THE JOURNAL OF ELECTRONIC GAMING AND ESPORTS

Perceptions of Effective Training Practices in League of Legends: A Qualitative Exploration

Journal:	*Journal of Electronic Gaming and Esports*
Manuscript ID	JEGE.2022-0011.R1
Manuscript Type:	Research Paper
Keywords:	Esports, Deliberate practice, Performance

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2 Exploration

3 **Date of Submission:** 26th May 2022
4 **Date of Submission with Revisions:** 5th August 2022

EFFECTIVE TRAINING IN LEAGUE OF LEGENDS

Abstract

While scientific interest in esports is steadily growing, there remains an absence of research evidence concerning training practices in specific esports such as League of Legends. Anecdotal evidence suggests that current approaches to training may be suboptimal in terms of performance and, concerningly, linked to negative consequences for player health and well-being. In order to address the lack of literature and aid understanding of the (in)effectiveness of current training practices in esports, our study sought to qualitatively examine the experiences and perceptions of training in a sample of professional and semi-professional League of Legends players. Through interviews with 10 players who ranked in the top 0.24% of the playing population, three core themes were identified: a) the state of training, b) training experiences, and c) motivational change. This study provides important insights into current training practices in esports and players' perceptions of the (in)effectiveness of these practices. The paper concludes with practical recommendations for coaches and support staff working in esports.

Key words: Esports, deliberate practice, performance

Introduction

Electronic sports (esports) is said to have existed since 1972 (Li, 2016). By definition esports is the competitive play of video games, yet performance, training and player development have relatively recently emerged as central features of the industry (Pedraza-Ramirez et al., 2020). Current research suggests that a range of stressors and demands associated with esports training and competition exist (e.g., Leis et al. 2022; Poulus et al., 2020; Smith et al., 2019). For instance, esports competitors face challenges including competition pressure, negative communication and social interaction, technical/logistical problems, and lifestyle management (Smith et al., 2019; Leis et al. 2022). As the professional level of esports continues to grow, there are increasing calls for the involvement of sport psychologists (Watson et al., 2021) who may be well equipped to support competitors with these challenges (Cottrell et al., 2019). However, the support of applied sport psychology practitioners is likely hampered by the paucity of evidence around training practices in esports (Pereira et al., 2019).

Similar to non-computerised sports, playing video games competitively draws on physical (fine motor-control), cognitive (strategy and planning), emotional (investment into the game) and social skills (teamwork; Bowman, 2019). For instance, 'League of Legends' places technical demands on players by means of execution of fine motor skills via keyboard and mouse operations, and psychological demands in that players must regulate emotion, train regularly, maintain motivation and self-confidence, make decisions under pressure, utilise problem solving skills and work with teammates effectively to achieve a common goal (Kim et al., 2017).

While esports is gaining traction in both the popular media and research (Geyser, 2022), there remain significant gaps in our knowledge and related scientific literature on the psychological and performance-related aspects of participation. This includes the experiences

of players across esports titles, their approaches to training, and the use of support staff (Pedraza-Ramirez et al., 2020; Reitman et al., 2020). Perhaps one reason for this is that much existing research within esports treats the domain as a single entity without acknowledging the varying and complex demands that different games and different competitive levels place on the player (Pedraza-Ramirez et al., 2020; Nagorsky & Wiemeyer, 2020).

Esports games are complex and can differ significantly from each other both within and across genres. As such, for us to understand training in esports, we must first understand training within individual esports games. Here, we have chosen to focus on League of Legends, which is one of the most played games worldwide, boasting over 150 million players (Galov, 2022). There are also frequent and alarming accounts of negative psychological consequences associated with League of Legends training practices in both popular media and research (Khan, 2020; Kou, 2020). One training approach that appears particularly culpable in these accounts is that of playing as many games as possible as frequently as possible, which has propagated a widespread 'Grind Culture' in amateur and professional esports (Cooke, 2021; Newbury, 2021). A recent high-profile example of this is the case of professional player "Doublelift", who quit League of Legends in part due to feelings of burnout associated with grinding games (Bosch, 2021). Indeed, preliminary research by Smith et al. (2022) investigated university-level esports competitors and found specific categories of stressors (e.g., game-specific uncertainty) predicted subcomponents of burnout, specifically a reduced sense of accomplishment and exhaustion, with the same burnout subcomponents predicting measures of mental ill health. Whilst detailed examination of grind culture in esports is missing, it is evident in other domains and broadly encapsulates an approach in which work is heavily prioritised over other aspects of one's life (Løvestam, 2019). The concern here is that 'grinding' and related behaviours are linked to worse performance, burnout, and early career termination (Gustafsson et al., 2008; Brenner, 2007).

Emerging research suggests that the training and health behaviours of players, particularly excessive periods of time spent gaming, may be suboptimal for maintaining a healthy lifestyle (Faust et al., 2013) and linked to burnout (Madden & Harteveld, 2021). However, whilst there is research logging training quantity across various esports (Pluss et al., 2021), no research evidence yet exists that examines current or alternative training approaches and their respective effectiveness for performance improvement and well-being support in esports. An important first step, therefore, is to draw on the perspectives and experiences of League of Legends players themselves to identify current training methods, why these are used, and where support and further research may be required.

A pertinent theoretical framework from which to consider training practices in any context that involves the development of skill and expert performance is that of deliberate practice (Ericsson et al., 1993). Deliberate practice comprises activities that require cognitive or physical effort, demand attention, may not necessarily be enjoyable, do not lead to immediate personal, social or financial rewards, and are done with the specific purpose of improving performance (Baker & Young, 2014). Despite the contrast between esports and the initial area in which deliberate practice was studied (music), there are numerous aspects of the deliberate practice framework (Baker & Young, 2014) that are relevant to the current study. For instance, performers are required to sustain motivation for long periods (years) to reach and maintain an expert level, yet the aforementioned anecdotal reports from esports suggest that this is threatened by burnout as a result of maladaptive training approaches. Similarly, effortful training must be balanced with appropriate recovery time (Baker & Young, 2014), an aspect that is at-odds with the prevailing grind culture within esports. Related literature in sport also suggests that a variety of types of training is necessary to achieve an expert level of performance, such as team practices, individual sessions with a coach, and video training (Baker et al., 2003). Given the paucity of literature on training in

esports, these aspects will be important to consider within the current study. As such, this study will use deliberate practice as a guiding framework to explore current training practices and perceptions of those practices in esports.

In summary, research is needed to advance our understanding of training in esports, particularly regarding potentially maladaptive practices such as 'grinding'. Such research may have applied implications for practitioners and coaches working within the area in terms of promoting practices that are more adaptive for both performance and health. We sought to illuminate what training is completed within the context of League of Legends, why particular training activities are undertaken (or not) and how effective these are from a player perspective. A qualitative approach is particularly suitable as it provides rich insights into the 'world' of professional League of Legends training (Neegard et al., 2009). The purpose of the current study, therefore, is to provide insights into professional players' experiences and perceptions of training within the context of esports.

Methodology

Philosophical assumptions

Philosophical assumptions concern epistemology, the nature of knowledge, and ontology, the nature of reality. Calls for a greater awareness of these assumptions in sport psychology research have been made (Culver et al., 2012) as they determine key aspects of the methodological approach, data analysis, and thus the quality of the research design. Of numerous positions that may be assumed (e.g., realist or constructivist, positivist or interpretivist), the current study aligns with a critical realist perspective, which posits that there is a true external world that we interact with, and that this world existed prior to our language, ideas, and concepts about it (Bhaskar, 2013; Pilgrim, 2019). This perspective embraces epistemic relativism, in that knowledge of the world is deemed relative to historical context, our own perspectives and interests, and the influence of others on us and that, as a

result, any accounts of our understanding of reality are fallible (Archer et al., 2016). This perspective also embraces ontological realism, which deems that at minimum parts of reality are independent of the human mind, yet we may never know the true nature of this reality. From these epistemological and ontological standpoints, a qualitative interview-based methodology was deemed appropriate in order to explore players' perceived realities, experiences and perceptions of what may cause such experiences (Wiltshire, 2018).

Design

In line with a qualitative explorative approach, our study used semi-structured interviews in order to elicit in-depth descriptions of participants' experiences and perceptions of training. Questions also aimed to capture detailed information about the esports training context, which is particularly important when little is known about the topic area (Neergaard et al., 2009) and in light of calls for greater understanding of esport-specific training phenomena (Nagorsky & Wiemeyer, 2020).

Participants

Following ethical approval, participants were recruited via purposive sampling. An infographic and brief description of the study was sent out to players over 18 years of age who currently play for, or had played for, a professional or semi-professional team within the last two years. Participants were contacted via social media platforms (LinkedIn, Twitter) and online messaging applications (email, Discord). Using personal contacts and shared networks allowed us entry into what can sometimes be a private environment, leading to the potential for discovery of much richer data (Devers et al., 2000).

Ten semi-professional/professional League of Legends players agreed to participate in the study, which was conducted during the off-season in the Autumn-Winter of 2021. All participants were currently active players or had been within the last two years, and were aged between 18 - 25 years old (M = 22.4, SD = 2.2). All players at the time of interview had

most recently competed within the European region, and had experience in semi-professional/professional play within tier-2 (n = 7) and tier-3 (n = 3), ranging from 1.5 to 9 years (M = 4.1, SD = 2.3). At the time of interviewing all participants held the rank of 'Master' or higher, representing the top 0.24% of the playing population (Milella, 2022). Specifically, the sample included 'Master' (n = 6), 'GrandMaster' (n = 2) and 'Challenger' (n = 2) ranked players. All participants identified as male. Several nationalities are represented with British/English (n = 5), British-Pakistani (n = 1), Swedish (n = 2), Danish (n = 1) and Dutch (n = 1). To protect the identity of the participants pseudonyms were assigned along with the removal of certain names and places during transcription.

Procedure

Semi-structured interviews with the 10 participants were conducted by the first author over a period of two months. Interviews lasted between 33:29 and 90:05 minutes (M = 54.58). An interview guide was created according to thematic analysis guidelines (Braun & Clarke, 2021; Smith et al., 1995) and incorporated questions developed during extensive discussion between the three authors, utilising shared knowledge and experience of esports research (Smith et al., 2019; Leis et al., 2022), esports performance coaching, and sport psychology within esports (Watson et al., 2021). Questions were designed to gather information about participants' experiences within esports, with the interview guide serving as a prompt to aid discussion. In line with Braun and Clarke's (2021) recommendations, ice-breaker questions (e.g., "how did you get involved in esports?") were used to build rapport with participants. Interviews then proceeded with questions connecting to the study aims (e.g., "Can you tell me about your experience of training in League of Legends?" and "Can you describe to me a moment when you felt your training was going really well and why that was?"). Follow-up questions and probes (e.g., "what do you mean when you say…") were used during interviews in order to elicit detailed responses. The recorded audio files of

completed interviews were saved under pseudonyms, transcribed verbatim and anonymised to ensure confidentiality (Braun & Clarke, 2021).

Data Analysis

In line with the exploratory nature of our study, transcripts were analysed via inductive thematic analysis (Clarke et al., 2015) and coding was driven by the data rather than any existing theory. Initial analysis was undertaken by the first author and supported by the second. Here each transcript was read several times and codes were developed manually, initially 263 codes were developed and 29 sub themes generated around these. Here we recognise that themes did not 'emerge' but were generated based on the data itself alongside the knowledge, assumptions, and experiences of the researchers (Braun & Clarke, 2020). At this point, in accordance with recommendations (Sparkes & Smith, 2013), the third author was invited to 'sense-check' and challenge whether the generated sub themes provided an accurate representation of the data. These reflexive discussions and feedback by the 'critical friend' encouraged further reflection and a refining of the interpretation of the data. Following this, results were distilled into 3 core themes and 9 sub themes.

Rigour

Following Smith and McGannon's (2018) calls for 'universal criteria' when proving qualitative study rigour, we considered Tracy's (2010) "big-tent" criteria throughout data collection, analysis, and write-up. For example, the 'worthy topic' criteria are addressed within our introduction and primarily met with the unique environment of professional esports at a time when it is experiencing unprecedented growth/popularity (Gough, 2021). To provide transparency on any potential bias, the second author has published work (e.g., Watson & Kleinert, 2019) on motivation and Self Determination Theory (Deci & Ryan, 1980), yet made every effort to minimise the impact of these works on the current study (for example, by keeping a reflective log throughout the study process). Additionally, the primary

author made significant efforts to mitigate the impact of any preconceptions built up over three years of applied sport psychology practice within esports through self-reflection, mentoring and supervision.

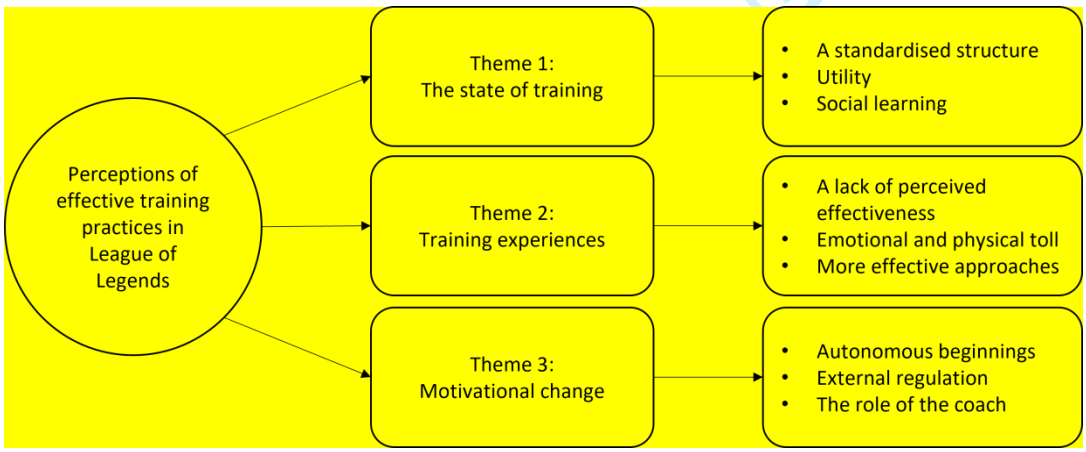
Throughout the coding and interpretation process the third author was employed as a critical friend (Smith & McGannon, 2018) to review and challenge where necessary. In line with calls for more rigorous member checking procedures (Birt et al., 2016), participants had the opportunity to engage with and feedback on the study findings. All interviewees confirmed that the findings accurately reflected their experiences.

Results and Discussion

Three themes and a number of sub-themes were constructed within the inductive analysis (see Figure 1 for an overview). These themes, coupled with illustrative quotes and their discussion in relation to the deliberate practice framework, are presented below. In order to inform applied practice (Keegan et al., 2017), data is intended to be both informative and practical in nature.

Figure 1

Overview of themes and sub-themes generated from interview data



Theme 1: The state of training: 'I just do what the schedule tells me.'

This theme was constructed from players' descriptions of the structure and type of training undertaken, as well as the underlying reasoning and perceived benefits or costs. The

sub-themes of standardised structure, utility, and social learning were generated from the data.

Sub-theme 1A: A standardised structure

Interviews revealed that there was notable consistency amongst players about the structure and type of training undertaken. Players typically engaged in one or two games of 'solo queue', where players 'queue' into an online game typically alone and are matched with four similarly ranked teammates, upon waking up or shortly before meeting their team. Following this, four to five 'scrimmage' (scrim) games are completed where the team plays in a private pre-organised match against another team. Players reported that a short game review with their team would often take place after each match. After their team training, players would once again play one or two games of solo queue. Despite its prominence, players were not certain why this training structure was the norm.

> "I just do what the schedule tells me… I would say it's just passed down between all the teams. And it's just like, mutually been agreed that this is when people scrim. This is the amount of games that people like to scrim and everyone just sticks to them." - James

Chris highlighted this lack of rationale around training approaches, stating that "there was never any sit-down workshops. There was never any lectures, there was never any classroom sessions where we were like, let's approach this in a structured way."

Few deviations from this structure were evident. Some players, like Courtney, indicated that their team would hold a pre-scrim meeting to establish general aims and set goals on "what we're gonna practice this scrim, like, focus on, like, the early game, for example, like playing around Herald… things that we want to focus on to improve on."

Sub-theme 1B: Utility

Whilst few variations in the type of training undertaken were noted, players had some experience or knowledge of alternatives and provided insight into the rationale behind engaging in these different forms of training. For example, players were aware of and occasionally engaged in alternative methods, such as "blitz scrims", wherein both teams play only the first portion of a scrim game in order to emphasise strategy in this phase of play.

> "We would call it Blitz scrims. So we played the first 14 minutes of the game. And then after like 14 minutes, like the last player, after 14 minutes it's the last play, you know, ending the game, like everyone just leaves the game. And you do like a quick review." - Kyle

Additionally, other types of training included personal and team game reviews (i.e., a video-on-demand or 'VOD' review), one-to-one coaching, coaching by position (e.g., 'bot lane'), 1v1s/2v2s, practice tool, 'ARAM' (an alternative game mode), solo queue and conceptual presentations.

> "If you wanted to learn a lane specific match up, you'd probably go into 1v1s. If you wanted to get a feel of a Champion's damage, you'd probably go into 'Summoners Rift' [solo queue], if you want to just have a bit of fun, relax, but... stay warm then ARAMS." - Owen

Some reasoning behind engaging in these different forms of training was given, with each method differing in perceived utility. 'VOD' reviews tended to be used for reviewing previous matches, and the matches of other professional players considered the best in the game, primarily as a learning tool. As Chris noted, "you put your gameplay up against their gameplay, and then you spot the difference."

Further, Josh noted that it could also be helpful in identifying areas to work on when guidance was absent as "you can't just make ideas out of thin air. So either you're playing

against someone and they'll do it to you. And then you try and figure out and then you do it. Or your watch someone better than you."

1v1s, in which a player typically organises a private match against an opponent that plays their position, were discussed primarily in terms of goal-directed practice. Owen noted that these can be valuable in learning how one champion performs against another "if you're playing against a good player" and that "the best ones [1v1 sessions] I've had have been where we, he, we want to play specific matchups, and we want to play for specific things".

Within the game there is a practice tool that allows players to load onto the map as one champion, which was generally described as useful for 'mechanical' (fine-motor skill) training.

> ""if you're playing a new champion, going into practice tool and just learning all their combos and making it muscle memory, that's super valuable. Because you can't play the game, if you have to think about your champion, it's impossible" - Josh

Other than scrims, solo queue was considered important for experimenting or 'limit-testing' with champions in addition to maintaining 'mechanical' skill.

> "if you played like a tournament, you would not necessarily try these things [new ideas] … so solo queue is definitely like, mostly a place where you try limits and try to improve as an individual player, with like mechanics." - Ronan

Interestingly, and perhaps a unique phenomenon exclusive to esports, players felt that a benefit of the solo queue training method was that they could be matched with and play against other professional players if they had a similar rank: "That's the coolest thing about esports. In the highest ranks, you'll play against the best players. Whereas you'll never get to play football against Cristiano Ronaldo unless you make it." - Josh

Less commonly discussed were presentations on in-game concepts, which were occasionally mentioned in relation to providing an aim for a following training session.

"So usually for me, like that's like a good thing to do is just have like, presentation on something you want to focus on. Yeah. And then like going into the scrim. The scrim is only effective if you you like, you work on that. That concept." - Kyle

Sub-theme 1C: Social Learning

Players commonly held the belief that they should be engaging in training outside of the team environment. The process of deciding which type of training to pursue rarely involved personal needs, rather it was influenced by subjective norms and role model behaviours.

"Reviewing…solo queue is quite standard within most people. But if you, if you watch any of the top pros' streams, like 'Rekkles' and 'Perkz' and all of them, well especially 'Rekkles'… I take a lot of inspiration from him…the fact that after every single solo queue game, he'll review it quite intensely compared to most people…I learned that from Rekkles' stream" - James

Interviews revealed that the approaches of high-profile players could have an impact on personal training methods and goals. For example, players often sought to emulate players that they watched or played against online and saw their approaches as effective, perhaps because they were attached to high-profile and respected figures within the community.

"I used to idolise a player called 'Hai'... He was known very much for being like a really vocal Shot-Caller… I tried to like, mirror the way that 'Hai' was in a team… And mostly that kind of shaped my beliefs on what made a player good." - Josh

Seeking out such material was often done away from the team environment and acted as a source of self-directed learning. Interestingly, there was a notable absence of players turning to their coaching staff for feedback or training support, favouring referring to and comparing against other pro players.

"I've actually like vod review with my, my lane partner… reviewing like, people that are that are the best at the game, like the the Chinese or the European scene as well, they are really good and like we just watch their vods and discuss that." - Sam

Overall, the state of training theme highlights a standard pattern of training that involves a high volume of games with little variety or rest. Whilst a significant time investment is expected within training for expert performance, the lack of variety of training activities regularly undertaken appears to contrast with the approaches of expert athletes in sport (Baker et al., 2003). The primary means of training was to play full games, either with a team or individually, and review one's own or other's gameplay. Whilst training in game-like situations is thought to be beneficial by researchers in sport (Ericsson, 1998), some degree of isolation and repetition of game scenarios and technical skills is seen as necessary to experience mastery and develop expertise (Baker & Young, 2014), suggesting that if this could also be implemented in esports, perhaps higher levels of performance may follow. Further, forms of non-game-specific training that might be expected in sport, such as strength and conditioning training, were rarely mentioned as part of players' training programmes. Similarly, in contrast to the deliberate practice framework, planned rest and recovery were not prominent features of players' training regimes.

Literature on deliberate practice and expert performance advocates for a variety of training approaches and methods (Baker et al., 2003), such as the use of goals, periodisation, task constraints (Farrow, & Robertson, 2017), and interleaving (Carter & Grahn, 2016). An intentional goal-directed focus prior to playing games was seen as an effective means of training, yet this was not universally implemented, perhaps due to the perceived complexity of the game or a lack of support in setting personal goals. The use of task constraints, for example 'blitz scrims', were used sporadically but did not appear to be intentionally applied to couple actions to key information and develop learning (Farrow, & Robertson, 2017).

Concepts such as interleaving (i.e., concurrently alternating between practice tasks) were absent in players' experiences yet may be a beneficial alternative to the predominant blocked practice approach (Carter & Grahn, 2016). However, players did not indicate that they had decision-making power over the training activities undertaken in the team environment, thus team coaches are likely to be more appropriate targets for education in this area.

Theme 2: Training experiences: 'that was a bit of a waste of time.'

A significant portion of discussion for each participant was dedicated to exploring player experiences of training. This often included their perceptions of effectiveness for different types of training, the emotional and physical impact training could have, and perceptions of more effective approaches.

Sub-theme 2A: A lack of perceived effectiveness

Although the structure and types of activity were typical in the experiences of the current sample, players like James acknowledged that "it's [training] in a very like early phase, and it's probably not the most efficient type of training that it could be". Players often felt that training was ineffective due to constraints within the game itself. For example, team-based training (i.e., scrims) was frequently described as being ineffective due to the complexity and unpredictability inherent in playing 4-5 full games (lasting approximately 30-60 mins each), which limited the opportunity to isolate or deliberately practice a scenario.

> "it's weird because everyone, every comp team scrims…four times a week, five times a week five games, but scrims aren't really like a good way to improve. It's like even like traditional sports, you play football, you don't go and play like a 90-minute football game training, like you practice on like shooting, or like drills, or even like tactics or something like that." – Kyle

Further, players mentioned the lack of potential to set-up or create training activities (e.g., drills) within the game itself.

"I could explain this to anyone who doesn't play League is, in football… You can set up free kicks to practice free kicks… you can set up your set pieces however you want. You cannot do that in League of Legends there is, there is no functional way for me as a League of Legends player to choose a portion of the game and set up a game in a state where I can then practice" – Chris

Moreover, players highlighted that the quality of training was also dependent on the quality of training opposition, as teams rarely carry the personnel to be able to scrim within their playing squad and require an opponent to play against.

"Sometimes you're stomping the other team, and you're like "that was a bit of a waste of time", because there's not always ((pause)) you can't really gather data reliably when there's such a high level in skill difference." - James

The issue of others' skill level was even more problematic in solo queue, as both one's opponents and own teammates are randomly assigned. Although the level of the other players is matched to some extent through ranking systems, Chris highlighted that "you are with random teammates, who you don't know the value of, you don't know whether they're going to try, you don't know whether they're going to allow you to have a consistent game."

Players also expressed that solo queue, which is considered a training activity, lacked the qualities necessary to practice appropriately for competition and thus a 'representative design' for learning activities (Pinder et al., 2011), such as the occurrence of scenarios that may also appear in competitive play:

"So, a lot of the time, you'll end up playing scenarios in the game that are not realistic in a competitive game... nine out of 10 times, you'll be playing a scenario, which, if it came up in a in a competitive game, the coach should pause the game and tell everyone off, right?" - Josh

In addition, Josh noted that solo queue also lacked the opportunity to isolate a specific scenario and practice it repeatedly as "There's just too much random stuff that you can't actively train something easily... You, you only get to play out one scenario, and then you don't get to play it again. So you don't get to learn from it." Players were also acutely aware that these solo queue training activities, and their win-loss record within them, are directly and explicitly linked to their in-game rank, which have implications for players' careers:

> "like an embarrassing amount of teams, in ERLs [European Regional Leagues], they will look at a player, player and their rank, and that'll be like 70 or 80% of their, like idea of the player or like what they think, like make player good." – Kyle

Sub-theme 2B: Emotional and physical toll

A pattern that stood out across multiple transcripts was the prevalence of emotional and physical challenges players experienced due to these conditions, constraints, and training volume. For some players, the lack of meaningful alternatives to solo queue represented a source of frustration and as Owen identified, it can be "pretty upsetting to be honest, because it's the only thing you can do… And also there is such an emphasis on that solo queue rank."

There was a clear desire from all players for more tools and options to be available for training. For instance, Kyle suggested "like one thing, which would be like, amazing, but isn't even possible right now is if you could just like set a game, from like a certain point, or just like rewind the game even."

In addition, some players felt pressure to play frequently with minimal time off, as the game can 'de-rank' players it deems inactive, as Owen explained "like I spent the last, last month probably climbing up to 250 300 LP [ranking points], and I've lost it all in two days because I forgot to play… It's just such a grind."

Furthermore, for some players the length of games, scrims, and time spent queueing for an online match left little time for anything else:

"it can take you like 30 minutes to 40 minutes to even find a game and I work eight hours a day. I come off I have scrims from six till nine…. And it was also mentally draining to sit there for 40 minutes, not being able to do anything but wait for a game…" – Owen

The perceived need to play a high volume of games per day and take few rest days led to more serious health issues in a few players. For example, Conor maintained two highly ranked accounts (indicating a high volume of games on each) during the competitive season:

"my smurf [secondary account] went up to like, close to challenger, but I decided to decay it [leave inactive] because I didn't want to keep two accounts. I mean, I had some wrist issues, so I decided to drop one account…But I couldn't really take a lot of rest cause...I still had a competition and I still needed to play so I just used some tape for four weeks." - Conor

Interviewees also mentioned that the lack of control over events during training could be detrimental to well-being:

"They're [other pros] playing a game where they don't feel like they have control… They don't feel like they control those 10 hours in the day they're playing, but yet their job is tied to it… It just destroys you mentally, and you just check out." - Chris

Additionally, players made frequent reference to a culture of overtraining (often referred to as 'grinding') and the perception that this is the optimal way to train:

"It's basically said that you should like if you're playing League, you should like spam the game like 12 hours a day, you should play, like, every waking hour, you should play like 15 games, of solo queue per day, if you want to be the best." - Sam

Which could have an impact on emotional well-being:

"[I've] been finding myself like, in a really bad place mentally, when I tend to do that, like i spam the game… I tend to play worse for every game, you know, because you cannot keep up the focus for like, eight hours plus… I've been telling myself when I

feel tired, like, there is no excuse… I'm telling myself in my head that I'm not good enough." – Sam

Chris offered some insight into why they think approaches like this are encouraged, and even possible in esports:

"You're physically allowed to play 12 games a day. Whereas if I go out and try and play 12 hours of football, I will die ((laughs))... [it's] very dangerous to my practice, in the long run ((pause)) short term…if you can find like if you are two to three percent better than the next person, that is enough to get to springboard your career… it's a new industry and you know, just the nature of trying to get on teams, the short-term seasons… it really incentivises short term gains over long term growth… the team cares about results now" - Chris

Additionally, the complexity of the game itself with the countless variables, statistics, potential decisions, and critiques needing to be made to improve, impacted enjoyment for some:

"And then you're like, "what would I have done here?" To have one step forward, one step back. If I go one step forward, do I still die? If I go one step back, do I live… you have to do this at least like once in a while… But it is a bit like hard for the psyche sometimes." - Ronan

Interviewees shared several accounts of aggressive, need thwarting and abusive behaviour that they experienced online in solo queue, and discussed the emotional toll this could have.

"I think the reason why I was so blasé about everyone telling each other to like, kill themselves and stuff like that in solo queue was because I was just numb to it…That's why whenever or any of my friends, like, ask whether or not they should start playing League, I say no, because they won't enjoy the community at all." - Rory

For some, this behaviour also extended to team environments and left a long-lasting impact on how to approach the game:

> "I remember one of the games I died, like level two in lane, and my top laner literally like sighed and he was like, "oh, what's the point in playing if Owen is gonna troll" [Intentionally throw the game] ... and then I had this like, sort of like, grew this mentality of play safe, play consistent… I think it affected me and my proactivity quite a lot... for a long time I had that sort of like, 'don't be the reason we lose' mentality." - Owen

Sub-theme 2C: More effective approaches

Despite most full-time players playing upwards of eight games per day (8-10 hours of practice) and taking one day off per week, many recognised that there were more effective approaches than aiming to play as high a volume of games as possible.

> "I would say, spamming... spamming games without a thought or like… there's no benefit to it in terms of improvement at this like you don't gain anything to get better. You can still win but you won't necessarily be improving as a player I think." - James

Indeed, many players felt that it was more productive to play less games with a more deliberate focus:

> "Like if you're gonna play like three games of solo queue a day, which are like fully focused, and you're actually like, being a bit more cognisant, then they're actually going to be 10 times better than just spamming 15 games a day, aimlessly" - Kyle.

Interestingly, players noted that this belief wasn't always the case, with early career experiences following the trend of high-volume gaming:

> "What I did to train better than what I previously used to do… I stopped playing 10 hours of League of Legends a day, I stopped playing 10 to 12 games a day. And I played three to four games a day when I was fully focused and ready to go." - Chris

Echoing previous research which has found that players report using goal setting to help performance (Himmelstein et al., 2017), participants felt that the most effective forms of training were associated with the setting and reviewing of specific goals, as these could be used as a form of constructive feedback for performance improvement.

> "The more productive scrims were generally where you had a goal in mind, like, "Okay, let's try and let's try and work on this part of our game" and then actually have some sort of key, some sort of way of measuring that part of your game after" – Chris

As mentioned in theme 2b, perceptions of control represented an important factor for players, which previous research has found may be associated with skill and performance (Gucciardi & Dimmock, 2008). When perceptions of control were more aligned to the reality of the situation, players felt they were better equipped to handle any negative emotions that may arise during this training.

> "But if you go into solo queue, and you understand that, the only thing you should care about are the things that you can control, then you're gonna have like a lot better time of it… you kind of can't really get that angry about it." - Kyle

Further, interviewees felt healthy lifestyle and schedule support were beneficial. For instance, Kyle mentioned that he "can go to them [coaches], like we set up our schedules together. And anytime I have a problem, I can go to them, and they can do it for me." In line with previous research (Kari & Karhulahti, 2016) in which elite esports players acknowledge the benefits of physical exercise in performance, this balance was also recognised by Courtney who valued "having something else to think about, and then some physical workout, and then a lot of playing the game, and thinking about the game and stuff… I think it prevents, like, the risk of burning out." Further, it was evident that poor lifestyle management had an impact on aspects such as fatigue, nutrition, and exercise, which many felt impacted their performance:

"If I get a bad night's sleep, I might be able to endure it for like two or three hours… But when, for example, we have tournaments, that's like, five hours of gaming… I can definitely feel like, I get exhausted then if I have a bad sleep, if I have like, wrong food to eat" - Ronan

In addition, Chris noted from personal experience that other players were "skipping meals to play those games a day. Therefore, they don't sleep well, therefore, they don't exercise… and then they play more because they think they need to make up for it."

Indeed, players highlighted how they felt that improving these aspects of their life and engaging in self-care helped them train most effectively. As Sam noted "it's taking time for myself to actually like to sleep to, to wake up and not instantly think about the game to like take a shower prepare myself… that has been like really also helping."

"I think the most effective [inaudible] have good slept [sic] ... uh sleep schedule. Have a good breakfast… Before you play, do some exercises or maybe meditate… for 10 minutes. Then you just like play some solo queue games, I would always say what's probably the best for most people's play like three games then take a break for like 30 minutes and then you can move on to, to play more." - Conor

This sub-theme captures several approaches that participants felt were able to improve the effectiveness of training. For example some participants recognised the need to focus on what was in their control and to engage in goal setting, which can play a key role in self-regulation and has been shown to be positively related to esports performance (Trotter et al., 2021). Furthermore, participants recognised the importance of a balanced lifestyle and the need for breaks, which aligns with the favourable associations between physical activity and cognitive function in esports players (Difrancisco-Donoghue et al., 2021) and rest and burnout in sport (Kellmann et al., 2018). Whilst such approaches are considered by sports athletes to be beneficial and are common in sport psychology support for non-computerised

sport (Harmison, 2006), they were not common features of players' training regimes here (Theme 1). As such, greater promotion and implementation (e.g., by practitioners or appropriately qualified coaches) of these practices throughout the industry is needed. Overall, this second theme appears to underpin all other themes and subthemes and contains important messages for the industry. Specifically, current approaches to training are generally perceived by players to be suboptimal in terms of effectiveness, and in some cases, appear to be detrimental to player health and well-being. This theme appears to corroborate media reports of the negative psychological consequences associated with the prevailing grind culture in esports (Khan, 2020; Kou, 2020) and echoes findings from recent research on burnout and mental ill-health in esports (Smith et al., 2022). Players often expressed frustration and that they felt hampered by the inability to engage in deliberate practice due to the technical constraints of League of Legends (e.g., not being able to recreate a game state and replay/rehearse scenarios). This is in stark contrast to the possibilities available in non-computerised sport, where in-game scenarios can be (re)created and (re)played in training, with control over parameters such as opponent positioning, score, and match time, affording the possibility of creating 'representative learning designs' where practice can better simulate competition conditions and demands (Pinder et al., 2011). The lack of control over training situations and the significant time required to play full games conceivably heightens this frustration and may predispose some of the abusive and 'toxic' behaviours encountered in the training environment (theme 2b).

Theme 3: Motivational change: 'the litmus test for every League player is their rank'

All participants highlighted a gradual change in sources of motivation over their careers. What typically started as an autonomous and social endeavour appeared to shift towards an externally regulated process, with some participants highlighting the mediating

role of staff and peers.

Sub-theme 3A: Autonomous beginnings

Across all interviews, outside of acknowledging that shorter training periods may be more effective than high-volume training, there was little indication that training approaches and perceptions of training effectiveness changed over the course of a player's career. However, a noticeable shift in players' motivation and goal orientation over the course of their careers was evident. Players began playing League of Legends for social reasons, often with friends. As Courtney noted "I think me and my friends discovered League of Legends it was like pre season one." In these early stages, players noted a sense of relatedness and increasing competence. For example, Chris felt he was at his best when climbing the solo queue rankings alongside friends:

> "And I climbed very quickly... this was with my friends, friends at school… And it was just a hobby at that time. But I would play every other day when I came back from school. And I eventually got to the point where I had climbed to high enough ELO that I thought I was going to be able to win world championships." - Chris

Few players mentioned that it was their aim to become a professional or pursue a career in esports at this stage: "So I went to like the [Name Removed] one-on-one tournament in, like, this university event that my friend dragged me to… I thought it'd be really silly...and I just won" – Rory.

For some players such as Sam, the professional scene found them: "since I was so high up on the ladder [rankings], then I got contacted by a Turkish team. So when I graduated, I flew out to Turkey and that's kind of where it all began."

Sub-theme 3B: External regulation

Having entered the realm of professional esports, players like Rory expressed how they had to adjust to the structured team environment where "everything that was being

taught to me was brand new." Ronan noted that part of this adjustment involved learning to communicate with a full team, something that involved a "really hard process of learning how to speak while playing… like only saying necessary stuff while like being on top of the mechanical master- mastery." However, as Chris mentioned, tensions between teammates could often impact perceptions of training effectiveness: "An argument between these players and the rest of the team. That was probably the worst experience of training. Every scrim felt like an uphill battle to get something productive out of it."

It was notable that the role of friendship and positive social interaction in players' participation became increasingly sparse–if not completely absent–as they ascended the professional ranks. Instead, the influence of game rank became prominent. Players were often acutely aware of their own and their teammates' rank and the impact it could have on their training. In Owen's experience "it [current rank] had a negative impact on like, a lot of things down to like, we couldn't get good scrims because of it. But teammates always expected me to do worse."

Solo queue rank was perceived to reflect a player's own market value as a professional, even when securely on a team roster. As Kyle noted, "just because the higher rank you are, like the more appealing you sort of look." As such, many players felt they were required to win in solo queue for their rank, rather than use the game mode as a method of training and gauging improvement.

> "Well, the litmus test for every league player is the rank, they, everyone looks at the rank and just goes, "Is it higher? Is it lower?" That's the, you know, very results-based way of saying we are improving in terms of consistency… in terms of short term, looking at your rank is not a good idea to gauge whether you're improving or not… [because] it's a random game, there are four random teammates and five random enemies." – Chris

This perceived importance of rank is further highlighted by the use of 'smurf' accounts by some. Josh explained this point further; "a lot of players will go into practice tool… Or they'll go on a smurf and they'll only focus on getting as much CS ['creep score'] as possible." Here, players create a second account to play on and practice certain aspects of the game in solo queue without the risk of losing their rank on their main account.

Further, high importance was placed on winning these solo queue matches played outside of team training times, which some felt had an impact on well-being:

> "I wouldn't have eaten anything and I would just be playing solo queue… but if I lose, then I'm also really sad for the entire day… And so that's like, obviously a really toxic way of like going about it… 'cause it's not like I was learning from the losses." - Rory

Additionally, there was a perception that not only 'should' players win most solo queue games, but that it could even be beneficial to be over-critical of oneself when a game is lost:

> "one of the best players in the world 'Faker' has, like 50 52% win rate or something in solo queue. Like so it's like, literally impossible to win every game. But I told myself for years… that every game I lost, it's, it's my fault. And I'm bad. And I should, like, do something about it. Which is, in a sense, it's good, right? Because then you tend to like improve." - Sam

The tendency for other-referenced performance comparisons extended to the team level in training. More specifically, a player's judgements of their team's competence were based on the outcome of games against scrim opponents rather than any self-referenced means.

> "Well I remember… we had ah, some scrims that were going very well… the reason I felt they were going very well was because we were scrimming… the league above where we were and we were actually beating them or like going even with them in the

overall scrim set… I think everyone was like, motivated by that and uh... made people think that oh, we're actually quite a good team." - James

As in Theme 2A, players acknowledged that these comparisons with other teams might not be good indicators of their team's development yet did not mention an alternative way of judging progress: "I think comparing yourself to teams in scrims might not be the best thing but it's hard to notice improvement if it's not based on teams around you." - James

Sub-theme 3C: The role of the coach

Across the transcripts, the role of the coach was mentioned to varying degrees. For some, coaches were seen to have an important role in reducing the outcome-focussed and other-referenced evaluation of team training effectiveness and performance, and in highlighting areas of improvement outside of solely winning games.

"I think it's um mostly what coaches do to show that you've improved like throughout the scrim session, they'll be like, "Oh, you, you wouldn't have done this at the start of the split. But now you're doing this rotation" - James

There were few instances in which players mentioned how their coach worked with them individually to provide task-orientated feedback.

"So… you're just reviewing your games, it's one on one with your coach, or it could be I want to get better at like, a concept in the game. So like, he'll go away, like, do some homework. And, like find it from like pro games.... And you would sort of like run through it" - Kyle

Beyond these instances, the role of the coach and their impact upon player motivation was not described in detail. Some players spoke favourably of their coach and indicated they contributed to the team climate such as with Ronan who felt that ""just having a coach around in every team you play… [is] such a big resource", whilst others like Kyle were more

sceptical and felt that "there's a lot of like posers… And a lot of people who like, like to talk, but don't really like to put in the effort.

Overall, this Motivational Change theme could be seen as an antecedent or consequence of the nature of training in League of Legends as described in theme 1. In terms of the former, players spoke of the importance of their personal playing rank, the desire to win against opponents even in training sessions (scrims), and the potential career-limiting consequences of not maintaining a high-level rank (via wins during solo queue) even in season. From this perspective, alternative training approaches and activities that interfere with the game (e.g., task constraints) or require time away from it (e.g., fitness training, rest or playing with friends) could be perceived as detrimental to their chances of climbing the ranks or career ladder. Conversely, the emphasis on results, grind culture, and entry into the professional (as opposed to amateur) playing environment where relatedness no longer plays a part in participation, could be theoretically expected to provoke a shift from autonomous (e.g., intrinsic) reasons for participation to more controlled (e.g., extrinsic) reasons (Deci, & Ryan, 1980). Other factors captured within theme 2, for example the lack of effectiveness, lack of choice, and lack of perceived control over their training (particularly in solo queue), would also be expected to contribute to this shift in motivation. Importantly, a more external 'quality' of motivation and performance/ego-orientated climate is strongly linked to athlete burnout in sport (Ingrell et al., 2019). Therefore, current training practices could undermine the sustained motivation and involvement needed to attain an expert level of performance, as outlined by the deliberate practice framework (Baker & Young, 2014).

Practical implications

The results of our study have several important practical applications for European League of Legends esports and those working within the area. Firstly, interventions are needed to promote the more effective training practices identified in our findings and alleviate the

683 negative emotional consequences of the current 'grind' approach (i.e., high-volume low-
684 quality practice). Applied sport psychology practitioners are well-placed to achieve this by,
685 for example, enhancing feedback mechanisms via the regular incorporation of goal setting in
686 training; a core pillar of expertise development (Ericsson et al., 1993). Coach developers,
687 organisational psychology specialists and human resource practitioners will also have
688 relevant expertise to embed effective and sustainable practice approaches across
689 organisational levels. Encouraging organisations from the top down to promote more
690 mastery-oriented training climates that emphasise self-referenced improvement over other-
691 referenced metrics could be an effective approach here, for example by reducing the
692 importance placed on player rank during training in-season. Secondly, applied practitioners
693 and researchers have an important role in educating key stakeholders on the importance of
694 numerous psychological (e.g., well-being, burnout) and pedagogical (e.g., deliberate practice,
695 autonomy support) topics relevant for esports performance. Equally, the present findings may
696 represent a 'call to action' for more health, coaching, and psychology practitioners to enter
697 esports to bolster these educational efforts.

698 **Limitations and future research directions**

699 An important limitation of our research is that the participant group comprised an all-
700 male-identifying population of players currently competing in European League of Legends,
701 and as a result, our findings are both gender and culturally limited. Further research is needed
702 across different demographics and regions of professional League of Legends play.
703 Additionally, our research interviewed players only, and did not include the perspectives of
704 coaches or team staff, which may differ. The findings of this paper highlight several
705 important areas for future research. Research needs to demonstrate the value, across a host of
706 performance metrics, of alternative training approaches and methods that are likely to reduce
707 the potential for negative psychological consequences amongst players and increase both

career longevity and personal health and well-being. From our findings, the existing methods of training often place emphasis on ego-oriented measures of performance, and quantity over quality of practice. Future avenues could benefit from exploring how best to encourage mastery and expertise development within the constraints of League of Legends where the opportunity for scenario replicability and skill repetition is limited. Attention should also be given to understanding more individualised training approaches, as players' individual paths towards expert levels of performance are likely to be distinct (Ericsson, 2003). Equally pressing is research into the role of the coach, as a key decision maker in the training environment, and more specifically educating and supporting them in the use of alternative training practice, pedagogies, and well-being support.

Conclusion

To conclude, our research represents a first attempt to develop an understanding of training practices and their perceived effectiveness in professional and semi-professional League of Legends players. This novel study was necessary in light of the paucity of scientific literature in this area and concerning reports of negative psychological consequences that have arisen in media (Khan, 2020; Kou, 2020). In terms of our findings, our first theme 'the state of training' indicates that highly standardised and socially reinforced training practices exist within League of Legends, whilst our second theme 'training experiences' highlights the equivocal views that surround the function and effectiveness of these practices and the prevailing 'grind culture'. Given the associations with poor well-being, research is urgently needed to identify training approaches that support both performance and personal health. Education is likewise necessary to inform players and coaches about such approaches as well as existing evidence-based health-promotion strategies (e.g., rest, self-care). Our final theme 'motivational change' captures how an overarching performance-oriented climate culminates in the degradation of players

motivation and experience. Therefore autonomy support, achievement goal and motivational climate interventions for teams, as well as related education for coaches and organisational staff, may be particularly beneficial here. Further research is critical to increase the evidence base within the esport from which to inform interventions at both the organisational and individual level.

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