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Evaluating the League of Legends Tutorial Based on a Theoretical Skill Model

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Contents

Abstract

Multiplayer Online Battle Arena (MOBA) games have become extremely complex. Getting into them as a new player becomes a harder task every day as the amount of knowledge you would have to know and skills you have to possess in advance keeps growing. New player inexperience could lead to them being the target of abuse from other players since they will view their mistakes as bad plays. Modern methods such as chat detection or reporting systems, tend to focus on the perpetrator of toxic behaviour to reduce the negativity of online communications. I present a new approach to help decrease it. In this paper, I focus on bridging the skill gap between new players and veteran players by researching what it takes to play League of Legends optimally. Using an established skill model for esports games, I have applied it to League and have defined the skills that fit within the model. With the help of an online questionnaire, I asked veteran players to narrow down the most important skills within League. Based on their feedback and the skill model, I have evaluated how well the current League tutorial matches their expectations. This approach shows that the current tutorial introduces a skill gap between what is expected of new players to know and what they should know to play League optimally. Through optimizing the tutorial content based on this model I believe that the new player experience can be improved, the toxic behaviour towards new players can be alleviated and potentially this approach can be applied to other complex (MOBA) games.

1 Introduction

Multiplayer Online Battle Arena(MOBA) games have come a long way since 2002. Their unmatched popularity is a big part of the reason that esports is so successful. League of Legends is not only the most popular MOBA in the world but also considered the single most popular game in general. League's free-to-play approach to competitive strategy success is a big factor in achieving that popularity [18]. The core MOBA mechanics in League have remained mostly the same over its lifetime while at the same time, complex mechanics have been invented to interact on top of them. In League, players control a single champion of their choice from a set of champions and perform a very specific role in a team of five people that is highly dependent on the champion they chose. This is where the complexity begins as every champion has its own unique sets of spells. These spells have their own unique way of interacting with the entities and terrain of the map and their own mechanics attached to these interactions. Players have to memorize what each character can do as well as manage moving, dodging, attacking, and managing resources such as mana, health and gold. As a final note, the game is heavily reliant on team coordination and communication. There are many objectives on the map that require the entire team to complete and on the opposite corner is an entire enemy team trying to stop you.

This complexity has only been increasing over the last 10 years and its becoming harder and harder for new players to get into the game. This is where tutorials become helpful. Developers create these tiny gameplay scenarios within the game space, where players can have a safe environment for learning the mechanics of the game. These scenarios range from requiring the player to complete some simple tasks such as moving from point A to point B, to having them play an entire match vs AI bot opponents. The

problem comes when these tutorials are made in a way that makes them differ too much from the actual gameplay of the game. The player will never have to interact with their team and will never be in danger of the enemy team, which is a completely different context from what the actual game is. Players in turn often skip the tutorial and go straight into a real game where they are met with a large skill difference. Such disparity will result in them performing sub-optimally and poor performance very often triggers verbal harassment [5]. Even if the matchmaker succeeds in creating a game that is filled with new players, it is often the case that a group of new players will not cooperate enough together to adequately learn major skills [19]. Furthermore, new players will often finish these matches without learning anything because of the constant stream of slurs, and most likely end up never playing the game again.

Focusing on self-improvement and becoming a better player in general is one solution to minimizing the chance of making bad plays. But to improve in League you must take part in real games with real players to get experience with handling many different environments. Good players in League are often good since they have invested their time playing the game a lot [25]. Reaching their skill and knowledge level would require one to learn every single skill in League, but that is going to take time, no matter what aid is provided to new players. For this reason I aim to highlight the most important skills in League so new players can focus on learning them first and potentially become a better player faster. In this thesis I have applied a theoretical skill model on the content of League to extract potential skills in the game. Then with the input of veteran players I have acquired a measure for the most important skills within that model. I have then evaluated the current League tutorial to see how it holds up to the expected knowledge of veteran players, where it fails or succeeds to major skills to new players. Results show that, skills such as map objectives, player actions, champion knowledge and gold acquisition are considered the most important among veterans of League while metagame knowledge such as proper builds paths and proper masteries are rater lower because veterans believe everyone can build the most popular build and use the best masteries and still perform well above average. I believe that by establish what the core knowledge of League is, the process for building a successful tutorial can be improved significantly and with this the new player experience itself should improve.

In the next chapter you can find information about League, related work for tutorial design and player motivation and description of the context of the game and its community. Following that, the goal, research questions and the approach are described. After establishing the research goal, for each topic methods and results are described. Finally, the chapters discussion, limitations, future work and conclusion are described.

2 Background

2.1 League of Legends: Gameplay, Goals and Tutorial

The multiplayer online battle arena (MOBA) genre has been making a lot of waves in the esports scene recently. More specifically League is considered the most popular game in the world [23]. Its frequent updates, strategies and reliance on skill appeals to the majority of players. The MOBA genre first appears in Starcraft's "Aeon of Strife". The modern MOBA design only settled in Warcraft 3's Defence of the Ancients (DOTA), a

very popular mod of the base game. Since then the core design has not changed much but the complexity of the game has risen a lot via new mechanics and features that interact with it.

League is a five versus five team-based competitive game. Before each match, each member of the team must pick a specific character to play with. Depending on the type of match, both teams choose at the same time (unranked match) or by having a few members in one team pick first then it swaps to the opponents' team (ranked match). This allows teams who pick second, to have a chance to determine what the opponents' team comp (strong for certain strategies) could become and try to pick characters that might be good against that comp. This is a key part of the MOBA design as characters are very powerful if they are picked in the correct environment. Once the match begins each member of the team has a specific role on the map that will be played. The map is usually split into 3 lanes: Top, Middle and Bot; and a jungle in-between each lane, and a team base from which the lanes originate. Then these are mirrored so each team has its own lanes and jungle but vision is only limited to friendly units and structures, especially in the jungle. A wave of a couple of minions starts running down each lane for both teams and these waves meet their counterparts and start fighting. The team members can help defeat the enemy minions to earn gold and experience, which will make their characters stronger. The goal is to push these waves back up the opponent's lanes to their base [20] and destroy it.

The League tutorial is split into three different levels. In the first level, you learn about the basics such as actions, abilities, attacks, enemy structures and champions. You are also allowed to play a small selection of champions that you can swap freely mid-game. In the second level you learn about the map, lanes and attacking and you are only allowed to play one champion. It is in this part that you are first experiencing a similar context to a real game, but instead of people you play with AI opponents and allies. In the third level you learn how to buy items and get gold and again you are allowed to only play a single champion. Apart from the extra skills that the third part teaches it is exactly the same as the previous level.

2.2 The new player experience

New players generally do not have a good idea of the current metagame in League. Even if they do to some extent they do not understand the real impact of their decision without any game experience. Once they are matched with players who are even slightly more experienced than they are the skill gap will show. These will elicit toxic outbursts, like verbal harassment, which are often associated with the gamer identity that is very prone to "extreme behaviour" [14]. In League griefing or flaming is a very common action, that according to the Riot's own research [16], most players do after being frustrated or are just having a bad day. Such behaviour can be labeled as anti-social [1] and these players often go against their team trying to win and try to make the game miserable for everyone in it. An approach for predicting toxic behaviour in League shows that, it is very often present after a negative event during a game and responding to that behaviour, such as defending oneself, further contributes to it [5]. It is of course not the victim's fault but the culprit who initiated it can be hard to identify. As a new player, getting into a game unprepared will often lead to poor performance. And poor performance can be seen as

a negative event by their teammates. Griefing, flaming or cyber-bullying is what these new players often have to deal with [11]. While League's developers continuously try to combat this by focusing on the perpetrator of negative behaviour by rewarding good behaviour and punishing bad one, my approach focuses on new players. They first need to acquire at least some meta (knowledge and expertise of in-game mechanics) and meta-game (strategies regarding how to play efficiently, what items to build, which spells to level) knowledge as well as team communication and even emotion regulation "staying cool" [12]. Being frustrated and refusing to cooperate with your team can quickly deteriorate the quality of the game [22]. By providing some help in the early phases of learning, be it a tutorial, recommendations or pro-player support. This new player-friendly environment and community should allow them to have access to more resources and increase their chance of being successful early. Developers have invented different ways to address that. In games like Final Fantasy 14, new players are usually paired with experienced players that are dedicated mentors in separate matchmaking from the default one. New players can avoid the experience gap that comes with meeting experienced players, and receive helpful feedback and advice from them directly [17]. Valve's DOTA2 game has a similar implementation where they offer a separate matchmaking with lower stakes, compared to their normal game. These modes reward participation and allow players to practice and learn in-game mechanics in an easier version of the game. But as mentioned above, it is not quite obvious how much a new player would learn from a game full of new players. But it is probably a better learning environment than when are you constantly being screamed at.

2.2.1 Theory of Skill

To create a better learning environment for new players we first need to understand what exactly does make one player good. Identifying the skills of League of Legends can be quite a tedious task and understanding each one can be an even harder one. However, for an esports player, this seems to be like a second nature to them. In the paper "The Play of Champions, Toward a Theory of Skill in eSport", Larsen has come to a similar conclusion [15]. With the assistance of esports players and more than a hundred hours of pro-player gameplay, his research has led to creating a model for competitive online games based on the idea of skill theory. The model is compromised of 7 interwoven categories: "knowledge about of game objects, insights into game systems, understanding metagaming, yomi: 'reading' the opponent, execution, emotional discipline and team coherency". League of Legends is one of the games used in the paper to help define this model. This will significantly ease the process of applying the model to League as the author is using it as a context to create the framework that defines the skills.

2.3 Design Principles for a Good Tutorial

The League tutorial is infamous for being awful and insufficient as an intro tool for new players to the game [6]. Is it just too different from what the actual gameplay is. Comments such as "I've been saying for years they don not teach people how to actually play this game." are common when players are asked about the current state of the tutorial. Making a better tutorial normally, in less complex games, can be achieved by building them around the world and the narrative of the video game, built-in within the actions

available to the player at the time they would normally use these actions. So why do tutorials fail in complex games such as the online competitive genre? According to Plants VS Zombies game designer George Fan [7], a player's willingness to learn grows with their level of investment. The idea that a tutorial does not have to be done all in one go in order for you to play the game properly, opens a lot of freedom for new players that want to learn League. The content can instead be split up across multiple matches. On a first look, this seems to be only possible for simpler games and will be hard or impossible to implement in League. The balance designer of League of Legends, Greg Street, highlights a very important note that, new players are not yet fully sure, whether or not they want to dedicate their time to learning these games [9]. In short, new players have to learn before even being invested in the game, which results in the game itself advancing forward with the tutorial while the player learned nothing. The reason it is possible for less complex games is that designers can introduce game mechanics slowly throughout the course of the game experience. In complex games everything talks to each other, every action, decision and event from the very beginning making it impossible to segment game mechanics as time passes. However, there is another option. Bruce Shelley, game designer for Sid Meier's Civilization, a complex single-player grand strategy game, invented a concept for segmenting complex game's decisions called the "Inverted Pyramid of Decision Making" [21]. You are only ever asked to make very few decisions at a time, then a few decisions the next time, and the next and so on. If you look at the possible decision tree of all the actions of a complex game it would look very intimidating and if you are not a veteran of the game you would not understand what all of it means, but a player never has to make all of those decisions immediately. We can translate this in online complex games as well. Let's consider that, we want to learn to play League of Legends. Do we really need to know jungle camp timers (respawning timer for neutral monsters), leashing(pulling neutral monsters away from their respawn), kiting(attacking enemies while running away from them), stutter-moving(interrupting animations that would otherwise lock the movement of your character), rotations(coordinating around an objective), important objectives, ward placements, every item or every ability. In this paper, I will find out the answer based on feedback from veteran players.

2.3.1 Player engagement and experience

Developers also try to deliver the content of tutorials in the most optimal way to their players. The basics of making tutorials for complex games, such as MOBAs, is reducing the immediate content that has to be learned. Otherwise, this may intimidate new players. Research in tutorial design suggests that the more complex the game is, the higher the impact tutorials have on player engagement [4]. Giving players the freedom to learn skills such as UI elements, keybinds and functionality of the abilities on their own, will positively impact their experience, while giving them the option to receive help on demand to solve a problem will negatively impact it [8]. Core skills and mechanics are better taught from immediate examples of them being applied in context. Between each learning session for a core mechanic, players can be given the opportunity to explore what they have learned so far before continuing with the tutorial. This could reduce the frustration and boredom of having to complete a long series of to-do lists, that the current tutorial is. Furthermore, this can help players acquire new skills faster, which means they can focus on interacting with the parts of the game they are interested in.

3 Research Question and Approach

3.1 Goal

It is evident that modern complex games require a better new player experience to introduce them to the game features. However, in the context of League, the content that the tutorial teaches new players is insufficient for achieving its goal. The basic features that it teaches are also sometimes taught as if the player is assumed to be very experienced or taught in a very different environment, compared to what the actual game is. In League, the tutorial is in an entirely different context from what the actual game is. There is never any danger to the player and they are not expected to cooperate with their team to complete it. Moreover, it normally takes a lot of time and commitment to go through it. Especially since new players are forced to play versus very unintelligent AI opponents, which could be a contributing factor to feeling bored or frustrated with it. These players are more likely to opt for skipping the tutorial and directly going into a real game where their inexperience will contribute to toxic behaviour directed at them [5]. On another point, the meta of these games has shifted drastically through their lifetime, yet the tutorials have remained the same teaching the same basics from years ago. A better tutorial is a key component in alleviating that outcome for new players and a better way to design tutorials is needed. Research that focuses on making tutorials better already exists by making them more interactive, but they do not necessarily improve the content that is supposed to be taught, just the way its communicated. Identifying that content will be an important research goal of this paper. The following research questions will help in determining what qualifies as good tutorial content and how the tutorials fails to teach it:

What is the current state of the tutorial in League?

1. According to the experienced players, what are the most important skills in League?

2. Which skills are currently taught by the tutorial?

3. How well does acquired knowledge and expected knowledge align?

4. What are the shortcomings of the current tutorial?

3.2 Approach

The approach part will be split into three phases. The first phase will be dedicated to investigating the skills of League and creating a theoretical skill model based on the model from [15] paper. In the second phase, I will create a survey to gather data from veteran players. The survey will be split into three parts. First, question to evaluate their experience with League will be asked. The experience of these players will highlight their ability to evaluate the skill and the core knowledge of League. Secondly, questions regarding their opinion for each skill that is part of the theoretical skill model via score ranging from 1 to 10. Finally, questions about what the veteran players believe is missing from the skill model and which parts of it they believe have a higher importance than others. The goal is to determine which skills are the most important to new players. Skills that they must learn in order to be adequately prepared for a real game, as well

as the overall significance of each skill and knowledge. Afterward, the collected data will be used in the third phase of the approach. In that part, a comparison between the current tutorial and the skill importance data will be made to determine exactly which skills the tutorial does teach. Two playthroughs of the tutorial will be used as a validation for determining which skills are taught. One by a veteran player and one by a new player. The veteran playthrough will assist in evaluating the depth to which the skills are taught and the new player one will assist in defining the list of skills that are taught but both will be considered for every decision. Conclusions will be made for each comparison made. Finally, a list of suggestions or improvements for the current tutorial will be given. They might highlight key skills and knowledge that the current tutorial fails to teach or even does not teach at all. These suggestions could be viewed as a framework for designing a better tutorial for League and potentially MOBAs.

4 Theoretical Skill Model Applied to League

4.1 Methodology

The seven-skill category model is based on a tentative theory of skill in the context of esports. It is formed by the author's research on over 100 hours of esports content and post-discussion with pro players [15]. To create a skill model for League of Legends, the skills per category have to be established. In the paper [15], the author provides a description of what skills might fit within each category.

- Game Objects - The building blocks of the game, defined by their properties, behaviours of relationships.

- Game Systems - The way the interaction between the game objects happens and how it handles the properties, behaviors, and relationships of game objects in relation to each other.

- Metagame - Best strategies derived from in and out-of-game information.

- Game Flow - Learning and knowing your opponent's intentions while at the same time being aware that the opponent is trying to figure out your intentions.

- Ability to execute - The players ability to seamlessly interact with the game: player and controller, action heuristics or action cognition/intention.

- Emotional Discipline - The idea of trigger discipline where one player has an advantage over another player.

- Team Coherency - Is about the dynamic between team members in and out of game contexts.

Drawing on that framework together with my own extensive experience playing League of Legends I have defined a number of skills for each category.

4.2 Results

- Game Objects - all the available choices that a player can make:

  - Champions - the playable characters, their skills, stats and mechanics.
  - Items - the buyable shop equipment, what it does and the stats it gives.
  - Masteries - additional enhancements that add new abilities or buffs to the champion.

- Game Systems - fixed systems that persist throughout all possible games:

  - Actions - basic and general controls, how to move, attack, buy items, use abilities.
  - Vision - Understanding the fog of war and how vision works with either invisibility or bushes.
  - Jungle camp timers - when the neutral camps spawn and how long they take to spawn.
  - Map objectives - the reward your teams gets from completing a map objective.
  - Turret range - the enemy structures range.
  - Gold acquisition - how to acquire the currency used to buy items and power.

- Metagame - player created information based on investment in the game:

  - Proper playstyles - playing a champion to its best playstyle such as playing aggressively on an aggressive champion.
  - Builds - building the correct items for your champion.
  - Masteries - picking the best masteries for your champion in the current game context.
  - Team composition - picking champions that fit spots within your team that are missing.

- Game Flow - understanding the current context of the game:

  - Prediction - understanding what your opponent is trying to do and avoiding it before it happens.
  - Baiting - tricking your opponents commit to a situation that they should not.
  - Being behind/ahead - understand at what points in time your champion is stronger/weaker than your opponents and taking advantage of it.
  - Strategies - countering the opponent's team champions with another one.

- Ability to execute - comprehend mechanics to an exceptional level:

  - Champion knowledge - being aware of the exact mechanics and timings of your abilities and use them before your enemies predict it.
  - Situational awareness - being aware of the minimap, missing enemy champions, and being exposed to ganks.

  – Collected mind - not panicking during a teamfight or other important events.

  – Altering your build to counter enemy team - building according to the current game context not to the meta build.

- Emotional Discipline - staying cool under heated moments:

  – Trying to win - playing as best as possible even when your team is losing and not giving up before the game ends.

  – Not acting too soon - being less greedy towards using abilities or commiting for a kill.

  – Controlling emotions - not abusing the communication tools to be toxic to your teammates.

- Team Coherency - skills dependant on your team:

  – Combining roles to perform better - putting good support and carry champions together.

  – Combining champions whose abilities combine well - picking champions whose abilities combine together into more powerful ones.

  – Rotations - moving with your team accordingly

  – Map objective - grouping up with your team during important events.

5 Survey: Skill importance

5.1 Method

In order to answer the first research question and validate the relevance of the skills within the model, we will use input from veteran players. This ensures that the skill importance accurately captures the key skills required to excel at League. The resulting table offers a comprehensive framework for understanding the complex set of skills and knowledge that a player must have to succeed in the game.

  To reach veteran players an online survey will be conducted. The privacy and quick scan for the survey can be read on Appendix-Quick-Scan which ensures that data will be kept private and only used for this research. The survey includes questions about their experience with League: how long they have been playing League, how frequently they play League today, the highest rank they have achieved and how good of a player they believe they are. This information will be used to determine the quality of input they could provide. Since the game is way different than it was 2 years ago, I want to make sure that I reach players that are still activat today. Additionally, few questions will be asked to see if they have ever been toxic to an underperforming player before. I want to understand the situation that made them feel anger towards that player and hopefully get a perspective on the skills that the underperformer was missing. Following these questions, the survey will list each category and skill from the skill model and ask for each skill to be rated based on its importance from 1 to 10. Between each category, additional questions will be asked to list potential missing skills from the category. As

I cannot be certain that I have fully defined all skills in League I want to which ones I might have missed. The final questions of the survey will ask the veteran players if they believe there are skills or categories that are missing from the model as a whole and if they believe some skills should have precedence over others when being taught to new players.

The survey was published on the official League subreddit and on two university discord servers (The Game and Media Technology and Computer Science discord). The online questionnaire has 55 full responses the partial responses and some low-quality ones, such as ChatGPT generated answers, were discarded. Most of the responses were from male players (52-male, 3-female), with an average age of 24 (stdeviation of 3.9). In total 49 responses are from players that have played League for more than 4 years and 6 are between 1 and 4 years. For player ranks, 27 of the responses are from players that are situated at Gold or Platinum rank, which confirms the fact that the average League player is around Gold. Diamond 4+ ranked responses are 18 in total and Bronze and Iron are 10 responses. Finally, 25 of the players still play League daily, 24 play weekly and 6 play a couple of games a month. This ensures that the players are aware of the current meta and game state.

5.2 Results

The skill importance models can be seen in Figure-Platinum-1 model and Figure-Diamond-4 model. Scores are based on the average score of a skill from the survey data. The category score is based on the average score of its skills.

The first model, as depicted in Figure-Platinum-1 model, is based on data collected from players of rank platinum 1 and lower. This model represents the average player in League. The second model, as illustrated in Figure-Diamond-4 model, was developed using data exclusively from players who had achieved a ranked tier of diamond 4 or higher. This ensures that the model represents the opinions and experiences of highly skilled players. Likewise, as the previous model, the average score of each category is calculated as the average score of all of its skills.

The inclusion of two distinct models allows for a semantic understanding of the skill requirements for League of Legends. The first model offers a comprehensive overview of the skills needed to succeed in the game, taking into account the perceptions of the average player. The second model provides a more focused perspective from the best players in League and their opinion of the most important skills to be a successful player. Based on these models, we can see that both player groups are in an agreement for the highest scoring skills. Furthermore, these skill profiles can be used for comparison with a personal skills profile to highlight areas that are in a need of improvement and personal goals if the player is looking to be a casual gamer or try to become a good player.
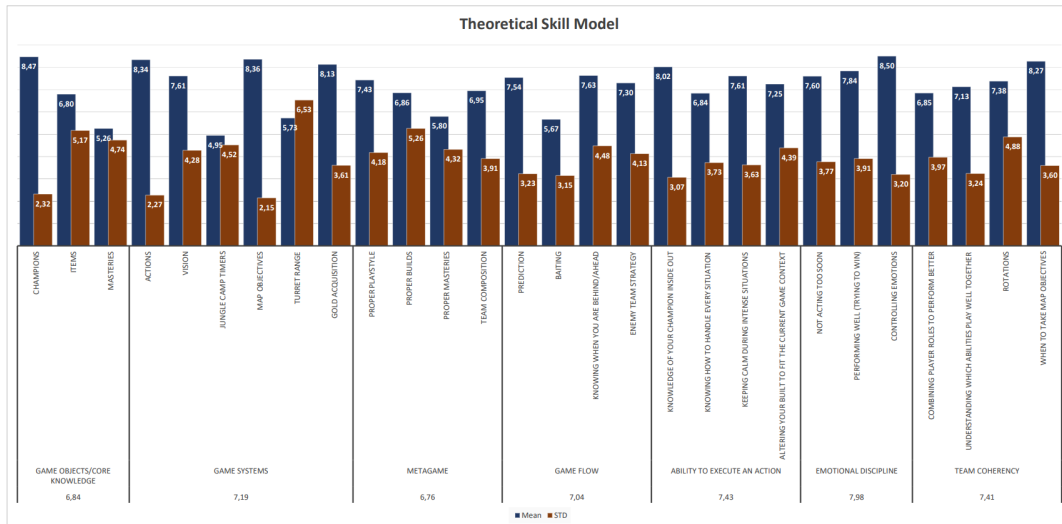
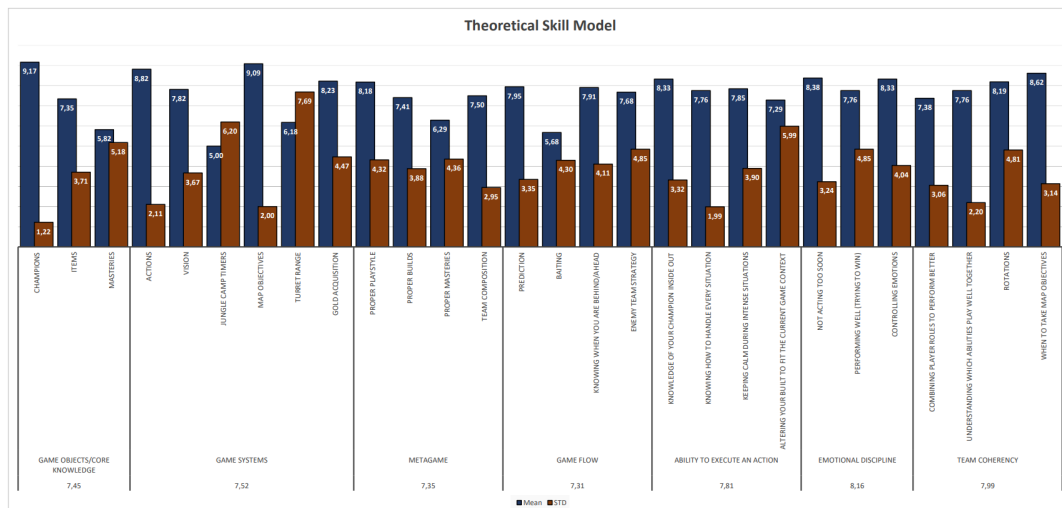Figure 1: The skill importance model from Gold 1 and lower responses.

Figure 2: The skill importance model only from platinum 4 and higher responses.

To help analyze emerging patterns we have taken into account three measures: mean, std deviation, variance; refer to Table-Skill measures.

Sub-topic	Mean	Std Deviation	Variance
Champions	8.48	1.52	2.32
Items	6.78	2.27	5.17
Masteries	5.20	2.18	4.74
Actions	8.37	1.51	2.27
Vision	7.58	2.07	4.28
Jungle camp timers	4.89	2.13	4.52
Map objectives	8.33	1.47	2.15
Turret range	5.68	2.56	6.53
Gold aquisition	8.16	1.90	3.61
Proper playstyle	7.44	2.04	4.18
Proper builds	6.84	2.29	5.26
Proper masteries	5.78	2.08	4.32
Team composition	6.95	1.98	3.91
Predicting opponent's actions	7.58	1.80	3.23
Baiting	5.68	1.77	3.15
Knowing when you are behind or ahead	7.61	2.12	4.48
Enemy team strategy	7.28	2.03	4.13
Knowledge of your champion inside and out	8.04	1.75	3.07
Knowing how to handle every situation	6.86	1.93	3.73
Keeping calm during intense situations	7.58	1.90	3.63
Altering your build to fit the current game context better	7.23	2.10	4.39
Not acting too soon	7.63	1.94	3.77
Performing well even if your team is behind	7.80	1.98	3.91
Controlling emotions	8.49	1.79	3.20
Combining player roles to perform better together	6.88	1.99	3.97
Understanding which abilities play well off each other	7.13	1.80	3.24
Rotations	7.41	2.21	4.88
When to take map objectives	8.29	1.90	3.60

Table 1: Table of measures for each skill in categorical order from all responses. In light blue the top 7 skills that are present in both player groups.

6 Tutorial Evaluation

6.1 Methodology

When it comes to determining which skills are essential or core, it would be very hard to make that claim without testing further. Therefore to answer the second and third research questions, a solution is to check which skills are considered the most important between two player groups, of different skill levels, from the survey. We can take the top-10 skills from each group, see which of them are present in both groups and consider them for in-depth analysis. Since the average player in League is ranked around gold [3], we can consider one player group to be below platinum rank as the average skilled player while the other can be Platinum 4+, the above average player. This allows us to establish the skills that both the average and the best-skilled players agree on. The overlapping skills between these two player groups can be seen in Table-Top 10 skills. I also want to see if the tutorial covers the other skills so a minor analysis will be performed on them.

Sub-topic	Platinum 4+	Iron 4 - Gold 1
Champions	X	X
Map objectives	X	X
Actions	X	X
When to take map objectives	X	X
Not acting too soon	X	
Knowledge of your champion inside out	X	X
Controlling emotions	X	X
Gold acquisition	X	X
Rotations	X	
Proper playstyle	X	
Performing well		X
Knowing when you are behind or ahead		X
Keeping calm during intense situations		X
Vision		

Table 2: A table of the top-10 skills that overlap between the two player groups.

Each skill is noted with an "**X**" to highlight that that particular skill is present in that particular data set. The skills that are present in both player groups are Champions, Map objectives, Actions, When to take map objectives, Knowledge of your champion inside out, Controlling emotions, Gold acquisition. As these skills are considered the most important I will go in-depth about how the tutorial succeeded or failed at teaching them.

In order to better understand how skills are present in the tutorial, I have examined two different playthroughs of it. One playthrough was played by a veteran player, while the second was played by a person who has not played League yet (i.e. a new player). Using these two playthroughs I will be able to understand what concepts and skills might be logical for a veteran player to understand but completely miss the mark with new players. The veteran playthrough will be played by me. As I go through the tutorial I will note down the skills I encountered and if needed, I will provide extra information. The second playthrough will be played by a new player, whom I will observe via a share-screen over Discord. I will note down the same skills as they encounter them, see how they interact with each skill and if needed I will ask them what they think about it. You can see the results in Table-Skills. I will consider only the skills encountered, by both me and the new player, to be part of the tutorial.

Sub-topic	Veteran		New-player		Avg. Score
	Has	Explains	Has	Explains	
Controlling emotions					8.50
Champions	X		X		8.47
Map objectives	X		X	X	8.36
Actions	X	X	X	X	8.34
When to take map objectives					8.27
Gold Acquisition	X	X	X	X	8.13
Knowledge of your champion inside out					8.02
Performing well	X				7.84
Knowing when you are behind/ahead					7.63
Keeping calm during intense situations					7.61
Vision	X				7.61
Not acting too soon	X				7.60
Prediction					7.54
Proper playstyle	X		X		7.43
Rotations	X				7.38
Enemy team strategy					7.30
Altering your built to fit the current game context	X		X	X	7.25
Understanding which ability play well together					7.13
Team composition	X				6.95
Proper builds	X		X	X	6.86
Combining player roles to perform better					6.85
Knowing how to handle every situation					6.84
Items	X		X		6.80
Proper masteries					5.80
Turret range	X	X	X	X	5.73
Baiting					5.67
Masteries					5.26
Jungle camp timers	X				4.95

Table 3: A table of all skills in descending order that are present within the tutorial. In light blue the top 7 skills that are present in both player groups.

6.2 Results

Champions - All three groups agree that this skill is important. The tutorial only goes in-depth on one champion but gives the player the option to choose 7 other champions. Out of the 164 champions that League offers to play with, the limited selection in the tutorial does not really do a good enough job to show you the possible playstyles of some of the more unique champions. Not only that but you are forced to play only 1 champion during the larger part of the tutorial. The player who did the new player playthrough felt annoyed and bored that he is forced to play the same champion, after being allowed to change it in the first part.

Map objectives - The tutorial does a good job of telling the player how to win the game. The new player also immediately understood that the goal of the game is to destroy the towers in a lane until you reach the enemy base. However, the tutorial makes no mention of the jungle camps unless you deliberately go into the jungle to initiate that sequence. Not to mention that the sequence does not provide any information as to what

benefit there is to killing the neutral monsters. During the new player playthrough, had they not accidentally walked into the jungle they would have never known that this aspect of the game existed until they went into a real game.

Actions - They are immediately taught in the first part of the tutorial which really helped the new player understand the basics of League. Some important actions that are missing is the pinging system, player scoreboard, in-game options, item activations and warding. There are other actions that are missing such as stutter moving, animation canceling or auto attack canceling, but they are rarely needed to win a game.

Gold acquisition - During the third part of the tutorial you are finally given a direct objective to kill minions and collect a certain amount of gold in order to progress it. Once you have accomplished those tasks you are then asked to recall back to the base and spend the gold you have just earned to buy items. This is a very intuitive way to teach that skill as it is very similar to what you will be actually doing in a real game. The new player clearly understood it and they recalled multiple times to buy more items are they got more gold.

When to take map objectives - This skill is not present within the tutorial but I think it is with a good reason. An opening for a play is very specific to each game and understanding these patterns can only be learned by playing a lot of matches. It is generally better to let the player learn them themselves as they become better at the game.

Knowledge of your champion inside-out - This skill is also missing from the tutorial. It is only learned through repeated gameplay of the same champion and can only be achieved outside of a tutorial in a real context. An important aspect of understanding the capabilities of your champion is knowing how it handles different situations. Similarly, as taking map objectives, the tutorial is a static scenario that would not allow you to encounter these situations.

Controlling emotions - This skill is not present within the tutorial. The new player mentioned that the tutorial games were too relaxed to be mad at anything within them but he was aware that League is famous for its unwelcoming chatters. Nevertheless, this skill would be hard to teach directly. It is widely accepted that streamlined methods for learning are generally bad and skills such as controlling emotions should not be taught in one way to everyone [24]. Showing players that they have the ability to mute toxic players can be a good first step in teaching this skill, but this part is missing from the tutorial.

Proper playstyle, altering your build to fit the current game context, proper builds and items - These skills are present in the tutorial to some extent with the same feature. When you are browsing the in-game shop in the recommended section you will be given 3 item options. Bellow each option you can see why this item was recommended to you in the form of "Its good against this champion on enemy team" or "Good on your champion". This section is unique depending on the type of champions the enemy team has. Apart from these tips the player does not get any additional info regarding the available options.

Turret range - This skill is present in the tutorial only when you enter in the area of influence of an enemy turret. A voice line and a text notification is played to warn you about it.

7 Answering the research questions

7.1 What is the current state of the tutorial in League?

The current state of the League tutorial does not match well with what veteran players see as important in regards to the skills that are taught.

7.2 According to the experienced players, what are the most important skills in League?

To answer this research question a survey was given to veteran League players to collect their input on a theoretical skill model. Over 50 respondents gave their opinion and defined a score per skill which can be seen on Table-Skills. It is safe to assume that the highest scoring skills: **controlling emotions, champions, map objectives, actions, when to take map objectives, gold acquisition and knowledge of your champion inside out**, are important enough to be taught by the tutorial.

7.3 Which skills are currently taught by the tutorial?

To get an accurate description of the skills the tutorial teaches, two playthroughs were used. One as a veteran and one as a new player. The skills that were encountered for each playthrough are: **Champions, Map Objectives, Actions, Gold Acquisition, Proper playstyle, Altering your build to fit the current game context, Proper builds, Items, Turret Range**.

7.4 How well does acquired knowledge and expected knowledge align?

The tutorial barely teaches half of all the possible skills that the theoretical model lists. Additionally, out of the 7 highest scoring skills, the tutorial only teaches 4 of them: **champions, map objectives, actions, gold acquisition.**. The rest of the tutorial content covers skills that are in the bottom half of the skill importance model: **proper playstyle, altering your build to fit the current game context, proper builds, items, turret range**. By this definition, I can say that the acquired knowledge of new players does not align with the expected knowledge of veteran players.

7.5 What are the shortcomings of the current tutorial?

The current tutorial fails to give the player freedom to the player to learn the core skills of League. The tools used are limited in terms of content. Not all of the important skills are taught by the tutorial and the ones that are covered are not done well enough to properly teach them.

8 Discussion

The results of this research have provided insight into the current state of the tutorial of League about the skills it teaches and how well it matches the knowledge that is expected from the average League player. This chapter provides a reflection on the research process. Implications of the results and their interpretation are discussed as well as recommendations for possible improvements of the tutorial.

8.1 Tutorial evaluation

Conducting the survey was by far my biggest learning experience on this topic. What I thought was important before has since changed. I believed skills such as items and masteries to be the most important skills in League, since they will be the ones to be interacted with the most. But veteran players agreed on personal skills and knowledge of champions more. Not only that but the survey results suggest that almost all players agree on the top 10 most important skills. If we take a look at their variance in Table-Skill measures, we can see that they are pretty low when compared to the other skills. Reading into the additional comments from the survey helped me realise that the metagame knowledge of masteries and items was rated low because every player these days just follows the best build path from pro players. Despite their overall low score, it was also said that even if one is following the best builds, players still have to at least understand the counter-items in League such as not building anti-tank items when there are no tanks in the enemy team. Another obvious example is building armor when the enemy team is entirely made up of ability damage champions. Veterans also noted that when new players pick play-making or selfish champions they make the game too dependent on them. These champions are usually the ones to initiate plays on the map such as starting team fights or do not bring any supporting power to the team. New players do not have the necessary game knowledge to understand when making those plays are profitable. They do not fight with the team and unintentionally lose the game by making a poor decision. The survey also showed that champions can be played in different roles with different builds and new players could potentially build the wrong items since they didn't follow the correct build for the role.

Having a good insight into what skills are deemed important helped a lot in evaluating the tutorial. I believe this approach has shown that developing a tutorial in the general ways of tutorial design is sub optimal and does not reflect exactly what the game really is about. During the playthroughs, as soon as I started the experiment it immediately became evident to me that, ticking a skill if it is in the tutorial will not be enough. Some skills are explained well while others are not at all. This showed me that I had to split the table into "Has" and "Explains". If the tutorial explains a skill, I ticked both columns, if the tutorial does not explain it but the skill is present, I ticked only the first column. An example of either case can be seen in Table-Skills. The skill "Jungle camp timers" is part of the tutorial and is displayed where it would normally be, but that would require the player to press the "Tab" button to show the scoreboard and look above it, which is never explained to them. For some skills, it was hard to decide whether or not the tutorial explains them when it just highlights a small part of them. For example, the tutorial teaches you how to buy items but does not tell you which items to buy and which items are important for you. You are left to understand the shop yourself, which has a

recommended section, that shows you very minor information about your character. You are also left to read what the items do yourself but neither I nor the new player read any item tool tips. I already knew what they did and the new player did not understand that the items did something and that he had to read them to understand what they do. Overall, I felt like I gave the tutorial a bit too much credit when it came down to noting the skills. This can also be seen when compared to the new player playthrough in Table-Skills.

An interesting development can be seen in the skills "Proper builds" and "Altering your built to fit the current game context". I believed that the game does not do a good enough job to explain to the player which items are better in different team compositions. However, as I was observing the new player, I saw that, when they went back to the shop during the third part of the tutorial, they saw the little tips under the items, that told them to purchase this item because it was good against 3 of the enemy characters. Even though it does not say why exactly it is effective against them, it is at least good that it tells you something about the current game state and how to counter your enemies. Another interesting part is the skill "Map objectives". During my playthrough, I thought that just knowing that you have to kill the enemy towers and nexus is not enough and you need to understand the neutral objectives as well. But my mind changed when I observed the new player. This suggests that you definitely do not need to know about the neutral objectives to win a game of League.

For the most important skills out of the seven fully overlapping above, only 4 of them are part of the tutorial of League. League does try to address this by showing tips on the loading screen that show spawn timers of important map objectives or keeping cool wins you more games in general. Additionally, since I started this research League was updated to show even more notifications during a match. Now when someone from your team goes to a big neutral objective, everybody in the team receives a notification about it. This definitely helps in making sure your team understands what you are trying to do. Another one is that when you queue as a jungler you can now see a guideline path that you can choose to follow to perform your jungle clear successfully. However, these tips are only visible once you queue up for a real game and more often than not, you will not see them at all, since they are a small part of a large pool of loading screen tips.

Having two playthroughs allowed me to better understand the content of the tutorial. The new player playthrough depicts a more natural example of what skills are encountered by new players. This showed me that the skills I thought I gave the tutorial too much credit for were indeed missing. While the veteran playthrough allowed me to understand the depth that each individual skill was explained. However, the results should be interpreted with caution, because what this new player encountered in his playthrough can be totally different from another new player. The consequences of this might be that the tutorial does cover more skills, which might have been encountered by another new player.

Overall, the tutorial does a good job of explaining the basics. The new player understood that he has to go down a lane, why he has to get gold and buy items to become stronger, that killing enemy champions was important, and that he will win the game by destroying the enemy nexus. Where the tutorial fails is to help the player understand why these skills are important. Why does the player have to go down that lane, can he go to another lane? How do these items help them? Are they active items with abilities or just provide stats? Should you go back after killing an enemy champion or stay in

lane to try to destroy the tower? Another area that the tutorial fails at is masteries and summoner spells. These are both part of the skill "Masteries" and there is zero mention of it in the game. Most of the responses rated the skill very low and their reasoning was that most players do not make conscious choices in regards to their masteries. They just copy whatever is the current meta and go with that. However, there is one major flaw in the tutorial part. There is no mention that these skills exist inside the game at all. How would the new player know to use the meta masteries when they do not even know masteries exist in the first place. Similarly for the summoners spells, while you have access to two of them during the tutorial, the new player never used them as they were not part of it in any way.

In general, it will be hard to design a tutorial that sits well with everyone. A study on student satisfaction with learning styles has shown that there is no good universal way that teaches everyone equally well [24]. This has to also be true for League since not everyone finds enjoyment in playing every role. Some players might dislike a certain mechanic and a specific role within the game might not have to deal with that often. This suggests that there might have to be a place for role-specific tutorials within the game that introduce players to their nuances. If the player does well in their preferred role it would improve their satisfaction with the game and potentially reduce toxic behaviour that they receive due to bad plays that might be the product of being annoyed with the game. At least a third of the veteran players also expressed that if they knew the bad performer was a new player, they probably would not have been verbally toxic towards them. Implementing a system that highlights new players for a period of time or a number of games in the beginning as new could potentially reduce their bad experiences. Another system that exists in League is "loss prevented" which happens when the game is lost due to technical experiences with the server. Maybe it would help to implement this if a new player impacts the game too negatively for their team.

8.2 Tutorial design recommendations

To determine the shortcomings of the current tutorial we first need to understand which skills require immediate examples and which skills can be left to the player to figure out over time. Generally, the core skills are the ones that require immediate examples. Since they are the most important ones the player needs to be shown an example followed by a hands-on task to learn them properly. We can again use the skill importance model Referring to Table-Top 10 skills and identify how they should be taught.

Map objectives and **when to take map objectives** can greatly benefit from examples of what the reward is when they are defeated. Understanding that concept can also convey the information that the earlier they are defeated the sooner your team becomes stronger and allows you to contest the follow-up map objectives better. An example of this can consist of a scenario in which the player defeats one of the stronger neutral objectives. For example, "Baron Nashor". Then with the obtained buff, allow the player to apply it to their gameplay by pushing with a friendly minion wave to destroy enemy structures.

For **champions** and **knowledge of your champion inside out**, the player should be allowed to freely select from a pool of champions or all champions to play with during any part of the tutorial. In the case that they really like a champion in the first part they can choose it again for the latter parts and immediately begin practicing it and understand

its intricacies in-depth. In the case that they do not stick to a single character they will interact with a large number of abilities and kits and recognize them later on when they are playing a real game. A system that highlights the difficulty of a champion in the game could also be helpful.

Gold acquisition should have an example from all possible sources within the game. The tutorial only covers gold from minions, structures and towers, while it neglects the neutral camps, bounties and masteries. Bounties and masters can be shown in a very short clip format that highlights the benefits of slaying a champion that has a bounty of them or showing some of the gold-related masteries in action, while the camps can be combined with the map objectives part. This can then be combined with an example of the power you earn once you slay a valuable target, such as using the gold to buy items or the earned experience.

Actions skill is already well defined however some parts are missing from the possible actions that a player can perform. As of right now, the tutorial does not cover the Summoner Spells and the keys related to activating them, and these spells are a huge part of the game. The most popular one "Flash" allows a character to instantly move between two short distanced points. An example can be shown of a player using this spell to move through impassible terrain followed up by a task for the new player to do the same. You could expand this for other summoner spells as well. This will greatly nail down the versatility of these spells to the new player.

Controlling emotions can be a complicated skill to teach, but we can cover the possible ways that League offers to help players. The player behaviour team [16] shows that players who suffer a punishment improved after being told what they did wrong. Improving the post-game stats to show more in-depth information as to what could have been done better by the player, or during in-game events can significantly prevent toxic behaviour and should be done during the tutorial as well.

The remaining skills can be taught depending on their type. For example, the skill **Turret Range** is a mechanical type and is thoroughly covered in the tutorial but only active if the player enters the turret range while there are no minions nearby. This is a nice example of a skill being taught only when encountered by the player. This can be applied to all other skills of a similar type: Baiting, Knowing how to handle every situation, combining player roles to fit better, understanding which abilities play well together, altering your build to fit the current game context, rotations, prediction and vision. "Combining player roles" can be an example of how crowd control abilities work and allow you to find opportunities for a kill on an enemy champion. **Vision** can be explained via the use of wards in the tutorial. The skill **Items** is of knowledge type. It can be explained with a simple pop-up that very briefly explains what the item does. Using color coding to note keywords within the item's description can also be beneficial to quickly interpret on your own what the item does. Another way is teaching players what is good and bad such as marking mistakes in RED and successes in GREEN. Other knowledge skills such as masteries, proper masteries and enemy team strategy are the perfect candidates to implement a color coding system in. There is a large lack of mechanical and knowledge skills from the tutorial that are left for the player to learn from third-party sources. To clarify, these recommendations are based on the success of teaching similar skills in other games. I can't say for certain that they will work for League as well, but they should at least be considered.

9　Limitations

A limitation of my approach is that the skills proposed in the skill model must be validated. User studies with new players are required to reveal whether the skill importance profile does in fact highlight the correct core skills within each category. This would require a controlled experiment where two groups of new players are tasked to learn League. One group would follow the traditional tutorial and aid that the game provides, while the other will be given a custom–made introductory experience based on the important skills profile. This, however is not part of this study and due to many variables, it will be left as a future work.

For example, the League skill profile can be highly dependent on skills that are beyond the ones that were defined in the survey. Participants shed light on many other skills that are also important such as summoner spells, pathing, bush mechanics, bounties and turret platings. To add to that, a player's personality will also significantly affect how well they perform and learn new abilities [10]. Some player personalities will actively ignore recommendations and guidelines for learning regardless of how they approach it [2]. Additionally, each role requires different types of skills to be brought by the player to the game [13]. Not to mention, some roles require different skills to play it optimally. For example, the jungler does not need to learn wave management, since they will almost never need to perform it. It is for this purpose that the skill model presents a generalist overview of the skills that are present in League. I cannot say for certain which skills are core but all veteran players agree on these specific skills as most important Table-Top 10 skills. It cannot be said that this profile perfectly reflects all the most important skills either. It is near impossible to build a skill model that will achieve 100% accuracy and will also remain relevant through time. But as this is a generalist model, it does highlight the average player and as mentioned before, this model establishes a solid foundation for new players to make informed decisions on whether or not they would like to commit to learning League beyond it. Should they choose to do so, playing regularly will allow them to master all aspects of the game.

10　Future Work & Recommendations

To my knowledge, this type of research is the first to use a theoretical skill model for tutorial evaluation in an online competitive game. There is still a lot of work needed to establish the effectiveness of it. One way to further progress this research is to build a custom tutorial that covers the skills that are defined in this paper. Then test this custom tutorial against the base one with new players. For each player, track their performance in games over a period of time or games after completing the tutorial. If these experiments are performed their results will tell if this approach is really effective. Outside factors such as third-party websites have to be considered as well so the data is not biased. This could mark the beginning of a new way to develop tutorials based on the evolution of gameplay through playing, rather than following the basic concepts of what a tutorial currently is. It could potentially help introduce new players to the complex systems of online competitive games. The skill model can also be used with in-game stats tracking systems to check and compare the progress of a player and with other players.

11 Conclusion

The current research aimed to identify the current state of the tutorial in League. The skills were defined with the help of a theoretical skill model and their importance was scored based on the opinion of veteran players. Results show that the current tutorial fails to teach the skills that are expected of the average player to be effective in League. Team play and personal knowledge of the game score highly in the skill model, while the tutorial fails at teaching and communicating them as important. While other non-important skills, such as turret range are well presented in the tutorial despite players rating them low. The tutorial also lacks depth when it teaches the skills that it does have.

Moreover, there was a trend in the data that rated most meta-skills low. Veteran players believe that almost all player agency for their builds these days is made by what is currently the best and higher winning build on third-party websites and there are no meaningful choices made by most League players. Such skills potentially do not belong inside a tutorial for a complex online competitive game and tutorial resources can be shifted elsewhere in other more important skills.

This research has shown that this model can form the basis of a new way to design tutorials for complex games by working backwards with focusing on the meta-gameplay of experienced players, then proceeding to a tutorial design that matches their experience. Additionally, it can also be used to better classify the skill gap for personal progress in League by combining it with the already present in-game player stats tracking. But further research is needed on different tutorial styles due to the limitations of this study.

References

[1] L. Achterbosch, C. Miller, and P. Vamplew, "A taxonomy of griefer type by motivation in massively multiplayer online role-playing games," *Behaviour and Information Technology*, vol. 36, pp. 1–15, 03 2017.

[2] R. Ahmad, J. Wang, K. Hercegfi, and A. Komlodi, "Different people different styles: Impact of personality style in web sites credibility judgement," in *Human Interface and the Management of Information. Interacting with Information*, M. J. Smith and G. Salvendy, Eds. Berlin, Heidelberg: Springer Berlin Heidelberg, 2011, pp. 521–527.

[3] S. Ahn, "League of legends rank distribution," *EarlyGame*, 2021. [Online]. Available: https://earlygame.com/lol/league-of-legends-rank-distribution

[4] E. Andersen, E. O'Rourke, Y.-E. Liu, R. Snider, J. Lowdermilk, D. Truong, S. Cooper, and Z. Popovic, "The impact of tutorials on games of varying complexity," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ser. CHI '12. New York, NY, USA: Association for Computing Machinery, 2012, p. 59–68. [Online]. Available: https://doi.org/10.1145/2207676.2207687

[5] J. Blackburn and H. Kwak, "Stfu noob! predicting crowdsourced decisions on toxic behavior in online games," 04 2014, pp. 877–888.

[6] B. Dalvi, "The ux of video game tutorials," *UXDesign*, 2021. [Online]. Available: https://uxdesign.cc/the-ux-of-video-game-tutorials-7e7bc37e2ceb

[7] G. Fan, "How i got my mom to play through plants vs. zombies," *GDC*, 2012. [Online]. Available: https://www.gdcvault.com/play/1015541/How-I-Got-My-Mom

[8] J. Gee, "Learning by design: Good video games as learning machines," *E-learning*, vol. 2, 03 2005.

[9] Ghostcrawler, "New player retention," *reddit*, 2015. [Online]. Available: hhttps://www.reddit.com/r/leagueoflegends/comments/36q053/comment/crgeycr/?utm_source=share&utm_medium=web2x&context=3

[10] Z. Karimi, A. Baraani-Dastjerdi, N. Ghasem-Aghaee, and S. Wagner, "Links between the personalities, styles and performance in computer programming," *Journal of Systems and Software*, vol. 111, pp. 228–241, 2016. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S016412121500206X

[11] B. Kordyaka, "Digital poison – approaching a theory of toxic behavior in moba games," 12 2018.

[12] Y. Kou and X. Gui, "Entangled with numbers: Quantified self and others in a team-based online game," *Proceedings of the ACM on Human-Computer Interaction*, vol. 2, 11 2018.

[13] M. Köles and Z. Peter, ""learn to play, noob!": The identification of ability profiles for different roles in an online multiplayer video game in order to improve the overal quality of the new player experience," 10 2016, pp. 000 271–000 276.

[14] M. Lamoureux, "People who identify as 'gamers' more prone to racist, sexist behavior: Study," *Vice*, 2022. [Online]. Available: https://www.vice.com/en/article/epzq8z/gamer-identity-study-extremism

[15] L. J. Larsen, "The play of champions: Toward a theory of skill in esport," *Sport, Ethics and Philosophy*, vol. 16, no. 1, pp. 130–152, 2022. [Online]. Available: https://doi.org/10.1080/17511321.2020.1827453

[16] J. D. L. Lin, "The science behind shaping player," *Vice*, 2013. [Online]. Available: https://www.gdcvault.com/play/1017940/The-Science-Behind-Shaping-Player

[17] K. McGee and A. T. Abraham, "Real-time team-mate ai in games: A definition, survey; critique," in *Proceedings of the Fifth International Conference on the Foundations of Digital Games*, ser. FDG '10. New York, NY, USA: Association for Computing Machinery, 2010, p. 124–131. [Online]. Available: https://doi.org/10.1145/1822348.1822365

[18] J. McIntosh, "Why is league of legends so popular in the esports scene?" *Circuit*, 2022. [Online]. Available: https://blog.ggcircuit.com/why-is-league-of-legends-so-popular#:~:text=The%20primary%20reason%20for%20LoL's,game%20benefits%20aside%20from%20aesthetics.

[19] M. Myślak and D. Deja, "Developing game-structure sensitive matchmaking system for massive-multiplayer online games," 11 2014.

[20] Plarium, "What are moba games? your guide to one of gaming's biggest genres!" *Blog*, 2022. [Online]. Available: https://plarium.com/en/blog/moba-games-guide/

[21] B. Shelley, "A playcentric approach to creating innovative games," *Game Design Workshop*, 2018. [Online]. Available: https://www.gamedesignworkshop.com/bruce-shelley

[22] V. Silva and L. Chaimowicz, "A tutor agent for moba games," 06 2017.

[23] F. Simon, "From generative to conventional play: Moba and league of legends," in *DiGRA &#3913 - Proceedings of the 2013 DiGRA International Conference: DeFragging Game Studies*, August 2014. [Online]. Available: http://www.digra.org/wp-content/uploads/digital-library/paper_230_formattingfixed.pdf

[24] T. Vasileva-Stojanovska, T. Malinovski, M. Vasileva, D. Jovevski, and V. Trajkovik, "Impact of satisfaction, personality and learning style on educational outcomes in a blended learning environment," *Learning and Individual Differences*, vol. 38, pp. 127–135, 2015. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S1041608015000357

[25] Veritasium, "The 4 things it takes to be an expert," *YouTube, uploaded by Veritasium*, 2022. [Online]. Available: https://www.youtube.com/watch?v=5eW6Eagr9XA

A Privacy and Quick Scan

Response Summary:

Section 1. Research projects involving human participants

P1. Does your project involve human participants? This includes for example use of observation, (online) surveys, interviews, tests, focus groups, and workshops where human participants provide information or data to inform the research. If you are only using existing data sets or publicly available data (e.g. from Twitter, Reddit) without directly recruiting participants, please answer no.
- Yes

Recruitment

P2. Does your project involve participants younger than 18 years of age?
- No

P3. Does your project involve participants with learning or communication difficulties of a severity that may impact their ability to provide informed consent?
- No

P4. Is your project likely to involve participants engaging in illegal activities?
- No

P5. Does your project involve patients?
- No

P6. Does your project involve participants belonging to a vulnerable group, other than those listed above?
- No

P8. Does your project involve participants with whom you have, or are likely to have, a working or professional relationship: for instance, staff or students of the university, professional colleagues, or clients?
- Yes

P9. Is it made clear to potential participants that not participating will in no way impact them (e.g. it will not directly impact their grade in a class)?
- Yes

Informed consent

PC1. Do you have set procedures that you will use for obtaining informed consent from all participants, including (where appropriate) parental consent for children or consent from legally authorized representatives? (See suggestions for information sheets and consent forms on the website.)
- Yes

PC2. Will you tell participants that their participation is voluntary?
- Yes

PC3. Will you obtain explicit consent for participation?
- Yes

PC4. Will you obtain explicit consent for any sensor readings, eye tracking, photos, audio, and/or video recordings?
- Not applicable

PC5. Will you tell participants that they may withdraw from the research at any time and for any reason?
- Yes

PC6. Will you give potential participants time to consider participation?
- Yes

PC7. Will you provide participants with an opportunity to ask questions about the research before consenting to take part (e.g. by providing your contact details)?
- Yes

PC8. Does your project involve concealment or deliberate misleading of participants?
- No

Section 2. Data protection, handling, and storage

The General Data Protection Regulation imposes several obligations for the use of **personal data** (defined as any information relating to an identified or identifiable living person) or including the use of personal data in research.

D1. Are you gathering or using personal data (defined as any information relating to an identified or identifiable living person)?
- No

Section 3. Research that may cause harm

Research may cause harm to participants, researchers, the university, or society. This includes when technology has dual-use, and you investigate an innocent use, but your results could be used by others in a harmful way. If you are unsure regarding possible harm to the university or society, please discuss your concerns with the Research Support Office.

H1. Does your project give rise to a realistic risk to the national security of any country?
- No

H2. Does your project give rise to a realistic risk of aiding human rights abuses in any country?
- No

H3. Does your project (and its data) give rise to a realistic risk of damaging the University's reputation? (E.g., bad press coverage, public protest.)
- No

H4. Does your project (and in particular its data) give rise to an increased risk of attack (cyber- or otherwise) against the University? (E.g., from pressure groups.)
- No

H5. Is the data likely to contain material that is indecent, offensive, defamatory, threatening, discriminatory, or extremist?
- No

H6. Does your project give rise to a realistic risk of harm to the researchers?
- No

H7. Is there a realistic risk of any participant experiencing physical or psychological harm or discomfort?
- No

H8. Is there a realistic risk of any participant experiencing a detriment to their interests as a result of participation?

- No

H9. Is there a realistic risk of other types of negative externalities?

- No

Section 4. Conflicts of interest

C1. Is there any potential conflict of interest (e.g. between research funder and researchers or participants and researchers) that may potentially affect the research outcome or the dissemination of research findings?

- No

C2. Is there a direct hierarchical relationship between researchers and participants?

- No

Section 5. Your information.

This last section collects data about you and your project so that we can register that you completed the Ethics and Privacy Quick Scan, sent you (and your supervisor/course coordinator) a summary of what you filled out, and follow up where a fuller ethics review and/or privacy assessment is needed. For details of our legal basis for using personal data and the rights you have over your data please see the [University's privacy information](). Please see the guidance on the [ICS Ethics and Privacy website]() on what happens on submission.

Z0. Which is your main department?

- Information and Computing Science

Z1. Your full name:

Nikola Grigorov

Z2. Your email address:

n.r.grigorov@students.uu.nl

Z3. In what context will you conduct this research?

- As a student for my master thesis, supervised by::
  Julian Frommel

Z5. Master programme for which you are doing the thesis

- Game and Media Technology

Z6. Email of the course coordinator or supervisor (so that we can inform them that you filled this out and provide them with a summary):

j.frommel@uu.nl

Z7. Email of the moderator (as provided by the coordinator of your thesis project):

gmt-ethics@uu.nl

Z8. Title of the research project/study for which you filled out this Quick Scan:

Determining Essential Game Knowledge for New Players of League of Legends: A Survey-Based Approach

Z9. Summary of what you intend to investigate and how you will investigate this (200 words max):

I intend to collect via a survey the gaming background of the participants, their experience and satisfaction of the current tutorial and a descriptive list of skills that they believe new players must aquire before they can play a real game of League. I will not collect personal background information such as age or gender. The suvey will be entirely focused on their gameplay experience and personal opinion.

Z10. In case you encountered warnings in the survey, does supervisor already have ethical approval for a research line that fully covers your project?

- No

Scoring

- Privacy: 0
- Ethics: 0