very well is towers and this could easily be confirmed by both groups having a 100% rate of destroying at least one turret. But when it comes to correcting item building paths, and anything connected to the jungle the tutorial doesn't provide any information for new players. In the jungle all objective monsters are found so it should at least be mentioned in the tutorial. During the playing stage of the game most of the players were unable to find the objective monsters initially, out of those 60% of players 10% were able to find the objective while 50% gave up which gave us a statistic where 1/5 of the control group were unable to find it and on the other side, we have 3/5 finding the objectives without a problem. This is a perfect example of why the tutorial does not work since there is a whole role that stays in the jungle the entire game, a role which does not get mentioned or explained in any way. As stated, earlier gold is very important but if the items you buy are not suited for your champion you could lose close to all of the benefits of the item putting you behind and setting you up for a loss. Yet even though it is so essential a lot of participants from group one show an inability to differentiate between ad and ap items, not to mention role specific items and situational items. Group two didn't perform a lot better than group one when it came to specializing or optimizing their build path but all of them showed an understanding of which items were in the adc category without a single participant from the treatment group failing to buy role appropriate items which is a significant improvement over the control groups 20%.Sadly, such data couldn't guarantee that new players will have a better chance of winning against smurfs as after all the statistics only show matchmaking of similar level. What it does prove is that the tutorial could really be improved by giving you more information on the game and this improvement could help the game attract more individuals because as "The first hour experience" highlights the initial enjoyment is especially important and the game is way better when you know what you are supposed to do as seen by the overall higher spirit of group 2 that exceled in majority of the metrics.

The results of the survey indicate a strong correlation between knowledge and enjoyment of League of Legends. Of the 15 respondents, 11 stated that they would not play the game in the foreseeable future. Three participants indicated that they might continue to play the game but were unsure. Only one participant stated that they would continue playing.

When asked for their reasons for not continuing to play the game, the 11 respondents were divided into three groups. Five respondents cited a lack of enjoyment and repetitive gameplay as their reason for not continuing to play, which may be attributed to a lack of knowledge about the game's various combinations and strategies. Four respondents stated that the game lacks agency for them, which may also be related to their knowledge of the game. The remaining respondents were indifferent but cited the length of the games as a factor in their decision not to continue playing. These results suggest that an increase in knowledge about League of Legends may lead to increased enjoyment of the game.

4 Conclusions and Future Work

In this study, we explored the potential for a new tutorial prototype in the popular game League of Legends. Our findings suggest that such a prototype could have several benefits, including improved game retention and reduced toxicity at lower levels of play. Additionally, our research supports the idea that teamwork skills should be prioritized over personal ones in order to succeed in the game. Overall, this work highlights the inefficiency of the current tutorial system and the need for improvement in the way players are introduced to the game. In the future a good way to continue this paper would be to create an actual tutorial prototype and persanolised tutorials that focus on roles and explaining to players how runes and specific items should work

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