Seek What You Need: Affiliation and Power Motives Drive Need Satisfaction, Intrinsic Motivation, and Flow in League of Legends

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In Motive Disposition Theory, the affiliation motive describes our need to form mutually satisfying bonds, whereas the power motive is the wish to influence others. To understand how these social motives shape play experience, we explore their relationship to Self-Determination Theory and Flow Theory in League of Legends. We find that: higher intimacy motivation is associated with greater relatedness satisfaction, autonomy satisfaction, enjoyment, and the flow dimension of absorption; higher prosocial motivation with more effort invested and the flow dimension fluency of performance; and higher dominance motivation with lower relatedness satisfaction but higher competence satisfaction and increased flow in both dimensions. We demonstrate that in addition to being driven to satisfy universal needs, players also possess individualized needs that explain our underlying motives and ultimately shape our gaming preferences and experiences. Our results suggest that people do not merely gravitate towards need-supportive situations, but actively seek, change, and create situations based on their individualized motives.

CCS Concepts: • **Human-centered computing**: → Human computer interaction (HCI) • **Applied computing**: → Computer games

KEYWORDS: motive disposition theory; social player; affiliation; power; intimacy; sociability; prosocial; dominance; MOBA; League of Legends; motivation; digital games; gaming; play; need satisfaction; flow

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1 INTRODUCTION

With games having grown in popularity as a form of leisure activity, competitive sport, and socialization platform, researchers have sought to understand what motivates us to play and how

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player experiences can be explained and predicted. Research approaches often center around Self-Determination Theory (SDT) [61], as there is an increasing consensus on the importance of need satisfaction when aiming to grasp the motivational pull that video games have on their players [78]. However, researchers have also questioned whether there is a one-size-fits-all approach to satisfying needs within a game, noting that players have different experiences of playing the same game and that not all games satisfy all players in the same way (e.g., [10, 11, 14, 24, 51]). In attempts to explain these interindividual differences, the resulting plethora of player type models [3, 8, 24, 34, 51, 83, 84] have their origins within varying theories or ideas. There have been only a few attempts to systematically compare some of them to each other, provide an overview of their overlap, or connect them theoretically (e.g., [4, 25, 71]). As a result, there is still a lack of guidance for researchers as to when they should use which model. However, one commonality among the array of existing models is recognition of a player type referred to as 'social' (e.g., [24, 51]), suggesting that there is a consensus that some players like to socially interact more than others in games.

Multiplayer games, which are 'social' by definition, have risen to be the most successful and prevalent form of online gaming [22]. One explanation used by many is connected to Self-Determination Theory (SDT), stating that the need for relatedness is a universal need that all individuals share [20]. Yet, SDT—or its myriad mini-theories—provides little explanation of *how* people prefer to satisfy their universal need to relate to others. Motive Disposition Theory (MDT) [45, 46, 49], on the other hand, recognizes that the extent of the need to relate depends on the individual, and further that there is not just one form of social motivation, but multiple. The two big social motives distinguished by MDT are *Affiliation* and *Power*. Affiliation is a wish for mutually satisfying horizontal relationships, in which the main goal is to simply be with another person [12]. Motives can be enacted in multiple ways, depending on how an individual strives to reach their desired end-states. Consequently, affiliation can be further differentiated into *Sociability* (a wish for superficial relationships or being surrounded by other people) and *Intimacy* (the hope for close and intimate bonds with a limited number of people) [38, 40]. Alongside the affiliation motive, the power motive is characterized as a wish for vertical relationships, mainly the wish to have some sort of influence over another person [81]. This power difference can be the result of being in a leadership position, helping a person who is in need (i.e., *Prosociality*), differences in status, or even just being the subject of admiration [81]. It can also take more extreme forms, such as striving to overpower or dominate another person (i.e., *Dominance*), for example, while competing with them in a video game [54]. Both power and affiliation-motivated individuals share a common wish to interact socially with others, yet in different ways. However, this does not mean that these two motives are mutually exclusive. One person could be both affiliation and power motivated, while neither of these two motives might motivate another person. While many player type models recognize a single 'social' type, the lens of MDT shows that social motivations are complex, multifaceted, and have been the subject of study for decades before digital games became a popular leisure activity.

Self-Determination Theory and Motive Disposition Theory can complement each other and their conflicting assumptions (needs being universal vs. individually different) have been reconciled by some authors [66, 69, 72]. Both theories share the lens of needs (settled in motivation psychology versus personality psychology) and have a similar focus, with the MDT motives of a) affiliation and power, b) achievement, and c) autonomy being comparable to the SDT need for a) relatedness, b) competence and c) autonomy. Both MDT and SDT can be further contextualized in games by considering the outcomes of satisfied needs during play. Flow [18], which describes player

experience in terms of being absorbed in an activity or performing fluently, has been described as one result of satisfied needs, both for MDT and SDT [65, 70]. Taken together, MDT, SDT, and Flow Theory may help explain why a game does not engender equal fulfillment for all players—essentially explaining a question of importance to both researchers and developers: *why do different people have different experiences in social play?*

To address this research question, we conducted a study, focusing on the social motives as described by MDT (affiliation and power) and their different facets (which can be understood as different ways to enact the same motive) and the popular multiplayer game League of Legends (LoL) [60]. We explore how:

1. The strength of the affiliation and power motive affects need satisfaction while playing LoL (i.e., competence satisfaction, relatedness satisfaction, and autonomy satisfaction);
2. The social motives (affiliation and power) affect the experienced enjoyment for playing the game as well as the effort that players put into the game (intrinsic motivation);
3. The individual motive dispositions relate to the experience of flow (considering the sub-facets fluency of performance as well as absorption by activity) when playing League of Legends.

We find that intimacy-motivated individuals experience levels of relatedness satisfaction that are dramatically higher than those of less intimacy-motivated players and they even experience higher levels of autonomy satisfaction. Additionally, they report more enjoyment and higher levels of absorption by activity (flow). Prosocially power-motivated individuals report investing more effort into the game and they report higher flow experience on the dimension fluency of performance. The dominant power-motive significantly predicts higher competence satisfaction while playing the game but lower relatedness satisfaction. Dominance motivation is also associated with experiencing higher levels of flow on both dimensions (fluency of performance and absorption by activity) while playing League of Legends. Finally, when considering broad motives without a faceted view into how they are enacted, we find that the affiliation motive predicts relatedness satisfaction in the game, while the power motive predicts autonomy satisfaction.

Prior work that attempted to explain differences in play motivations and behaviour has focused on broad personality traits, such as the Big Five [50] (e.g., [11, 23, 30]), player typologies (e.g., [9, 34]) or demographic factors, such as gender (e.g., [57]). However, describing differences between people in terms of personality traits, player types, or demographic factors provides limited perspectives into personalized experience during play, because they merely aim to describe phenotypes of people and which traits are often observed together, or what people frequently do (as opposed to what they enjoy or want to do). Rather, we propose that in addition to being driven to satisfy universal needs (described by SDT), we also possess individualized needs (described by MDT) that explain our underlying motives and ultimately shape our preferences and experiences. Our approach is in harmony with the idea that we play games to satisfy our needs, but adds that we do not merely gravitate towards need-supportive games, but actively seek, change, and create gaming contexts that best satisfy us, based on our individualized motives.

2 BACKGROUND

What does it mean to be a social game player, when multiplayer online games have become the dominant form of gaming [22]? One goal of this work is to distinguish between different types of social motivation and to find how those types uniquely lead to different experiences in the Multiplayer Online Battle Arena (MOBA) game League of Legends (LoL) [60]. As previous work

has been able to show, different types of games lead to differences in basic need satisfaction, which has been found to explain why some video games are more popular than others [61]. This raises questions of how different ways to play the same game lead to differences in how they are experienced. We describe four concepts: individual need strength (motives), experiences of need satisfaction, intrinsic motivation, and flow; our studies later explain how these concepts are connected in LoL.

2.1 Interindividual Differences in Need Strength

MDT has been prevalent in motivation psychology research for decades and has recently been applied to explain differences in video game preferences [54], choices [56], and behaviour [55]. MDT highlights a distinction between two types of motives [49]. The first, implicit motives, describes unconscious or implicit needs; the second, explicit motives or self-attributed needs, encompasses conscious or explicit motives that an individual believes they possess [49]. Implicit motives are affective preferences and assumed to predict spontaneous and long-term behaviour, as they are connected to the enjoyment of certain activities (such as socializing), through stronger physiological reactions in motive-relevant situations [46, 49]. Explicit motives, on the other hand, predict choices because they reflect what an individual believes to be a valuable activity (e.g., going to a party). If explicit and implicit motives are incongruent, individuals can sometimes choose to engage in behaviours that they ultimately do not enjoy very much [6], explaining why not all players get the same enjoyment out of the same activity. Explicit motives share variance with self-report measures of personality, such as the Big Five [21, 55] as well as with measures of playstyle preferences, such as the Digital Games Motivation Scale [24] or the BrainHex [51] player typology [55]. A preference for social game play has been found to be a relevant factor in different typologies (e.g., [24, 51, 76, 83]), which can be seen as an indicator that differences in social preferences play an important role, when trying to predict behavioural differences. The theoretical difference between playstyle typologies and motives is that motives endeavour to describe the needs that are fundamental in shaping preferences; for example, that someone identifies as the social player type (the preference) because they have a high power or affiliation motive (the need). As a result, a preference for social gameplay as described in player typologies can be the result of different types of social needs. Poeller et al. [55] report that both the DGMS Social and the BrainHex Socializer scale correlate with the explicit power but not the explicit affiliation motive, indicating that social interactions in games are likely to be power contexts and that more nuance on types of social interaction is needed.

2.2 Social Motives: Affiliation

The two social motives that are distinguished in MDT are affiliation and power [26, 42, 45, 46]. The affiliation motive is characterized as a wish to form mutually-satisfying relationships on a horizontal level [12, 43], whereas the power motive describes the wish for vertical relationships, in which one person has power over the other, for example due to helping them or by dominating them [46, 47, 81].

In a study that investigated behaviour on social networking sites, the explicit power motive predicted the number of friends and the number of uploaded pictures, while the explicit affiliation motive predicted the time spent on these sites per day [26]. In *League of Legends*, the explicit power motive has been shown to be connected to the preference for playing certain roles and

champion types [54] and appearance preferences for digital companions [56], whereas the explicit affiliation motive (as understood by MDT) has not been explored yet in the context of games.

2.2.1 Affiliation: Intimacy and Sociability. The affiliation motive can be further distinguished into sociability (the wish for many interactions, that can often be superficial) and intimacy (an emphasis on fewer but strong or intimate personal relationships) [38, 80]. This distinction is supported by an early study in which a high implicit intimacy motivation was associated with a readiness for “warm, close and communicative relations” and negatively associated with outgoingness. [41].

2.2.2 Power: Prosociality and Dominance. The power motive is often distinguished into its more socially desirable prosocial outlets (guidance, helping, socialized power) and its less socially-acceptable enactment style (dominance, personalized power) [47]. However, power motivation always describes a concern with wanting to have an impact on other people. This can be achieved, for example, by helping them (prosocial power) or putting them in their place (dominant power) [46]. To highlight the distinction between the different terms and constructs used in this work, see Figure 1.

Figure 1. Schematic overview of the understanding of the motives and sub-facets that we discuss.

2.2.3 Four Facets of Social Motives. We use the term affiliation to describe the entire motive characterized by Motive Disposition Theory (as the original theory distinguishes the big three motives affiliation, achievement, and power) [12, 45, 46, 49] and treat intimacy and sociability as sub-facets of affiliation. This has been done before, with the explanation that the construct of affiliation “refers to two different types of affiliation experience: intimacy and sociability” ([38], p. 164). Additionally, we treat prosociality and dominance as two different ways to enact the power motive [75]. While the power motive, and its facets, have been defined and utilized in a game context before [54, 56], the finer distinctions of affiliation have not been applied to the virtual world yet.

It has been concluded that intimacy in the gaming world is prevalent, even though the original understanding of the word suggests physical closeness, but also that for some players, the thought of experiencing intimacy in a gaming world sounds unlikely or uninteresting [53]. This is important, as it suggests that the motivation to experience intimacy in the digital world might be different from the hope to experience it in the physical world. Therefore, it seems necessary to assess the need for affiliation, and especially the sub-facet intimacy, separately when considering the digital world or physical world. To the knowledge of the authors, no questionnaires to assess the wish for intimacy in digital games are currently available.

Consequently, the first goal of the present paper is to assess game-related explicit motives.

2.3 Universal Needs and Intrinsic Motivation

As proposed by Self-Determination Theory, individuals share three basic needs (i.e., relatedness, autonomy and competence), and strive for their fulfillment [20]. As a result, intrinsic motivation is assumed to be highest for those activities that are likely to fulfill these basic needs [28, 52]. Accordingly, previous research has shown a higher enjoyment for games that satisfy these needs through play [61] as well as showing longer play hours when needs for relatedness, autonomy, and competence are satisfied through playing [31]. Because of its capacity to describe play motivations, Self-Determination Theory has become a standard approach of understanding games, gamers, and gaming (see [78]). Outside of gaming contexts, some researchers show that Motive Disposition Theory and Self-Determination Theory can be consolidated for a deeper understanding of individual need satisfaction [64], as MDT researchers assume that needs are not equally strong in every individual and that this can change the perception of whether or not they are satisfied. While this might seem contradictory to the assumption of needs being universal, as proposed by SDT, that does not have to be the case. The three needs can be universal to all individuals to some extent and still differ somewhat in strength and importance depending on the individual. As David C. McClelland once wrote when sharing his view on human motivation: “People clearly like interacting with other people, and some like it more than others” ([46], S. 346). After all, findings that satisfaction of universal needs leads some games to be more popular than others [61] do not imply that less popular games have no players at all. Certain individuals can still enjoy a rather unpopular game and even find that it satisfies their needs.

To give an example of how motives and need satisfaction are related, it has been shown in non-digital contexts, that motive dispositions consistently predicted corresponding feelings of need satisfaction, i.e., affiliation motivation predicted relatedness satisfaction and achievement motivation predicted competence satisfaction [65, 72]. This example demonstrated that motives and need satisfaction are related; we unpack the nature of this relationship further later in the paper. Our second aim is to explore how social motives affect the experience of need satisfaction and intrinsic motivation in an online multiplayer game.

2.4 The Experience of Flow

The experience of flow is one form of intrinsic motivation [17, 18]; it is considered to be an altered state of mind, in which an individual is completely immersed in a task [59]. It is accompanied by: 1) a complete understanding of the task’s requirements and rules; 2) an optimal level of difficulty of a task that is appropriate for the individual’s skill level; 3) experiencing effortless execution of a task; 4) a high degree of concentration on a limited field of attention; 5) a distorted sense of time; 6) a loss of the feeling of self-consciousness; 7) a sense of control over the task; 8) a lack of awareness of bodily needs; 9) immediate feedback that enables adjusting task performance; and 10) effortlessness of action [59]. Due to the association with intrinsic motivation, flow serves as a positive reinforcement. Hence flow is said to be an optimal state of mind for performing, that predicts persistence, motivation, and positive coping strategies [13]. From the perspective of SDT, intrinsic motivation is well connected to flow experience [35, 74, 85]. From the perspective of social motives (MDT), it has been shown that women experience stronger feelings of control and contentment with themselves and the interaction with friends when they score high in affiliation motivation [82], whereas men experience more flow after winning a competition if they score high in explicit and implicit power motivation [62]. Our third aim is to connect motive dispositions to the experience of flow in League of Legends.

2.5 Motivation, Personality and Experiential Outcomes

There have been many research efforts with the goal of explaining the complex relationship between motive dispositions, need satisfaction, and flow experience but also with other outcome variables such as well-being [69], or subsequent motivation [68]. Often motive dispositions are treated as moderating variables of the relationship between need satisfaction and flow (e.g., [65, 70]). Some authors have concluded that universal and individual needs are complementary when aiming to predict flow, showing that motives become more relevant when aiming to predict domain-specific rather than general flow experience [66]. Concretely, this means that achievement-motivated individuals experience more flow in achievement-relevant situations (such as work) if their need for competence is satisfied. However, when asked about their general flow experience over the course of four weeks, competence satisfaction made the prediction without being moderated by the achievement motive [66].

To summarize, motive dispositions, as well as need satisfaction and intrinsic motivation, have been connected to flow experience individually. Need satisfaction predicts intrinsic motivation and motives have been found to moderate the relationship between need satisfaction and flow experience. The three different psychological theories (MDT, SDT and Flow Theory) have been linked to each other and are describing different motivational states. Need satisfaction, intrinsic motivation, and flow experience can be both experiential outcomes and a source of subsequent motivation. As our focus is on how motives predict experience, we use social motives as a predictor and need satisfaction, intrinsic motivation, and flow experience as different outcomes, well aware that they are connected to each other. The goal is to show how motive dispositions relate to these different theories within the experience of playing a competitive multiplayer online game.

2.5.1 A Jungle of Psychological Theories. As previously mentioned, there is little guidance for games researchers when it comes to the utilization of theories from different psychological disciplines. Some psychological theories have clearly made their way into interdisciplinary research and are widely known, available, and therefore used [78]. When it comes to motivational theories, however, Self-Determination Theory is the only frequently used motivational theory in games research specifically, or even in human-computer interaction (HCI) in general. As a result, researchers have attempted to develop their own motivational models to account for interindividual differences in game motivation [24, 83] or have used measures from personality psychology [16, 50]. Theories of motivation intend to explain how motivation leads to behaviour, whereas theories of personality aim to describe different phenotypes of people, without considering what caused the observed differences. As a result, both disciplines aim for different approaches to measuring their constructs. Motivational theorists are concerned with validating the process of how key motivations influence behaviours, whereas personality theorists aim to define broad constructs with categories that have as little as possible overlap and show which traits are likely to be observed together. Of course, resulting constructs can still show substantial correlations with each other [21, 55], possibly resulting from similar motivations being observed in people who also appear to be similar (i.e., express the same traits). However, the same characteristics (e.g., extraversion or social player type) can be connected to different underlying motivations (e.g., affiliation or power). Therefore, researchers should choose the theory they wish to apply carefully depending on their research question, to ensure validity. Existing player motivation questionnaires, even though they refer to the word ‘motivation’, have not yet validated the motivational process in which the identified factors drive behaviour, rather than just describing it [24, 83]. In comparison, motives are assumed to shape behaviour by orienting,

selecting, and energizing behaviours [46, 56]. The same phenomenon of describing behaviour and assuming an underlying motivation has been a subject of discussion among motivational psychologists in the past, and David C. McClelland described it 35 years ago:

"Before we give up altogether trying to find motives of general significance, let us examine more critically the process of identifying motives that has just been described. First, to say that because people do something, they must want to do it is little more than animistic thinking. It is like saying that because a plant grows it wants to grow, or because the apple falls, it wants to fall. As Heckhausen (1980) and others have long argued, such a naming process is tautologous. It adds nothing of scientific value or our understanding of what is going on unless we have some independent way of measuring the alleged motive behind the behaviour."

([46] page 33)

Self-Determination Theory is one such theory that is concerned with needs that drive human beings. This theory is applicable when aiming to design games that are appealing to the majority of players, but it provides no aid when aiming to tailor a game to a specific sub-group or to those players who do not find the majority of games appealing. Motive Disposition Theory is a theory aiming to explain interindividual differences in motivation; however, it has its limitations as well. Motives cannot always precisely explain what a person will do; for example, just because two people want to make friends in a game it does not mean that they will use the same strategies to find friends as different people can use different approaches to achieving the same goal. The theory has grown so complex, that many of the newer articles focus on small details of it, rather than providing a broad view on the current state of the theory, which is why recent overviews on the theory as a whole can be hard to find. This lack of digestible theory overview may explain why non-psychologists in interdisciplinary and applied contexts have rarely applied MDT. Finally, arguably not all game designers are interested in maximizing every single player's needs. In the spirit of utilitarianism, many game designers might be perfectly happy with maximizing need satisfaction, enjoyment, and flow for the majority of their players.

2.6 League of Legends

As a game environment, we turn to League of Legends (LoL) [60]—a competitive Multiplayer Online Battle Arena (MOBA) game with a large playerbase that had been the most-played multiplayer-game for many years [86]. Two teams face each other in battles that last around 15 to 50 minutes. Each matchup brings new challenges and playing together well as a team is crucial to be victorious. LoL is a team game and therefore social by definition. Players have to deal and work with other players as well as fight other players. This allows for a multitude of social interactions. Players can make friends and then chat and play with them (incentives for the affiliation motive); yet the game is also highly competitive, which allows for prestigious collections, such as indicators for having been high up in the ranking system of the game in the past. Furthermore, players can attempt to take the lead in their temporary team and try to make other players follow their strategies (incentives for the power motive). The popularity of the game indicates that playing it should result in a large number of positive experiential outcomes, yet at the same time it is known that players find MOBAs very frustrating [33], and many leave the game due to its competitive nature and having experienced toxic behaviour [19]. Therefore, we argue that LoL is a suitable environment for studying experiences of players with different social needs.

We strive to understand how self-attributed social motives relate to experiences when playing LoL. We assess the wish for intimacy, sociability, prosociality, and dominance in a games context

and explore how these motive facets relate to experience (needs satisfaction, intrinsic motivation, and flow) while playing LoL.

3 STUDY

The aim of this study was to explore how the explicit power motive, the explicit affiliation motive and the sub-facets of intimacy and sociability (affiliation) as well as prosociality and dominance (power) drive experiential outcomes of playing League of Legends. Therefore, we measured explicit motives as well as need satisfaction of the basic needs: relatedness, autonomy, and competence, and the experience of intrinsic motivation and flow. We also asked about implicit motives and playstyle preferences, but to stay within the scope of the paper, we report only on explicit motives, experiential outcomes, and demographics.

3.1 Method

3.1.1 Participants and Procedure. We recruited 191 League of Legends players (mean age=22.6, SD=3.4; women=54, men=133, non-binary=3, missing=1) at the Trier University, as well as through social media, and asked them to participate in an online survey. We recruited players in two different languages: German (N=171), as well as English (N=20). In the beginning of the survey, participants could choose to complete the survey either in German or in English; 15 people who participated in English were not native English speakers. Most participants (N=142) were University students, 10 were high school students, 12 reported being trainees and 26 were working/employed. As compensation, participants were either able to gain course credit or were included in a raffle for 10€ paysafecards. The study was conducted in the beginning of 2020. 73 participants reported having more than 6 years of League of Legends experience, 56 participants reported three to six years of experience, 35 participants reported an experience between 6 months and 3 years and 13 participants were relatively new to the game and reported that they had been playing the game for less than 6 months. Self-reported Elo of the participants (individual skill level) within LoL was between Iron 4 (N=1) and Master (N=1) and the median Elo of participants was Gold 2. Considering that only around 20% of the players reach Gold 2 or higher, our sample can be characterized as consisting of rather skilled players. 169 participants reported playing on the EU West server and only 6 played on other servers.

3.1.2 Measures. We measured explicit motives, experiences of need satisfaction, intrinsic motivation, and flow during recent LoL playtime. Scales were presented in a fixed order. The survey took the participants about 60 minutes to complete.

The Explicit Affiliation and Power Motive. The general explicit affiliation motive as well as the general explicit power motive were measured with the 4-item Motive Enactment Test (MET) affiliation scale as well as the 4-item MET power scale [37, 67]. Participants rated their agreement to statements such as ‘Being close to other people is more important to me than being successful’ (affiliation) or ‘I often provoke arguments with others’ (power) on a 4-point-Likert scale ranging from 1=‘applies not at all’ to 4=‘applies completely’.

The Game-Related Explicit Motives. We measured two facets of affiliation (intimacy and sociability) and two facets of power (prosociality and dominance). Power facets were measured using the same items as Poeller et al. [54, 56]. For the affiliation facets, a large item set was created after careful reviewing of multiple currently available questionnaires that assess the explicit affiliation motive [63, 67]. Items were adjusted to apply to multiplayer online game environments. The definition of the intimacy motive as a wish for close, mutually-satisfying relationships was

considered. Sociability items were created centering around a wish for equally positive relationships, that do not require the same level of mutual understanding and closeness between the agents. Thus, to ensure content validity, the items are closely connected to existing scales that have been used in motive research for decades. To give some examples, the item “I enjoy cultivating meaningful relationships in games” can be linked to an item from the Motive Enactment Test (MET) [37, 67] affiliation subscales: “I enjoy meaningful exchanges with other people”. The item “I have more fun if I can play with others” was inspired by the inverse-coded item “I don’t really have fun at large parties” taken from the Personality Research Form (PRF) [29]. The item “I like to share thoughts and emotions with players who are important to me” can be connected to the Unified Motive Scales [63] intimacy subscale item “I want to be able to share all the good and negative emotions in a relationship”. The reason for adjusting the items to the context of games in addition to using the Motive Enactment Scale [37, 67], was that literature on explicit motives [49] suggests that explicit motives have more predictive validity when they are assessed closely to the present context (i.e., Multiplayer Online Games). Additionally, as some individuals might have trouble connecting emotionally with others who are not physically close to them (which is often the case when playing online games), there is theoretical reason to assume that the context matters in our present study (see Background). All items had previously been tested in a series of unpublished smaller studies and have been revised multiple times, resulting in the present item set. We would like to stress that the distinction between intimacy and sociability within the affiliation motive does not represent a new model; instead, we adapted an existing model to a new context and therefore assume adequate structural validity for our exploratory study as justified by the existing theoretical background.

Each facet was measured with three items and participants were asked to rate how much each statement applied to them on a 4pt-Likert scale from 1=’does not apply at all’ to 4=’applies completely’. All items, internal consistencies and statistical values are reported in Table 1. Internal consistencies ranged from $\alpha=.651$ (dominance) to $\alpha=.798$ (intimacy).

Table 1. Items of the four scales

Scale	Item text
Intimacy ($\alpha=.798$; Mean=2.78; SD=.83)	
Intimacy 1	I take pleasure in mutually bonding with other players
Intimacy 2	I like to share thoughts and emotions with players who are important to me
Intimacy 3	I enjoy cultivating meaningful relationships in games
Sociability ($\alpha=.688$; Mean=3.19; SD=.68)	
Sociability 1	I enjoy the company of other players in a game
Sociability 2	I have more fun if I can play with friends
Sociability 3	Enjoying positive social interactions is an important part of gaming for me
Prosocial ($\alpha=.691$; Mean=3.03; SD=.66)	
Prosocial 1	I enjoy assisting other players when they need help
Prosocial 2	I am eager to provide emotional support for other players
Prosocial 3	I help other players through the difficulties they face
Dominance ($\alpha=.651$; Mean=2.7; SD=.81)	
Dominance 1	I enjoy dominating others in a game
Dominance 2	I am willing to use aggressive tactics in a game to get my way
Dominance 3	When other players challenge me, I want to put them in their place

Figure 2. Visualizing relationships between the facets of both social motives (affiliation on the left; power displayed on the right side); the size of each circle represents the number of participants with equal values.

Need Satisfaction in League of Legends. Participants were asked to rate the amount of need satisfaction they experienced while playing LoL over the last four weeks prior to the study. We used the Player Experience of Need Satisfaction (PENS) scale [32, 61], measuring need satisfaction levels for relatedness, autonomy, and competence (3 items for each dimension) on a 5-point-Likert scale ranging from 1-‘strongly disagree’ to 5-‘strongly agree’. Cronbach’s Alphas ranged from .652 (competence) to .827 (autonomy).

Intrinsic Motivation in League of Legends. Participants were further asked to rate how much intrinsic motivation they had experienced in the past four weeks while playing LoL, using the Intrinsic Motivation Inventory (IMI) [44]. We report on the two subscales interest-enjoyment (7 items; e.g., ‘I enjoyed this game very much’) and effort (5 items; e.g., ‘I tried very hard to do well at this activity’), measuring intrinsic motivation on a 5-point-Likert scale ranging from 1-‘does not apply at all’ to 5-‘applies completely’. Cronbach’s Alphas were .716 for enjoyment and .700 for effort.

Flow Experience in League of Legends. Participants were asked how much flow they experienced while playing LoL in the four weeks prior to the study. We used the Flow Short Scale [58], measuring flow on the two dimensions fluency of performance (6 items; e.g., ‘the right thoughts/movements occurred of their own accord’) and absorption by activity (4 items; e.g., ‘I was totally absorbed in what I was doing’). Participants were asked to rate each statement on a 7-point-Likert scale ranging from 1-‘not at all’ to 7-‘very much’. Cronbach’s Alphas were .764 for fluency of performance and .614 for absorption by activity.

3.1.3 Analyses. We conducted fourteen multiple regression analyses to predict levels of need satisfaction, intrinsic motivation and flow depending on the social motive facets as well as the general power and affiliation motive. To give an impression on construct validity, we will first report on the relationships between our independent motive variables. Motive Disposition Theory is a theoretical model with known interactions and communalities between different motives and facets, where one (explicit) motive combination might be more likely than another is. Different motives constantly predicting differential outcomes in motivational research (see Background) show that this does not diminish predictive validity of motives. To control for shared variance, we enter the sub-facets into our regression models simultaneously, meaning that predictions are made by the non-shared variance.

For completeness and because our experiential dependent measures are all theoretically connected to each other (see Background), all inter-correlations (Pearson’s *r*) between them are displayed in Table 2. All analyses were performed using IBM SPSS Statistics 25.

Table 2. Inter-correlations (Pearson’s *r*) between our dependent variables (N=191).

	M	SD	[1]	[2]	[3]	[4]	[5]	[6]
[1] Competence	3.52	.83						
[2] Relatedness	2.78	1.03	.15*					
[3] Autonomy	3.67	.75	.38***	.34***				
[4] Enjoyment	3.92	.61	.35***	.35***	.49***			
[5] Effort	3.58	.75	.33***	.14	.30***	.39***		
[6] Fluency	4.91	1.00	.64***	.12	.27***	.30***	.25***	
[7] Absorption	4.68	1.08	.35***	.19**	.39***	.42***	.22**	.36***

Note: M and SD are used to represent mean and standard deviation, respectively.

* indicates $p \leq .05$; ** indicates $p \leq .01$; *** indicates $p \leq .001$.

Facets of social explicit motives as understood by Motive Disposition Theory are related in a similar way as the satisfaction of different needs as understood by Self-Determination Theory are (see Table 2). Both facets of affiliation (as we measured them with a focus on the games context) correlate with the general MET affiliation motive, which measures the same theoretical construct outside of the game context and without distinguishing between the sub-facets of intimacy and sociability ($r=.278$, $p<.001$ for intimacy and $r=.314$, $p<.001$ for sociability). These correlations are an indicator for convergent validity. The MET affiliation scale neither correlates with the dominance nor the prosociality facet of the power motive: an indicator for discriminant validity. The MET power scale correlates with the dominance scale ($r=.344$, $p<.001$) but not with the prosociality scale. This is not unexpected as the items of the MET power scale focus on the dominant aspect of power rather than the prosocial one. The prosociality and the dominance scale do not show a significant correlation. While in the domain of implicit motives, power facets are understood to share a common underlying motivation [81], it has been argued that for explicit motives that are motivated by social desirability, prosociality and dominance are likely to be more distinct as they are not both seen as equally socially desirable [54]. Therefore, this result can be seen as a replication.

Intimacy and sociability show a significant correlation ($r=.645$, $p<.001$). This is because they are facets of the same motive and because many people might enjoy interacting with others on both a superficial and a personal level. Since explicit motives are cognitively elaborated, this can be easily explained by people having the concept of themselves as liking to interact with other people. Both facets of affiliation correlate with prosocial power ($r=.560$, $p<.001$ for intimacy and $r=.363$, $p<.001$ for sociability), which is in line with theoretical assumptions that a given power-motive is enacted in more prosocial ways, when it is accompanied by a high affiliation motive [27]. However, prosocial behaviour in absence of a high prosociality trait should still be theoretically unlikely even if the affiliation motive is high. There are other known communalities between prosociality and intimacy, such as that they are both linked to high levels of self-regulation [7, 15]. No correlations of other facets with dominance are observed. Relationships between the two sub-facets of each motive are visualized in Figure 2.

4 RESULTS

All results are displayed in Table 3 and Table 4. We provide goodness of fit indices for each model, along with standardized beta values (β) and t-values for each predictor. The significance of effects

is noted with * $p < .05$, ** $p < .01$, *** $p < .001$; associations that are not significant after Bonferroni correction for multiple tests are highlighted with ^a_b.

4.1 Social Motivations and Need Satisfaction

We found that intimacy-motivated individuals experienced substantially more relatedness satisfaction while playing the game. In total, the social motive facets together can account for 41% of relatedness satisfaction variance (see Table 3). Additionally, intimacy motivation also significantly predicted autonomy satisfaction while playing LoL. Sociability motivation as well as prosocial motivation did not predict experienced need satisfaction (see Table 3). Competence satisfaction was predicted by the dominant power motive, showing that dominance-motivated players report experiencing more competence while playing League of Legends (see Table 3). However, dominance also negatively predicted relatedness satisfaction, meaning that dominant players find their need for relatedness less satisfied in the game than other players (see Table 3). The general affiliation motive (not considering enactment styles) significantly predicted relatedness satisfaction, while the general power motive significantly predicted autonomy satisfaction (see Table 4).

4.2 Social Motives and Intrinsic Motivation

Intimacy motivation significantly predicted enjoyment when playing LoL, showing that intimacy-motivated players reported to enjoy the game more (see Table 3). Prosocial power motivation predicted self-reported effort while playing, indicating that prosocial players try harder when playing the game (see Table 3). Sociability and dominance motivation (see Table 3) as well as overall power or affiliation (see Table 4) did not significantly predict experienced intrinsic motivation while playing LoL.

4.3 Social Motives and Flow Experience

We observed that intimacy-motivated individuals reported greater absorption by activity when playing LoL (see Table 3). On the other hand, greater prosocial motivation was associated with higher fluency of performance (see Table 3). The dominant power motive strongly predicts flow experience on both dimensions, absorption by activity and fluency of performance (see Table 3). The extent of sociability did not predict reported flow experience in LoL (see Table 3) and neither did the general power nor affiliation motive (see Table 4).

Table 3. Multiple regression results for the experience predictions using motive facets as predictors (df= 4, 186 for all regressions).

	R	adj. R ²	F	Intimacy		Sociability		Prosocial		Dominance	
				β	t	β	t	β	t	β	t
Competence	.38***	.13	8.03	.06	.57	.06	.69	.05	.59	.36***	5.25
Relatedness	.65***	.41	33.99	.63***	7.67	.05	.67	-.05	-.65	-.14*	-2.49
Autonomy	.25*	.04	3.19	.31**	2.99	-.11	-1.13	-.09	-.99	.10	1.42
Enjoyment	.30***	.07	4.71	.22* ^b	2.16	.07	.78	.05	.55	.01	.19
Effort	.25*	.04	2.98	.07	.67	-.06	-.67	.19* ^b	2.23	.14	1.89
Fluency	.38***	.13	7.96	-.01	-.07	.03	.35	.22**	2.68	.33***	4.80
Absorption	.38***	.12	7.64	.25*	2.51	-.09	-1.06	.04	.46	.30***	4.34

Note: *) indicates $p \leq .05$; **) indicates $p \leq .01$; ***) indicates $p \leq .001$.

b) Marks associations that are not significant after Bonferroni correction for multiple tests

Table 4. Multiple regression results for the experience predictions using general motives as predictors (df= 2, 188 for all regressions).

	<i>R</i>	<i>adj. R</i> ²	<i>F</i>	MET Affiliation		MET Power	
				β	<i>t</i>	β	<i>t</i>
Competence	.12	.01	1.46	-.08	-1.12	.11	1.48
Relatedness	.20*	.03	3.77	.19*	2.53	.04	.054
Autonomy	.20*	.03	3.75	-.02	-.27	.20**	2.72
Enjoyment	.12	.00	1.26	.05	.61	.10	1.32
Effort	.10	.00	1.03	-.11	-1.43	.01	.17
Fluency	.11	.00	1.09	-.03	-.44	.11	1.47
Absorption	.16	.01	2.35	.04	.56	.14	1.94

Note: * indicates $p \leq .05$; ** indicates $p \leq .01$; *** indicates $p \leq .001$.

5 GENERAL DISCUSSION

Even a game as competitive as LoL can be played in a more or less social way, depending on the motives of the individual player. Whereas power-motivated individuals are likely to thrive in a competitive environment, affiliation-motivated individuals may want to just be together.

Our Contribution: Integrating Different Theories of Motivation

Our main contribution is theoretical, with an exploratory study to show that MDT is relevant not just to preferences [54], behaviour [55] and choices [56] in games, but also to experience. While Self-Determination Theory (SDT) has been widely adopted in Human Computer Interaction research, and Flow Theory has also been used to explain high engagement with games, Motive Disposition Theory (MDT) is relatively unknown. In motivation research however, a multitude of theories are prevalent. SDT focuses on situations that bring about need satisfaction and MDT focuses on person-centered variables that bring about need satisfaction. Because SDT assumes that there is a universal need in every individual, the need is usually not measured. MDT does not contradict the assumption that there is a general need to belong that all human beings share to some extent, but it allows us to measure the individual strength in which needs express in an individual, as it is a theory of differential motivations. SDT has been adopted widely and can explain certain relationships (e.g., why the majority of players like a specific game) very well. However, when researchers try to use SDT to explain things that the theory does not center around (i.e., why different players experience the same game differently), it can lack predictive power (e.g., [14]). We argue that this is because the theory does not focus on individual need strength. Therefore, we give an example on how different motivational theories have greater explanatory power when used together—an approach that is already prevalent outside of Human Computer Interaction research [64, 65, 69, 70, 72] but has not been applied to the context of digital games before.

5.1 How do Social Motives Predict Play Experience?

5.1.1 Affiliation (Intimacy and Sociability). Our results suggest that motive dispositions can drive need satisfaction in games, as the intimacy motive can strongly predict the extent to which players can satisfy their need for relatedness and even autonomy in a game. This shows that needs are not just satisfied passively by the properties of a game but that a strong drive of a player can actively improve their experience. League of Legends has features that can be used to feel connected to

other players (including a chat function, private messages, and playing with friends, as well as creating a competitive team with your friends, and showing off a team tag); however, these are optional. Perhaps intimacy-motivated individuals are more likely to use those features, whereas less intimacy-motivated individuals might ignore them and as a result they get less relatedness satisfaction out of a game that, even though it has socializing elements, is ultimately a competitive game. When looking at the overall affiliation motive, we still find that it predicts relatedness satisfaction but when looking at both intimacy and sociability in the same regression model, intimacy is what ultimately predicts need satisfaction. Intimacy motivation has been found to be associated with higher levels of self-regulation [15], which might serve as an explanation of why it is so closely connected to need satisfaction. The effect of intimacy motivation on autonomy satisfaction might be related to the previously given explanation that players have the option to make friends and socialize with them in LoL. It is possible that for a highly intimacy-motivated individual, being given the choice and tools to play closely together with friends alone makes them experience autonomy. We also find that intimacy motivation is associated with other positive outcomes: for example, these players report that they enjoy playing the game more and they report experiencing flow on the dimension of absorption by activity. Maybe the experience of competence is tied to winning but having fun is more likely when playing together with close friends.

We find no connection between sociability and experience when entering sociability and intimacy into the same regression model. There are a number of possible explanations but all require further clarification in future work. One possibility is that the construct itself is not well defined or not accurately measured by the scale we used here. A future scale validation is required. Another possible explanation is that self-reported sociability, as we measured it, was too broad of a construct. As such, it might be close to constructs such as extraversion or a social playstyle. Equally, we found that few of the participants scored low in sociability (see Figure 2). Therefore, most players of social multiplayer online games such as League of Legends might be somewhat sociable. However, the main reason was that we tested intimacy and sociability concurrently in the same model and the effect of intimacy motivation was stronger than the effect of sociability (both affiliation facets share a substantial amount of variance). Overall, our findings are in line with previous studies that connected the affiliation motive to higher levels of satisfaction of the need for relatedness [72], but we provide a more detailed understanding of the game context and explicit motive sub-facets.

5.1.2 Power (Prosociality and Dominance). When it comes to general power motivation, we find that it predicts autonomy satisfaction, which is connected to neither the prosocial nor the dominant power facet. This might indicate that the explicit power motive in the digital and physical world expresses differently because power motivation is more socially desirable in games. The prosocial power motive was not associated with need satisfaction and it was not connected to enjoyment of the game. However, we found that prosocial individuals reported higher investment of effort into the game. The wish to help and guide others seems to be connected to trying harder, possibly because this might not be easily achieved in a game such as League of Legends, or because in order to be able to help others, one has to become strong first. This result is particularly interesting because recent work has defined the term “tryharding” as a possible factor of negative behaviour in games [77]. While that might not be the same definition as the effort scale which we used, there should still be some overlap. It might be that when people try too hard, they lose sight of the fun in a game and become more negative; on the other hand, trying hard is crucial in a

competitive game and needed in order to win and be helpful. Either way, it seems unlikely that prosocial players would show toxic behaviour because they report investing more effort, however, future work should explore these relationships. Prosocial players also find themselves performing fluently in the game, experiencing an amount of flow that is substantially higher than that of non-prosocial players.

Finally, our results clearly show that dominance motivation in games can lead to positive experiential outcomes in a competitive game such as League of Legends. Gaming is a context in which players can be dominant and where crushing the enemy team is socially desirable. Finding an outlet for this social motive, which is generally characterized as rather undesirable, in such a game can make players feel competent and experience flow. One could say based on our results that dominant individuals thrive in this gaming context. However, this fulfillment seems to come at a cost and that is, that dominance motivation seems to inhibit relatedness satisfaction through LoL. This might be due to these players immersing themselves in the competitive aspect of the game, which is in line with previous findings that dominance-motivated gamers report a preference to play champions that are strong in 1v1 fights [54]. Playing games with the focus to put others in their place and overpower them might be something that other players do not always respond well to, and that requires seeing others as enemies rather than friends, and as a result, dominant individuals might not feel strongly related to them. The question remains of whether this lack of relatedness satisfaction is something that impairs the experience of dominant individuals or whether they would see it as a worthy trade-off to feel competent at the cost of satisfying relationships in the game because the experience of competence might be slightly more important to them. That the experience of flow in a complicated and competitive game is strongly connected to dominance motivation does not come as a surprise. Dominance-motivated players both perform fluently and feel absorbed while playing the game, indicating an immersive experience.

5.2 Individual Needs and Experience

Main effects of games and activities leading to more or less need satisfaction do not appear to be the whole story. Considering individual motivations may be an important tool in ensuring that all players can access need satisfaction through games, rather than just the majority. We show that people selectively experience the same game depending on their explicit motives. For example, people who are explicitly looking for intimacy find relatedness, enjoyment, and absorption and people who are looking for dominance find competence and a strong flow experience on both dimensions. Authors have called for more research in order to explain why the same activities in a game sometimes lead to different outcomes of need satisfaction for different players [14]. Our research question was “why do different people have different experiences in social play?” Our results make a significant theoretical contribution in this area by demonstrating that playing the same game does not lead to equally positive outcomes for everyone. Rather, individual needs (what we strive for) change how we experience the game. This leads to the question of where need satisfaction is coming from, if not merely from game design. Are motives the inner forces that predict need satisfaction? We cannot answer this question yet and further research is needed to fully understand the mechanisms of satisfied needs. But our results show that individual motives do not simply seem to be what draws us to a game and that we then stay because we find that our universal needs are being satisfied, as it has been suggested [79]. We demonstrate instead that players can contribute actively to having their needs satisfied, and that a positive experience cannot simply be given to the player. This broadens our view on the subject because in order to

provide a satisfying and motivating experience, game designers do not simply have to satisfy universal needs passively, but can create a game experience that offers players the flexibility of actively finding their own strategies to satisfy the individual needs that are most important to them. Researchers and game designers should strive to understand which needs different games are currently not satisfying. The current state caters to the needs of the majority of those people who already play digital games, which might lead to neglecting individual needs that are less common. Therefore, by considering differential motives rather than just universal needs, researchers can identify ways to satisfy needs even more effectively for everyone.

5.2.1 The Impact of Toxicity on Need Satisfaction in Social Games. Players with a high explicit affiliation motive are described as having a conscious need to harmoniously interact with others. We previously explained why a conscious approach motivation within the affiliation motive leads to behaviour in support of fulfilling this self-reported need for affiliation (people finding what they are consciously looking for). However, many multiplayer online games (including but not limited to MOBAs) are known for a high prevalence of toxic behaviour (e.g., [36, 39, 73, 77]). This would indicate that it might not be a well-suited place for individuals high in affiliation-motivation (who are looking for social harmony). Because we recruited mainly experienced and enthusiastic League of Legends players, it is possibly that our sample was selective. What our findings show is that intimacy-motivation predicted relatedness satisfaction within those players who did not leave the game, which could also be an indication of intimacy-motivated individuals who did not find relatedness satisfaction (or power motivated individuals who did not find competence satisfaction etc.) already having left the game. This would be a fruitful future research question and with only this one study we cannot provide the answers to such questions yet. Our aim was to describe that no matter what the game environment is, we find strong relationships between individual motivations and experiential outcomes, meaning that individual needs are connected to the player experience of frequent players of a game. We explain the importance of integrating multiple theories of motivation and broadening our research field by applying more of the many existing theories. Therefore, we propose a starting point for different future research questions from the perspective of Motive Disposition Theory.

5.3 Limitations

More research in in this area is needed and we do not know how our results compare to other MOBA games or even other genres. Additionally, we mainly recruited players who played League of Legends frequently. Therefore, it is possible that our findings do not generalize to more casual players of the game. We allowed participants to choose and complete the study in two different languages to reach a more diverse demographic. Some participants not being native English speakers and the translated version of questionnaires might have resulted in language effects; however, most participants completed the survey in German. As the questionnaire took 60 minutes to complete it is possible that participant fatigue and loss of participation motivation have affected our results. A future scale validation for assessing explicit motives in games would help further additional work in this area. Most importantly, for future work it should be noted that there is value in not just looking at straightforward main effects but also at interaction effects, to pay respect to interindividual differences, especially as it has previously been found that motive dispositions often moderate the relationship between basic psychological need satisfaction and flow experience. Finally, our study was an exploration of how a well-established theory predicts behaviour in a novel context, i.e., gaming. We do not claim to test hypotheses and advise that our

results should be interpreted with caution until they are confirmed by experiments establishing causality.

6 CONCLUSIONS

In the area of digital games, changes can be fast-paced, as game developers constantly try to evolve their own games to make them attractive to a broader audience. We argue that broadening the view on social motivations by including different facets of individual social needs is valuable to create a better game experience for everyone, rather than just the average player. Motives describe not just how much our needs are satisfied, but how much we are driven to satisfy them, and why. Further, they shape our preferences and thus might be useful to explain why different people experience varying need satisfaction within the same game. Our results demonstrate that motive dispositions influence user experience in *League of Legends*. Our work shows that in addition to having our universal needs satisfied, we also possess individualized motives, which explain why we actively strive to satisfy some needs more than others, thus driving differential social behaviour. Players gravitating towards situations that passively satisfy their basic needs are not the whole story, instead players perceive, use and experience the same situations in different ways depending on their individual needs.

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