From Stream to Stake: Gamblification Practices and User Perceptions on Twitch

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Gambling has existed as a foundational form of play in human society for a long time. With the development of the digital era, gambling practices have been increasingly incorporated into a wider array of contexts. This evolution is captured by the concept of gamblification—the process of integrating gambling-related content into non-gambling environments. While prior HCI research has examined gambling and gambling-like activities, the specific phenomenon of gamblification remains under-explored. To address this gap, we focus on Twitch.tv, the world's leading live streaming platform, and conducted two studies: a virtual ethnography to analyze gamblification practices on Twitch, and a thematic analysis of Reddit posts to capture Twitch user perceptions towards these practices. We analyze how these practices relate to livestream content, the technical carriers that enable them, the modes of viewer participation, and how Twitch users perceive and experience them. We then discuss the conditions that enable their emergence, along with the inherent complexity of gamblification and the legal and ethical murkiness surrounding these practices. Building on these insights, we offer implications for platform governance and streamer conduct toward more responsible gamblification practices.

CCS Concepts: • **Human-centered computing** → Human computer interaction (HCI); Empirical studies in HCI..

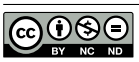
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1 Introduction

As a form of games of chance, gambling has long been embedded across diverse cultures and societies, spanning different age groups and social strata [13]. Gamblification refers to the incorporation of gambling or gambling-related content into non-gambling contexts to achieve outcomes such as increasing user engagement or driving monetization [87]. While this phenomenon was first

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observed in sports advertising to normalize wagering and increase consumer acceptance [87, 94], it has since expanded across a wide range of digital domains, including video games [133, 143], social media [2, 64], and marketing platforms [3]. For example, in video games it often appears through random reward mechanisms such as loot boxes to attract players and drive monetization [133, 139, 143]. Researchers have found that the rise of gamblification has increasingly blurred the lines between gaming and gambling, as the integration of mechanics like risk-taking for randomized rewards into core gameplay makes it difficult for players to distinguish between skill-based entertainment and pure chance-based wagering [1, 86, 116].

The widespread adoption of gamblification has also provoked increasing concern, due to its structural similarities to gambling. First, gamblification may increase the risk of participants subsequently engaging in real gambling and developing addictive behaviors. This is particularly concerning for teenagers, as early exposure to such practices may raise the likelihood of later addictive behaviors [16, 61]. Second, some platforms also exploit gamblification for data extraction, trading low-value rewards for high-value personal information, posing threats to users' privacy and security [87, 142]. Finally, the frequent appearance of gamblification contributes to the normalization of such practices, and even of gambling itself, thereby weakening public awareness of its harms [78, 87].

In the field of Human-Computer Interaction (HCI), live streaming has emerged as a primary domain of inquiry, with growing attention to how real-time interaction shapes user experience and digital culture [45, 52, 53, 56, 59, 68, 71, 76, 95, 125, 127]. As a central hub for such research, Twitch not only offers a wide range of official affordances to facilitate user interaction [27, 64, 112], but also hosts a vibrant ecosystem where streamers creatively experiment with new ways of engaging their audiences [2, 64]. These dynamics make Twitch a fertile ground for the emergence and proliferation of gamblification practices. Besides that, gambling-related content has long been prevalent on the platform. Even though Twitch introduced restrictions on gambling content in 2022, new gambling-like formats have continued to surface, such as simulated gambling games, loot box openings in video games, and blind box unboxings [49, 50, 123]. In addition to gambling-related content, Twitch has also collaborated with game developers to offer free Overwatch loot boxes to Twitch Prime subscribers [119].

Although HCI venues such as CHI PLAY have examined and sought to improve interactive practices on Twitch [45, 52, 76, 83, 125], relatively little attention has been paid to gamblification. Research in other fields has also touched upon gamblification practices on Twitch only sparingly, with notable exceptions that either frame it as a monetization strategy [64] or examine the role of platform extensions in facilitating such practices [2]. Given that gamblification practices manifest in diverse ways, it is necessary to adopt a broader perspective that situates them within the overall platform context, enabling a more comprehensive understanding of their forms, configurations, and sociotechnical conditions on Twitch. Thus, we ask our first research question (RQ1): **How is gamblification enacted on Twitch, and what sociotechnical configurations shape its various forms?**

To address our research questions, we first conducted ten months of virtual ethnography on Twitch. Through thematic analysis, we identified patterns of gamblification and distinguished three main forms through which streamers implement gamblification in livestreams. While Study 1 was well suited for identifying these practices from the researchers' perspective, it also highlighted the need to understand how users themselves experience and interpret gamblification. This motivated Study 2 and the second research question (RQ2): **How do users perceive gamblification practices on Twitch?** To answer this question, we analyzed gamblification-related discussions on the r/Twitch subreddit using thematic analysis. Users' posts focused primarily on the legality of gamblification, ambiguities in platform governance, its effects on engagement, and its perceived

risks. Drawing on both studies, we examine the sociotechnical conditions that enable gamblification on Twitch, as well as its legal and ethical murkiness, and derive implications for more responsible platform governance and streamer practices.

Overall, our study provides a comprehensive account of gamblification on Twitch. First, by identifying three distinct forms of gamblification, we extend the scholarship about gamblification in co-created play and livestreaming. Rather than proposing entirely new mechanisms, our contribution lies in showing how existing mechanisms—including chance, reward, uncertainty, audience participation, affective engagement, and monetization—are systematically combined and enacted within livestreaming environments. This integrative perspective advances the current understanding of gamblification by explaining how these mechanisms collectively shape platform dynamics on Twitch. Second, we examine gamblification from users' perspectives, showing how it shapes spectator experiences and social participation. Third, we highlight its ethical and governance challenges, including legal ambiguities, platform governance tensions, and user risks. Finally, we offer practical recommendations for fostering more responsible gamblification practices on livestreaming platforms.

2 Related work

2.1 Gambling, Gamification, and Gamblification

Gambling, an important form of recreation in human society [13], is defined as wagering something of value on a game of chance for the possibility of gaining something greater [6]. Legally, gambling comprises three elements: consideration, chance and prize [18]. First, for a game to qualify as gambling, the player must provide some form of consideration in exchange for the opportunity to participate. Such consideration must carry economic value, typically in the form of cash in traditional gambling [106]. The second element is chance, which refers to the outcome of the event or activity underlying the gamble being unknown to the participant before the gamble takes place [13]. The third element, the prize, refers to the potential gain resulting from the outcome of the gambling activity, which is typically awarded to the winner, and is usually expressed in monetary terms or in items of equivalent value [13]. If any one of these three elements is absent, the activity is generally not considered gambling in the legal sense [19, 87, 132].

With the rise of digital technologies and platform-based media, gambling research has increasingly moved beyond traditional gambling venues to examine how gambling is embedded in online environments. Rather than being confined to physical spaces such as casinos [108], gambling is now integrated into everyday digital activities through mobile technologies, online platforms, and interactive media [33]. This shift highlights how gambling-related risks are shaped not only by individual choices but also by the technological and social environments that normalize and facilitate participation [33]. Building on this perspective, Albarrán-Torres [4, 5] argues that digital gambling should be understood not simply as gambling moved online, but as a broader transformation in which chance, risk, play, and reward are embedded within digital media systems. His concept of gamble-play media captures how gambling-like practices increasingly intersect with digital entertainment, platform participation, and everyday media consumption [4, 100]. This broader diffusion of gambling-related mechanisms into digital media provides an important foundation for understanding gamblification.

Early work often treated gamblification as a subcategory of gamification [86, 87], which refers to the use of game design elements in non-game contexts to enhance user engagement, motivation, learning, or behavioral change [37]. However, more recent work has increasingly distinguished gamblification from gamification. In contrast to gamification, gamblification describes the incorporation of gambling-related content and mechanics into non-gambling contexts to achieve desired

outcomes [87]. Unlike gamification, which typically seeks to foster users' intrinsic motivation, gamblification does not necessarily rely on intrinsic motivation. Instead, it emphasizes uncertainty, risk, rewards, anticipation, and affective stimulation as key drivers of continued engagement [86].

To clarify the concept of gamblification in broader contexts, Macey and Hamari distinguish between two forms: affective and effective [87]. Affective gamblification involves the use of gambling-related symbols or cultural references in non-gambling contexts to evoke emotions or to normalize gambling [87, 94]. A prominent example is the prevalence of gambling advertisements and sponsorships in sports events, which both normalize gambling behaviors and enhance their cultural appeal [34, 79, 94]. Effective gamblification entails the incorporation of gambling or gambling-like mechanisms into non-gambling environments in order to increase user engagement or drive commercial outcomes [87].

Gamblification has been widely adopted across platforms because it can effectively increase user engagement and generate substantial commercial value [87]. Its most prominent and pervasive applications can be found in the gaming industry. For example, in the popular game GTA Online, developers introduced an in-game casino where players could purchase virtual currency with real money to gamble, though without the option to cash out winnings. In the months immediately following this update, the game's profits rose by 23% [35]. Given this considerable potential for business growth, some companies have even emerged that specialize in providing "gamblification services" for video games, helping developers monetize through gambling-like mechanisms [40, 87].

While gamblification offers corporations benefits in engagement and revenue, it simultaneously raises pressing concerns. Owing to its similarity to gambling, reward uncertainty has been shown to activate neural processes linked to learning and memory, heightening sensitivity to related stimuli and making it harder for users to resist continued spending or participation [28, 99]; such engagement may also increase the risk of later gambling involvement and addiction [16, 61, 115]. In addition, scholars argue that gamblification makes risk-taking behaviors appear "ordinary," thereby impairing individuals' ability to assess gambling-related risks and contributing to their normalization [36, 44].

Taken together, gamblification is neither equivalent to gambling nor simply interchangeable with gamification. Although gamblification borrows mechanisms, aesthetics, and meanings from gambling, it often lacks some of the defining elements of legally recognized gambling, such as monetary stakes or rewards that are directly convertible into money. At the same time, gamblification differs from many gamification practices in its reliance on short-term extrinsic stimulation rather than the longer-term cultivation of users' intrinsic motivation. These distinctions suggest that gamblification should be understood as a distinct practice in its own right. Accordingly, this study examines gamblification as a distinct practice and uses Twitch, a livestreaming platform centered on real-time interaction, entertainment, and community participation, as the empirical site for investigating how such practices are configured in livestreaming platform environments.

2.2 Gambling and Gamblification Practices on Twitch

Twitch is one of the world's leading livestreaming platforms, originally known for video game streaming, gaming communities, and esports content [63]. Although it has expanded into broader entertainment and lifestyle categories, its core experience remains shaped by real-time interaction, streamer–viewer relationships, chat-based participation, and monetized engagement features [41, 64]. These characteristics make Twitch a valuable site for studying gamblification, as real-time interactions and parasocial relationships [75] can amplify the emotional investment and social influence associated with gambling-like participation.

At the same time, Twitch plays an active yet evolving role in defining and governing gambling-related activities. While the platform has progressively tightened its gambling policies in recent

years [50, 123], its governance has often been characterized as reactive rather than proactive, with major restrictions introduced only after gambling-related content had rapidly expanded and attracted substantial public criticism [62]. Since 2023, Twitch has prohibited many forms of gambling content, including skins gambling [10, 97, 145]. As of 2025, only sports betting, fantasy sports, and poker content are permitted, while streams categorized under gambling are hidden from users under the age of 18 or those who are not logged in [102, 123]. Despite these policy changes, gambling-related content continues to attract considerable attention on the platform. For example, the Slots category has accumulated more than one million followers [38], while loot-box opening streams remain highly popular, with one study reporting that 43.1% of teenagers had watched such videos [49].

Beyond gambling-related content itself, gamblification is also embedded in streamer–viewer interactions through chance-based audience participation mechanisms [2, 57, 64, 65]. Prior work has primarily examined these practices as monetization strategies. For example, Johnson and Woodcock [64] found that streamers use unpredictable rewards to encourage donations, while Abarbanel and Johnson [2] showed how Twitch Extensions incorporate chance-based mechanics into viewer interactions. Although these practices mimic gambling, their framing as entertainment or monetization allows them to remain outside many legal definitions, creating blurred regulatory boundaries [2, 64].

However, existing research has largely focused on specific monetization practices, technical features, or design mechanisms. Less attention has been paid to gamblification as a broader phenomenon or to how users experience and interpret these practices. To address these gaps, we examine gamblification across Twitch, focusing on the conditions under which it emerges, how streamers configure and enact it, and how viewers participate in and make sense of it.

2.3 Interactive Play in Live Streaming

As a form of real-time interaction, livestreaming is not only a site of entertainment but also a space where social interactions and communities are constructed [82, 126], making it an important topic within HCI. Prior research has examined streamer–viewer interactions [24, 82, 125], the roles of actors within livestreaming ecosystems (e.g., streamers, moderators, viewers, and third-party developers) [20–22, 74, 126], the design and use of streaming tools and extensions [26, 43, 105, 117, 135, 136, 138], and livestreaming practices tailored to specific populations and needs [23, 55, 58, 80, 81, 129].

As a form of digital leisure, livestreaming has evolved from passive spectatorship into a participatory environment where "play" is co-created by streamers and viewers [113, 118, 125]. For example, Wang and Lu examined danmaku participation games, showing how streamers and viewers collaboratively shape gameplay and shared interactive experiences [125]. More broadly, bidirectional engagement transforms entertainment consumption into active participation, with viewer involvement serving as both a source of social bonding [77, 82] and a driver of monetization [74, 128]. Lee et al., for instance, demonstrated how tipping practices influence the social and relational dynamics between streamers and viewers [74].

Financial support is deeply embedded in Twitch through affordances such as Bits [146], subscriptions [147] and Channel Points [148]. Bits function as a virtual currency for cheering streamers, subscriptions provide recurring financial support, and Channel Points reward participation and engagement [146, 148]. Unlike many major online platforms, where platform revenue is generated largely through advertising, sponsorships, and other commercial activities that remain in the background of everyday user interactions, Twitch embeds viewer-to-streamer payments directly into the livestreaming experience[62]. These transactions support creator monetization while

also generating revenue for Twitch through its share of subscriptions, Bits, and other platform-facilitated payments [64, 101]. Donations and subscriptions are routinely acknowledged during broadcasts, making the flow of money a visible and expected part of streamer–viewer interactions [62]. Consequently, viewers commonly use Twitch's built-in financial mechanisms to express appreciation for streamers and demonstrate their ongoing commitment to channel communities [62]. Together, these systems enable diverse monetization practices and contribute to the transformation of livestreaming into a viable form of digital labor [54, 65, 128].

These practices also resonate with HCI research on dark patterns, which has examined how digital systems can employ deceptive or manipulative design to shape user behavior and constrain meaningful choice [47]. Prior work has documented such practices across online shopping, social media, impulse-buying interfaces, and livestream e-commerce, demonstrating how platform designs can obscure costs, amplify urgency, and exploit social influence [47, 90–92, 96, 130]. Importantly, livestreaming environments extend these concerns because persuasive dynamics may emerge not only from platform interfaces but also from streamers' real-time interactions with viewers. For example, Wu et al. [130]. show how livestream commerce combines platform features and streamer practices to encourage purchasing through tactics such as scarcity cues, urgency appeals, and social influence.

In summary, prior HCI research has established livestreaming as an interactive, social, and monetized environment. However, limited attention has been paid to how gambling-like mechanics become embedded in everyday livestreaming practices and shaped by platform affordances. Although prior studies have identified isolated examples such as lotteries, top-donor competitions, and chance-based rewards, these practices have rarely been examined as part of a broader process of gamblification. Consequently, little is known about how gambling-like mechanics operate as sociotechnical practices emerging through the interactions among platform features, streamer activities, viewer participation, and monetization systems.

3 METHODOLOGY

Our research design integrates two complementary qualitative studies to develop a comprehensive understanding of gamblification on Twitch. Study 1 uses virtual ethnography to document how gamblification practices are enacted across livestreams, while Study 2 examines Twitch users' discussions on the r/Twitch subreddit to understand how these practices are interpreted, negotiated, and experienced by community members. Together, the two studies combine researcher observation with user-generated discussions, allowing us to examine both how gamblification emerges in livestreaming practices and how it is perceived and made sense of by Twitch users. Although these studies employ different methods, data sources, and research contexts, they provide complementary perspectives on the same phenomenon. In this sense, they broadly resonate with the distinction between etic and emic perspectives [12, 98] : Study 1 primarily reflects a researcher-driven analytical account of observable practices, whereas Study 2 foregrounds participants' own interpretations and sensemaking within their lived experiences. As prior methodological work has suggested, integrating these complementary perspectives can provide a more holistic understanding of complex social phenomena [12].

3.1 Study 1: Virtual Ethnography of Streamers' Gamblification Practices

To answer RQ1, we employed virtual ethnography [12, 25] to examine Twitch's ecosystem and its embedded gamblification practices. We selected this approach for three reasons. First, it is well suited to studying emergent practices within sociotechnical systems where platform affordances, creator strategies, and audience meaning-making are closely intertwined [120]. Second, it enables the capture of naturally occurring, real-time interactions rather than relying on retrospective

accounts [12]. Third, it supports longitudinal, in-context engagement, providing deeper insight into how digital practices evolve through lived experience [39]. Prior work has validated this method's efficacy in studying communities mediated by gamified [140] and algorithmic elements [73]. This approach allows us to engage with Twitch over time and in context, providing richer insight into the nuances of streamers' practices.

3.1.1 Data Collection. Prior to data collection, this study received IRB approval from our university. Data collection was primarily conducted by the first and second authors, who carried out participant observation [12] of Twitch streams from September 2024 to June 2025 to capture the evolving forms and contexts of gamblification practices.

We established an operational understanding of gamblification based on Macey and Hamari's definition [87], which characterizes gamblification as (1) affective: **gambling or gambling-like content appearing in non-gambling categories** and (2) effective: **forms of user interaction on Twitch that involved the three core elements of consideration, chance, and prize**. Practices meeting either criterion were documented as gamblification. For affective gamblification, we reviewed official Twitch categories and platform-generated tags, excluding those explicitly labeled as gambling, and then examined streams for gambling-like content such as loot-box openings or gacha games. For effective gamblification, we verified the presence of consideration, chance, and prize. Consideration could be monetary (e.g., gifted subs) or non-monetary (e.g., Channel Points), while prizes ranged from Channel Points and physical goods to streamer-performed behavioral penalties.

We employed a purposive, iterative sampling strategy. We focused on English-speaking streams to maintain linguistic consistency and because English-speaking communities represent one of Twitch's largest and most active user groups [149]. To capture diverse forms of gamblification, we sampled streams across Twitch's five major directories (Games, IRL, Music & DJs, Creative, and Esports) and channels ranging from fewer than 50 to more than 10000 concurrent viewers. Streamers were identified through incognito-mode recommendations, category browsing, and community referrals. As fieldwork progressed, emerging observations informed subsequent sampling, prompting us to seek similar and contrasting cases across content categories and audience scales.

Observations continued until we judged that the data held sufficient information power to address our research aim, and that additional sessions were unlikely to generate substantially new insights into the forms and configurations of gamblification practices on Twitch [12, 15, 88]. We documented practices through screenshots, video recordings, and field notes. Screenshots captured persistent interface elements and noteworthy moments, while video recordings (3 minutes to 4 hours, averaging approximately 15 minutes) preserved the temporal dynamics of streamer–viewer interactions. The longest recording followed a streamer from developing an AI gambling bot to deploying it in a livestream. In total, the ethnography produced 160 screenshots, 104 field notes, and 22 video recordings.

3.1.2 Data Analysis. For data analysis, the first two authors served as primary coders and applied thematic analysis [14] to the field notes, screenshots, and video recordings collected during the virtual ethnography. We began with initial coding to identify recurring gamblification practices, the platform features through which they were enacted, and associated forms of streamer and viewer participation. Example codes included "viewer engaging in Prediction with Channel Points" and "Hype Train triggering collective excitement." Codes and related materials were then organized in Miro to facilitate comparison across streams, categories, and channel sizes, after which related codes were grouped into broader themes and sub-themes capturing different configurations of gamblification on Twitch. Analysis was iterative. The first two authors met regularly to compare interpretations, revisit source materials, and discuss ambiguous cases, particularly when a practice

could be understood as either an ordinary engagement feature or a gambling-like mechanism. In such cases, we returned to our operational definition of gamblification and assessed whether the practice involved consideration, chance, and prize, or gambling-related content in a non-gambling context. The remaining authors provided methodological and theoretical feedback throughout theme development. This process continued until the thematic structure adequately captured the diversity of gamblification practices observed on Twitch. All screenshots reported in the findings were edited to obscure potentially identifiable information, including user IDs and human faces.

3.2 Study 2: Exploring Twitch Users' Perceptions of Gamblification Through Reddit

The goal of study 2 is to examine gamblification practices from Twitch users' insider perspective. We selected online discussion data from the r/Twitch subreddit as our data source for four main reasons: First, Reddit's anonymity encourages more candid discussion on topics associated with stigma, such as gambling-related practices [7, 32]. Second, the r/Twitch subreddit provides a rich and dynamic environment where both streamers and viewers actively exchange experiences, raise questions, and share feedback [150]. Third, analyzing subreddit discussions is a well-established method in HCI research [30, 67, 84, 85, 114], particularly for exploring community perspectives and emergent practices. Finally, unlike interviews that rely on retrospective accounts, subreddit conversations capture users' thoughts in real time, offering situated insights into perceptions of gamblification.

3.2.1 Data Collection. We collected data via the Reddit API using keywords derived from the definition of gamblification and informed by prior studies [66, 69, 109], including **{gamble, gambling, gamba, bet, betting, predictions, stake, slot, chance, roll, channel point betting, loot boxes, gacha}** along with variations of each keyword. Due to the 2023 Reddit API limitations [111], which capped queries at 1000 results and removed time-based pagination, we conducted separate searches for each keyword to maximize coverage and supplemented high-volume results with manual Reddit searches. Because time-based pagination was unavailable, we restricted the dataset to posts from January 2019 to January 2025. This process yielded 971 threads; after removing duplicates (N = 140), the final dataset consisted of 831 unique threads containing approximately 30200 posts.

Prior to analysis, we addressed the fluid identities of Twitch users. Although streamers, moderators, and viewers occupy distinct roles, these identities frequently overlap. Accordingly, our analysis focused on post content rather than fixed user categories, while noting explicit self-identifications (e.g., "as a streamer") during coding. Although this approach does not identify every creator or moderator, it provides a consistent way to account for overlapping roles while maintaining a unified analytical lens on community sensemaking.

3.2.2 Data Analysis. For data analysis, we conducted a reflexive thematic analysis [14] to examine user perceptions of gamblification. We filtered the collected threads based on relevance and content richness, requiring a minimum of 200 characters for the original post and more than three comments to ensure sufficient analytical depth. This process yielded a corpus of 137 threads (1,128 comments). The first three authors then independently coded the data, with each comment reviewed by two researchers. We paid careful and equal attention to each data item, allowing multiple codes to be assigned where appropriate [14]. This process generated 278 preliminary codes. The first three authors then refined these preliminary codes through collaborative discussion and constant comparison with the raw data. During this process, we discussed differences in interpretation, revisited the original threads, and examined how users described specific practices, concerns, and experiences in context. Rather than treating coding differences as reliability problems, we used them to clarify analytic meanings and refine theme boundaries. We then organized related codes into higher-level themes, reviewing whether each theme was internally coherent and meaningfully

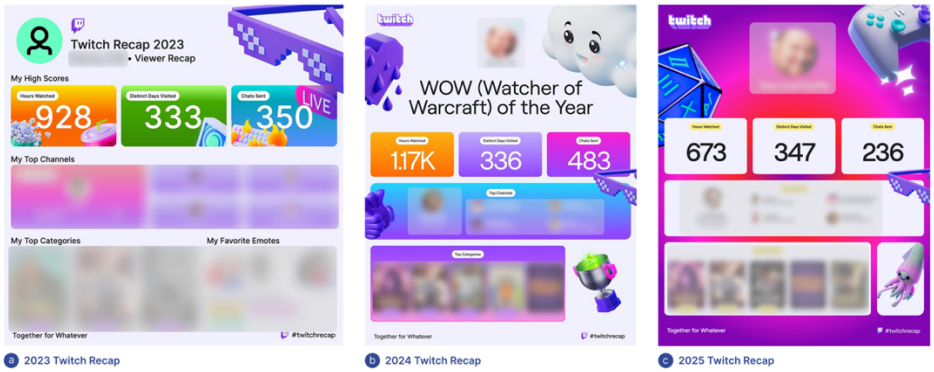


Fig. 1. Twitch viewing record of the second author.

distinct from the others [12]. This process resulted in a final structure of three primary themes. To protect user privacy and mitigate the risks of re-identification [104], we anonymized all data by removing identifiers and paraphrasing quotes while preserving their original semantic meaning.

3.3 Researcher Positionality and Reflexivity

Our author team brought different forms of familiarity, distance, and expertise to this study, shaping how we identified and interpreted gamblification practices within Twitch's livestreaming ecology.

Study 1's virtual ethnography was primarily conducted by the first and second authors. Since 2023, the first author has been actively involved in content creation and livestreaming, maintaining a cross-platform audience of nearly 30000 followers and managing an online fan community. This experience provided practical insight into creator labor, audience engagement, community management, and interactive design. The second author has been an active Twitch user since 2019, engaging with the platform on a near-daily basis and averaging approximately 1000 hours of annual watch time (see Figure 1). While this extensive engagement contributed to the second author's familiarity with Twitch, not all viewing during 2024 and 2025 was related to this study; a portion reflected personal, interest-driven use of the platform. The remaining three authors contributed expertise in qualitative research, game studies, HCI, and online communities, while their relative distance from Twitch helped challenge assumptions arising from close platform familiarity and provided methodological and theoretical guidance.

This combination of insider and outsider perspectives informed our analysis. In ethnographic research, researchers' experiences and subjectivities can serve as valuable analytical resources [31]. Familiarity with Twitch was particularly important for identifying gamblification practices embedded in routine platform interactions. Practices such as chatbot gambling commands, Channel Points rewards, and Bits-based participation games required attention to Twitch-specific affordances, norms, virtual currencies, customization features, and participation routines. Without such familiarity, these practices could easily be interpreted as ordinary engagement tools or community activities rather than forms of gamblification.

4 Findings

In this section, we present our research findings on gamblification practices on Twitch (Study 1) and users' perceptions of them (Study 2).

4.1 Study 1 Findings: Gamblification practices on Twitch

Drawing on our virtual ethnographic study of gamblification practices on Twitch, we found that gamblification is a unique way to engage viewers of livestreams. Gamblification manifests as three distinct forms, defined by how central it is to the livestream's content and performance, each of which is constituted through a unique configuration of tools and technical carriers, relationship to the livestream, and modes of viewer participation (More details are available in Appendix 1):

4.1.1 Gamblification as Peripheral Interaction. Here, peripheral refers to gamblification practices that do not directly participate in or alter the core livestream content. Instead, they function as auxiliary forms of interaction that run alongside the mainstream, operating at its margins while still contributing to the overall viewer experience. These forms of gamblification typically require little to no direct involvement from the streamer after the initial setup, allowing streamers to remain focused on their main content. After the streamer completes the setup, the mechanisms operate autonomously whenever they are triggered. Viewers can initiate these interactions at any time based on their own preferences, engaging directly with the gamblified mechanism rather than with the streamer. Because of their flexible participation structure, these gamblification practices are often characterized by individual participation from viewers. In our observations, we identified three distinct forms of peripheral gamblification.

Chat-based Gambling Commands. The first form of peripheral gamblification we observed is chatbot gambling commands, which provide a low-barrier form of interaction that occurs entirely within the chat room. Chatbots [121] are third-party tools integrated into Twitch chat as dedicated accounts. Streamers can configure gambling-related commands (Figure 2) that viewers trigger by typing specific inputs, enabling interactive engagement with the chatbot. Through our observations, we found that many streamers offered commands such as **!gamble**, allowing viewers to wager Channel Points (Figure 3).

These commands are easy to use and require only Channel Points, which are readily obtainable (e.g., viewers typically receive 300 points for following a channel). As a result, they represent one of the most accessible forms of gamblification on Twitch. We also observed that once one viewer triggered a gambling command, others often followed shortly afterward. In some cases, we ourselves only became aware of particular commands after seeing other viewers use them in chat.

Reward-driven Fan Lottery. The second type of peripheral gamblification practice we observed is reward-based lotteries targeted at a channel's fan community, which primarily rely on Twitch's Rewards feature. On Twitch, Rewards [151] allow viewers to redeem prizes defined by the streamer using Channel Points, and streamers often incorporate elements of randomness into these prizes. This form of gamblification is also not directly tied to the content of the livestream. Viewers can initiate participation independently once they have collected enough Channel Points for a reward redemption. Common examples include unlocking a random subscriber emote or earning a chance to perform a coin flip for a sub (see Figure 4). Because viewers typically must accumulate a substantial amount of Channel Points before redeeming these rewards, they function much like personalized perks offered to "loyal" fans.

Overlaid Collective Mini-game. The final form type of gamblification practice that remains peripheral to the livestream content consists of mini-games built on the Stream Avatars extension. The Stream Avatars extension can be understood as an parallel layer of interactive system that runs alongside the stream, enabling viewers to create and control avatars to participate in chance-based mini-games. We frequently observed scenarios where the main livestream content continued as usual, while the Stream Avatars extension operated as an additional overlaid layer on top of the original stream interface. Unlike the previous two tools discussed, the games within Stream Avatars typically rely on collective viewer participation. Some are cooperative (see Figure 5a), requiring

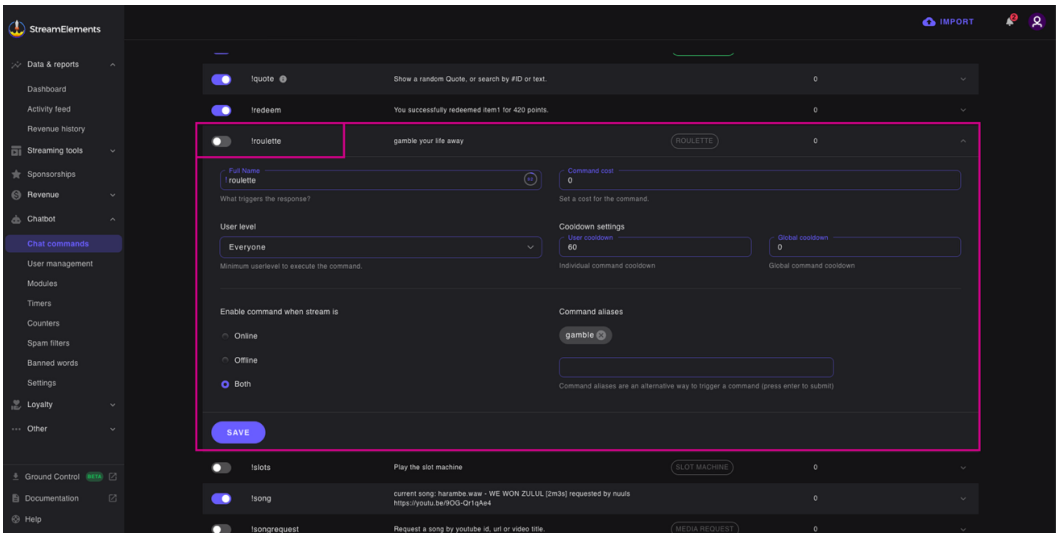


Fig. 2. Examples of editing commands on the StreamElements platform (one of the Chatbot platforms): This figure shows several chat commands already available on the platform (such as *!quote*, *!redeem*, *!roulette*, *!slot*, and *!song*), and streamers can configure various settings for these commands, such as triggering conditions, cooldowns, and other parameters.

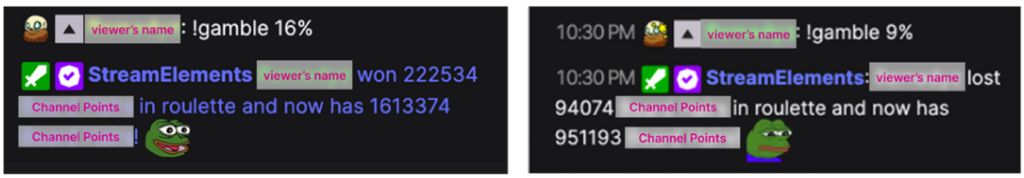


Fig. 3. The example includes two images showing viewers using *!gamble* commands to engage in Channel Points betting—one resulting in a win, and the other in a loss.

viewers to work together to defeat a boss or to engage in team-based battles between opposite teams. Others are competitive, such as large-scale Battle Royale fights or one-on-one duels (see Figure 5b).

Overall, peripheral gamblification emerges because Twitch livestreams are sustained not only by the streamer's performance but also by parallel layers of viewer interaction. These practices are enabled by affordances such as chat commands, Channel Points, rewards, extensions, and persistent viewer presence, allowing gambling-like interactions to occur alongside the livestream without requiring continuous streamer involvement. While streamers initiate these practices by configuring chatbots, reward systems, or extensions, viewers often sustain them through repeated, spontaneous, and socially contagious participation. Rather than serving as minor side activities, peripheral gamblification transforms the margins of livestreaming into interactive spaces where viewers perform loyalty, pursue rewards, imitate others, and remain engaged even when they are not directly interacting with the streamer or influencing the core content.

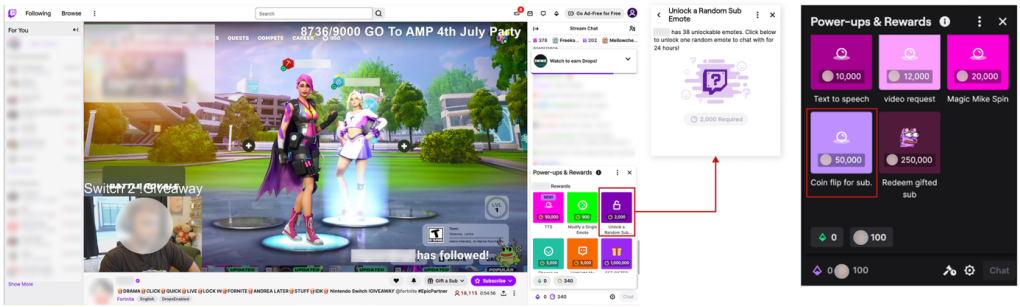


Fig. 4. Examples of streamers' gamblification practices using Rewards feature: (a) On the Rewards feature page, we can see that this streamer has set a reward that allows viewers to redeem random sub emotes for 2,000 channel points; (b) This streamer has set a reward that allows viewers to spend 50,000 channel points to redeem a coin-flip chance to win a sub.



Fig. 5. Different types of Stream Avatars mini-games: (a) The two mini-games require viewers to work together as a team to win the match (FFA here refers to 'Free For All,' meaning it's a solo-play competitive mode with no teams); (b) These are two games in which participants compete against one another to win.

4.1.2 Gamblification as Livestream Augmentation. Another form of gamblification practice is more closely connected to the content of the livestream. These practices are typically grounded in what is happening in the stream and, in turn, influence the unfolding of the livestream content. They augment the livestream by adding an additional layer of collective engagement. In our

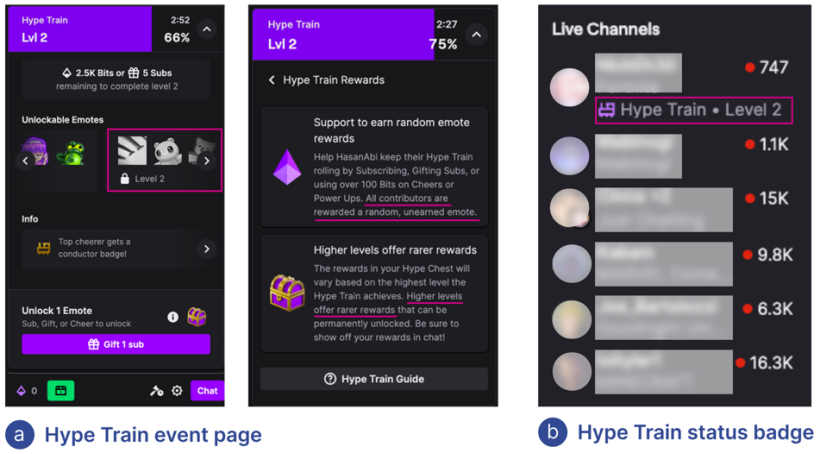


Fig. 6. Hype train feature: (a) On the Hype Train feature page, viewers can see the current level, the remaining time, and information about unlockable and locked emotes. The image on the right shows the rules of the Hype Train. (b) In Twitch's Live Channels list, a badge appears when a channel is currently running a Hype Train.

observations, we identified three forms of gamblification practices that operate as augmented interactions embedded within and influencing the livestream.

Collaborative Level-up Challenges. On Twitch, there is a very popular collaborative challenge called the Hype Train [152], in which all viewers of a livestream collectively contribute monetary support to help the stream progress through successive levels of a shared goal. Once viewers collectively reach a predefined contribution threshold within a short time frame and successfully trigger the Hype Train, the Hype Train begins as a time-limited activity in which viewers can push the train to higher "levels" by continuing to contribute. At the end of a Hype Train, participants receive a Hype Chest containing a randomly selected emote based on the final level reached (see Figure 6a). This element of randomness introduces uncertainty and heightens the excitement of the reward experience. To further promote this activity, Twitch displays a Hype Train badge beneath streamers' channel listings when a Hype Train is active (Figure 6b). In our observations, Hype Trains enabled streamers to generate substantial financial contributions quickly while dramatically intensifying livestream atmosphere, as streamers and viewers celebrated each level together through on-stream reactions and chat activity.

Collective Wagering Interactions. The second type involves viewer-to-viewer wagering grounded in livestream content through Twitch's Prediction feature [153]. Predictions allow streamers to create an upcoming event with multiple possible outcomes and invite viewers to wager Channel Points on the result. Viewers who correctly predict the outcome receive a proportional share of the total points pool, effectively creating a wagering contest between opposing groups of viewers. For example, in Figure 7, a streamer created a Prediction around a random in-game event, asking viewers whether their character would get their head blown off, with only "yes" and "no" options available. Approximately 40 viewers participated, wagering a total of 500k Channel Points.

Collective Chance-based Co-play. Co-play refers to viewers participating directly in gameplay and influencing its progression and outcomes. In our observations, Audience Participation Games (APGs) offered through Twitch Extensions represented a common form of chance-based co-play,

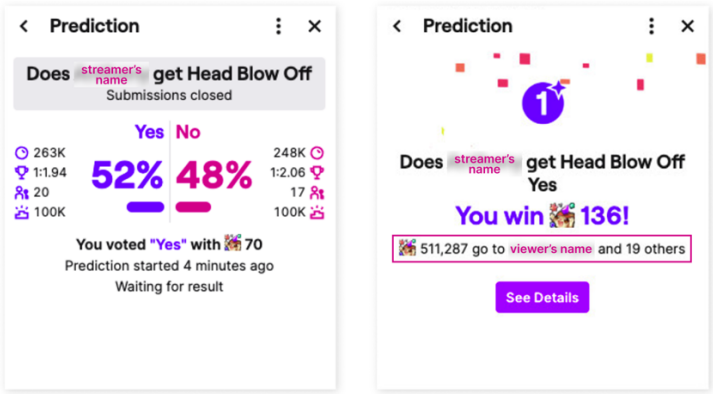


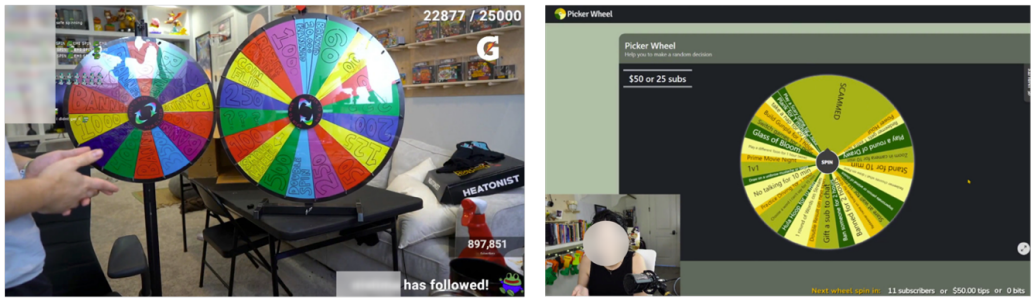
Fig. 7. The Prediction interface displays the real-time progress of viewers' bets and the final outcome of the prediction.



Fig. 8. One example of an APG extension: a poll in which viewers spend Bits to vote on in-game decisions.

in which viewers collaboratively shaped the stream through coordinated choices. Streamers typically configured APGs around ongoing events, allowing viewers to use Bits or other virtual currencies to vote on preferred outcomes. These votes function similarly to wagers, with the option receiving the most votes carried out by the streamer. As shown in Figure 8, viewers collectively determine a character's drop location, directly shaping gameplay in real time. Importantly, APGs incorporate an inherent element of chance. Although viewers can strategize and coordinate, the final outcome remains uncertain until voting concludes, generating suspense and emotional intensity. Prior research suggests that such collective decision-making structures can produce satisfaction regardless of whether participants' preferred outcomes are selected, highlighting the experiential value of shared uncertainty and collective play [110].

In sum, livestream augmentation emerges because Twitch streams are inherently open-ended and responsive to real-time audience participation. Unlike peripheral gamblification, these practices are



a Physical Spinning Wheel b Digital Spinning Wheel

Fig. 9. Spinning wheels in livestreams.

embedded in the ongoing livestream and become meaningful because they can intensify, redirect, or partially determine what happens next. Twitch's affordances, including Hype Trains, Predictions, Bits, Channel Points, and Extensions, make it possible to translate viewer attention and participation into collective goals, wagers, and chance-based decisions. Streamers initiate these practices by setting up challenges, predictions, or participation structures around unfolding stream events, while viewers sustain them through financial contributions, point-based wagering, voting, cheering, and collective anticipation. In this sense, livestream augmentation turns gamblification into a shared mechanism for shaping the stream itself. It transforms viewers from spectators into co-participants whose contributions can heighten atmosphere, influence content, and make uncertainty a central part of the livestream experience.

4.1.3 Gamblification as the Central Performance. Finally, some kinds of gamblification practices are the primary focus of the livestream itself. These forms of gamblification typically involve extensive streamer participation - streamers not only design the mechanisms but also build, configure, and actively perform them throughout the stream. We categorize these gamblification practices into two types based on the mode of viewer involvement:

Streamer–Viewer Co-Performed Gamblified Games. One form of gamblification as the central performance occurs when streamers make a gamblified game the focal point of the livestream, transforming the stream into a large-scale participatory event. Eligible viewers are invited to join for a chance to obtain randomized rewards, making these activities both a form of appreciation for paying viewers and an incentive for further monetization.

The first type of interactive gamblified game we observed is the spinning wheel. These wheels may be physical devices crafted by streamers (Figure 9a) or digital versions adapted from online spinning-wheel generators (Figure 9b), with segments customized to fit channel themes or activities. Participation is typically collective: viewers work toward a shared goal, such as reaching a subscription target, after which the streamer spins the wheel and carries out the resulting action. The second type is *Marbles on Stream*, a third-party racing game in which each viewer is represented by a virtual marble whose movement is entirely determined by physics simulation (Figure 10). This chance-based format supports large-scale, low-effort participation. Streamers often restrict entry (e.g., to subscribers) and award prizes to winners, while viewers have no control over outcomes once the race begins. In our observations, these co-performed games often generated high levels of viewer activity. Their highly customizable and improvisational nature encouraged viewers to propose ideas, negotiate rules, discuss game variations, and sometimes request specific games.



Fig. 10. Marbles game in the livestream.

Streamers likewise solicited audience input, allowing viewers to help shape the game's setup and flow.

Gambling-like demonstrations. Gambling-like demonstrations occur when streamers directly perform gambling-related activities during a livestream. Unlike the previous category, where viewers actively participate in a gamblified game, viewers here engage primarily as spectators who react and converse in chat while the streamer performs the gambling-like activity. Based on their nature, we identify two types: technical and experimental.

Technical gambling-like demonstrations involve streamers showcasing how gambling systems work. For example, in one stream, a streamer programmed a custom AI Gamble Bot to predict game outcomes during the broadcast (Figure 11a). The bot announced its predictions through both voice and on-screen text, accompanied by animated facial expressions from its avatar.

Experimental gambling-like demonstrations involve streamers engaging in gambling-like activities themselves, bringing viewers into real or simulated gambling environments. Common examples include loot boxes and gacha pulls, where players spend in-game currency or real money for randomized virtual items or characters (Figure 11b). Although viewers do not directly participate, they often remain highly active in chat, commenting on and reacting to the streamer's outcomes.

Taken together, gamblification as the central performance emerges when streamers transform gambling-like uncertainty into the primary attraction of the livestream. These practices are enabled by Twitch's affordances for real-time broadcasting, chat-based coordination, subscriptions, Channel Points, Bits, and third-party tools, but also rely heavily on streamers' labor in designing rules, configuring systems, performing outcomes, and sustaining suspense. Compared with peripheral or augmented gamblification, streamers play a more central role as both game designers and performers, while viewers participate by requesting games, negotiating rules, qualifying for entry, reacting to outcomes, and collectively interpreting results. In this sense, central-performance gamblification turns livestreaming into a shared spectacle of chance, closely linking uncertainty, audience participation, and monetization.

As shown in Table 1, the three forms of gamblification differ primarily in how closely they are connected to the livestream's core content and how strongly they shape its unfolding dynamics. Peripheral gamblification operates alongside the stream, allowing chance-based participation without substantially altering the content. Livestream augmentation is more deeply embedded, as collective

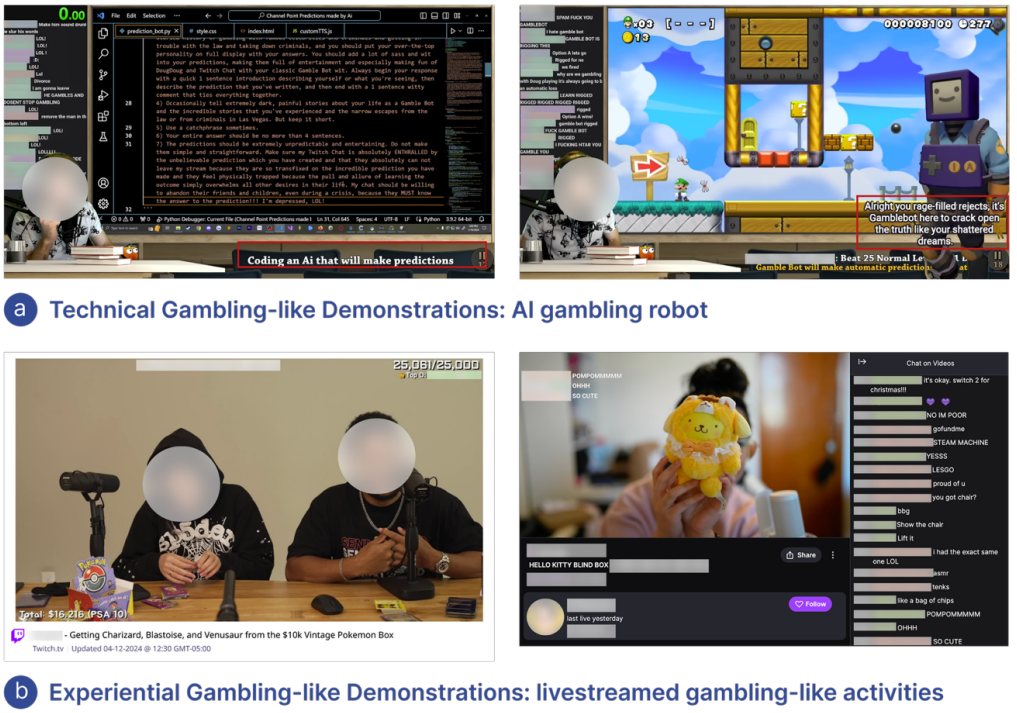


Fig. 11. Examples of gambling-like demonstrations in livestreams: (a) This streamer wrote their own code to develop a custom gamble bot and tested it during the stream; (b) The Pokémon card pack opening shown on the left and the blind box unboxing shown on the right are two popular types of gambling-like livestreams currently seen on Twitch.

contributions, wagers, and votes can influence what happens next. Gamblification as the central performance places gambling-like uncertainty at the center of the stream, with streamers actively designing and performing the activity. Together, these forms demonstrate that gamblification is not a single activity but a flexible sociotechnical practice shaped by platform affordances, streamer labor, and viewer participation. Our findings provide an integrative account of gamblification by showing how chance, reward, uncertainty, audience participation, affective engagement, and monetization are configured and enacted across different forms of livestreaming. This perspective extends current understandings of gamblification by explaining how these mechanisms collectively shape platform dynamics, rather than functioning as isolated features.

4.2 Study 2 Findings: User perceptions of gamblification practices on Twitch

Building on the specific forms of gamblification identified in Study 1, we shift our focus to Twitch users' perceptions of these practices. In this section, we present our findings across three main themes: views on governance ambiguity, impacts on user engagement, and perceived risks.

4.2.1 Perceived Governance Ambiguity in Gamblification. Here, governance ambiguity [46, 93] refers to the uncertainty and interpretive divergence perceived by users in how Twitch sets and enforces rules for gamblification practices. This ambiguity manifests in two aspects: first, some Twitch users assess the legality of gamblification based on their own understanding, reaching

Table 1. Three Forms of Gamblification Practices in Twitch Livestreaming

Form of gamblification	Relationship to livestream content	Main platform affordances	Main roles of streamers and viewers	Core meaning
Peripheral Interaction	Operates alongside the main stream without directly altering the core content	Chatbots, chat commands, Channel Points, Rewards, Twitch Extensions	Streamers configure the mechanism; viewers independently trigger or join it through casual, often spontaneous participation	Turns the margins of the livestream into a space for ongoing engagement, loyalty performance, and casual chance-based interaction
Livestream Augmentation	Becomes embedded in the unfolding stream and can intensify or influence what happens next	Hype Trains, Predictions, Bits, Channel Points, Audience Participation Game Extensions	Streamers set up challenges or participation structures around live events; viewers collectively contribute, wager, vote, and react	Transforms viewers from spectators into co-participants who collectively shape the atmosphere, rhythm, and direction of the stream
Central Performance	Becomes the primary focus or main attraction of the stream itself	Real-time broadcasting, chat coordination, subscriptions, Channel Points, Bits, third-party tools, customized game systems	Streamers design and perform chance-based activities; viewers request games, negotiate rules, participate in or watch outcomes, and interpret results	Turns uncertainty into the central spectacle of the livestream, linking viewer excitement, community participation, and streamer monetization

different interpretations depending on the specific practices. Second, given the legal uncertainty, users perceive ambiguity in the platform's enforcement, which in turn raises concerns about platform governance.

Twitch's governance structure may further contribute to this ambiguity. While Twitch applies a platform-wide Terms of Service (TOS) [154] framework, certain gamblification-related features are implemented differently across jurisdictions [155]. For example, Twitch restricts the Predictions feature in some regions and provides alternative participation modes in others, suggesting that prediction-based engagement is treated inconsistently across regulatory contexts. While regulatory

requirements and enforcement practices vary across jurisdictions, our analysis does not evaluate the legality of specific features. Instead, we focus on how users perceive and make sense of these platform-level governance ambiguities in everyday participation.

Perceived legality of gamblification practices. Twitch users' judgments about the legality of gamblification practices are primarily based on whether these practices are perceived as gambling, which often comes down to whether they involve real money. Based on this criterion, users hold varying legal perspectives on specific gamblification practices. One view is that because a gamblification activity involves money, it should be subject to legal regulation. For example, in a post where a streamer asked whether they could organize a channel point raffle (one form of Reward-driven Fan Lottery identified in Section 4.1.1) during a stream and set subscriptions as the prize, someone replied:

> It's probably against the law, as it would effectively make channel points worth money. There are issues related to the IRS, taxes, gambling, and so on when holding raffles that involve more than just a free giveaway.

In their view, a gamblification activity becomes illegal once it yields something of monetary value. This view not only introduces money into the practice but also assigns value to channel points.

In addition to considering whether the prize involves money, some users assess legality based on whether the stake involves monetary value. For example, in a discussion about why Twitch banned gambling but not gacha games and loot boxes, someone commented:

> Because they are games. Slots and roulettes are not. I can play gacha games like FIFA without spending money. I can't use slots or similar activities without money. They are different.

FIFA here refers to the popular football simulation game whose Ultimate Team mode includes a "player card pack" mechanism widely regarded as a form of loot box. From this user's perspective, the requirement to use real money as wager is an important criterion for determining the legality of gamblification practices and serves as a key distinction between gambling and gaming.

Based on whether money is involved, some users argue that certain gamblification practices are legal. In a discussion about whether channel point predictions are legal, one user argued that considering them illegal "makes no sense" because "channel points are completely free." In another instance, when users were discussing the legality of the reward-based spinning wheel (one form of Streamer–Viewer Co-Performed Gamblified Games identified in Section 4.1.3), one user responded:

> I don't think any legal jurisdiction would pursue a case against you for sending a signed postcard to a top donor or drawing their request for Rouge the Bat, which is worth nothing….

Rouge the Bat is a fictional character from the Sonic the Hedgehog video game series. Here, her appearance can be understood as fans requesting streamers to draw their favorite cartoon characters. From this user's perspective, the key issue is whether the prizes involve money.

In sum, users' judgments about the legality of gamblification practices hinge on whether real money is involved—either as a stake or as the value of the prize. Legally, definitions of gambling vary across jurisdictions[18]: most require both a monetary stake and prize, whereas some, such as Belgium [8], classify an activity as gambling based solely on the monetary stake, subjecting gambling-like practices to stricter regulation [134]. This lack of uniformity in legislation leaves certain gambling-like practices without a clear classification, placing them in a legal grey area [72, 122] complicating assessments of their legality on Twitch.

Perceived platform enforcement of gamblification. Here, the platform enforcement specifically refers to how the platform enforces relevant regulations on gamblification practices. Owing to the legal uncertainty surrounding gamblification practices, users have observed that there is also ambiguity in platform enforcement, specifically manifested in two issues: double standards and misalignment. First, some users observed that Twitch applies double standards in its enforcement of rules on gambling and gamblification practices:

> It appears to be a double standard that Twitch bans gambling on the platform while actively promoting gacha and loot box games through Prime Gaming. This suggests the platform is complicit in fostering gambling addictions among children.

This user, with a critical stance, pointed out that as a form of gamblification, incorporating gambling-like games into livestream content (one form of Streamer–Viewer Co-Performed Gamblified Games identified in Section 4.1.3) is not prohibited by the Twitch platform. This led the user to perceive a double standard in Twitch's enforcement of gambling-related rules—prohibiting traditional gambling while allowing gambling-like content that poses similar gambling-related risks.

Users also perceived a gap between formal policies and actual enforcement. For example:

> Interesting, because the streamers I watch regularly engage in chance-based activities. Maybe it's tolerated under the law and Twitch's term of service—it's not officially allowed, but there doesn't seem to be any enforcement or punishment either.

In this instance, the user uses the term "tolerate" to characterize Twitch's attitude toward gamblification practices—implying that although such activities are not officially permitted, they are not subject to enforcement or punishment either. One user even expressed a complete lack of hope in Twitch's actions, believing that even if they reported such behavior, Twitch would not respond at all:

> It's not allowed—you can report it, but Twitch won't do anything because they don't seem to care. The same goes for lotteries and sub-only raffles. You could sue the streamer.

These comments suggest that some users view Twitch as tolerating gambling-like practices despite existing restrictions and doubt the effectiveness of platform reporting mechanisms. Several users further attributed this perceived inaction to Twitch's commercial interests. As one user stated:

> If Twitch truly cared about the well-being of its users, it would ban all forms of gambling, including gacha mechanics and loot boxes. But of course, that will never happen—because Twitch profits from them.

The users' posts reveal a deeply pessimistic view of Twitch's governance of gamblification. They believe the platform often turns a blind eye to rule-violating gamblification practices and may even ignore user reports when these practices serve its own interests. This reflects a perceived conflict of interest between the platform and its users in the context of gamblification.

4.2.2 Perceived Impact of Gamblification on User Engagement. Here, user engagement refers to the degree of viewers' participation and interaction during live streams, particularly in response to gamblification practices introduced by streamers. Our analysis of users' posts indicates that gamblification is often employed by streamers as a means to enhance user engagement. However, in practice, it evokes a wide range of emotional responses from viewers, resulting in both positive and negative impacts on engagement.

As a strategy to enhance user engagement. User posts described gamblification as a strategy used by streamers to enrich interaction and enhance user engagement during livestreams. For example, one streamer posted:

> I've been working on improving my stream and thought about integrating some interactive "games" that the chat can play. I've seen a few on other streams—like gambling-style games—and I'm wondering if there are other fun options out there. If so, I'd really appreciate any recommendations!

Through observing other streamers' practices, they noticed that many employed gamblified interaction games to enhance viewer engagement, which led them to seek similar methods to boost interaction in their own streams. In another streamer's post, they described the Hype Train (one of Collaborative Level-up Challenges identified in Section 4.1.2) as a tool provided by Twitch to help streamers grow their communities:

> Twitch isn't just a platform for playing and watching games, it also serves as a workplace for many. The Hype Train feature supports community growth without requiring Twitch to spend directly. We're all trying to earn a living and enjoy ourselves in the process ... I can't deny that they've significantly increased viewer interaction ... I'm still not big enough for the Hype Train to activate under the default settings, but I'm eager to see how my community responds once it does.

From the perspective of a streamer, gamblification features such as the Hype Train are not merely interactive elements but are strategically instrumentalized as tools to boost user engagement and foster community growth. Rather than viewing these features as passive platform offerings, the streamer actively considers how to incorporate them to cultivate participation, and plans to experiment with the Hype Train once eligible.

Generate varied emotional reactions. Streamers may use gamblification as a tool to support the growth of their communities. However, in our observations, user reactions to gamblification practices were varied. Some users experienced positive emotions toward these practices. For example:

> I was in a stream earlier for a relatively small streamer who averages around 100 viewers. They triggered a Hype Train and really leaned into it—playing music and even pulling out train whistles. It was actually a lot of fun.

This viewer felt that the Hype Train created a positive atmosphere and enhanced their enjoyment of the stream. However, other users reported negative reactions. One common concern was that gamblification features disrupted the viewing experience. For example, in a discussion of Hype Train, one user commented:

> For me, it's slightly annoying to see... The root problem, in my opinion, is that it looks messy... I don't think it would be that bad if it appeared as a separate block at the top of the chat window...

In this user's personal viewing experience, the addition of the Hype Train made the stream feel cluttered. Another user focused on its visual intrusiveness:

> In my opinion, it's not about needing to see the entire chat, but rather about the bright, moving banner that draws my attention away from what I'd prefer to focus on—either the stream or the chat itself.

These comments suggest that gamblification features can negatively affect viewing experiences by introducing visual clutter and distraction.

Payment requirements also generated negative emotions. One user noted that gamblification activities "make me feel bad sometimes because I can't afford it." Another described feeling excluded when participation required spending money:

> I'd feel alienated from the streamer if I couldn't participate simply because I didn't pay to watch. Others might feel differently, though.

These posts suggest that gamblification may create feelings of unfairness or exclusion among users who are unwilling or unable to spend money. As shown in Findings 1, many gamblification practices—including Hype Train, Predictions, and *Marbles*—are structured around collective participation. The comments above further illustrate how community dynamics and the actions of other viewers shape individual experiences of gamblification.

4.2.3 Users' Perceptions of Gamblification-Related Risks. Gamblification on Twitch has sparked concerns among users about its potential risks. This section explores how these risks are perceived within the community.

Triggering Impulsive Spending. Impulsive spending here refers to irrational spending behaviors driven by users' psychology, which are exploited by gamblification practices. These practices often leverage psychological triggers such as time-limited decisions, natural rush, and peer pressure to encourage viewers to spend impulsively. For example, in one user's post, they pointed out that the time-limited nature of the Hype Train is a way of exploiting user psychology:

> Because the Hype Train system clearly incorporates psychological mechanisms designed to exploit a vulnerable audience—including children aged 13 to 17—by prompting impulse purchases through time-limited decisions that combine elements of gamification and gambling, offering users the chance to receive emotes in return for their contributions.

Another user emphasized the emotional and physiological appeal of Hype Train:

> I just wish people were more aware of what the "hype" in Hype Train really represents... much like gambling, it sells a fleeting emotional high—"fuzzy feelings"—that ultimately lack real substance.

This comment suggests that participation may be driven less by careful consideration than by a desire to be part of the moment and share in collective excitement.

Peer pressure was also frequently mentioned. As one user explained:

> I understand the appeal of the Trains, but they come across as a form of peer pressure... They encourage impulsive or community-driven individuals to spend money they probably shouldn't... Donations to a stream ... should be made with a clear mind and an awareness of one's financial situation.

Taken together, these comments suggest that users perceive gamblification features such as Hype Train as encouraging impulsive spending by combining time pressure, emotional stimulation, and social influence.

Exposing Vulnerable Groups to Risks. The vulnerable groups discussed here primarily include two types of users. The first group is teenagers. Beyond concerns about impulsive spending, users frequently argued that gamblification may expose young people to gambling and contribute to its normalization. One user posted:

> What I'm wondering is whether this new prediction feature might encourage younger people ... to engage in gambling by introducing it in a seemingly harmless—yet still potentially addictive—way. ... Could this also be priming them for future gambling addiction? And what about those who are recovering from gambling addiction?

This user worried that Predictions—one form of Collective Wagering Interaction (one form of the Collective Wagering Interactions identified in Section 4.1.2) —may normalize gambling-like behaviors despite using Channel Points rather than money, potentially increasing young people's susceptibility to future gambling.

The second group consists of individuals who already have gambling problems, for whom gamblification mechanisms may be particularly persuasive and harmful. A user responded to the discussion about whether Twitch's gambling-like features are harmful by stating:

> Placing limits doesn't stop children from experiencing the dopamine rush of winning, which can contribute to poor, uninformed gambling decisions later in life.

Another user, discussing restrictions on Predictions, noted:

> ...You can quickly gain more channel points by spending money on Bits, subs, and higher-tier subs. That's why this is restricted. Gambling addiction is a strange thing, man. I've had two family members fall into this trap—they would try anything for a chance to get ahead at something, without realizing how much they were actually putting in to get there.

Together, these comments suggest that users perceive gamblification as posing particular risks to teenagers and individuals with gambling vulnerabilities, especially through the normalization of gambling-like behavior and the pursuit of uncertain rewards.

5 Discussion

5.1 Understanding Gamblification Practices on Twitch

Our findings suggest that gamblification on Twitch is not a singular activity but a diverse set of practices embedded in livestream participation. The three forms identified in Study 1 occupy different positions within the livestream experience. Peripheral gamblification operates alongside the stream as an auxiliary interaction layer, livestream augmentation shapes stream dynamics through activities such as wagering and voting, and gamblification as the central performance turns uncertainty itself into the primary spectacle. These forms differ not only in how viewers participate, but also in how gambling-like mechanism is connected to visibility, monetization, social coordination, and audience engagement, illustrating multiple ways uncertainty is embedded within livestreaming.

From this perspective, gamblification practices can be understood as uncertainty-driven interaction mechanisms shaped through the intersecting forces of the platform, streamers, and viewers. Unlike conventional livestream interactions such as chat or emote reactions [24, 51], gamblification fundamentally relies on chance to structure how viewers engage, creating a distinct form of excitement, anticipation, and value exchange. Importantly, the emergence and evolution of gamblification practices on Twitch is not incidental; rather, it is shaped by the intersecting forces of the platform, streamers, and viewers.

Twitch not only provides the foundational infrastructure that enables gamblification practices, but these practices also exhibit clear characteristics of platformization. Platformization refers to the process through which platforms absorb social and cultural activities into their own ecosystems by supplying the infrastructure, rules, interfaces, and economic models that shape participation [103]. Consistent with scholarship on the platformization of gambling-related practices [33, 100, 107], our findings show how gambling-like engagement on Twitch is embedded within everyday livestream participation rather than confined to dedicated gambling spaces. Twitch supports gamblification through both built-in features (e.g., Predictions and Hype Train) and technical affordances that allow third-party developers to create extensions, chatbots, and other interaction mechanisms. Together, these tools facilitate the emergence and diversification of gamblification practices across the platform. Interestingly, Study 2 suggests that platform-supported features were more likely to become focal points of user discussion and concern. Features such as Predictions and Hype Train were more readily recognized as gambling-like interactions, likely because they are highly visible, directly implemented by Twitch, and tightly integrated into collective participation.

This finding highlights how platform infrastructures shape not only participation but also users' attention and sensemaking, making certain forms of gamblification more recognizable than others. Finally, Twitch's integrated microtransaction systems keep most gamblification activities within the platform ecosystem. By relying on Channel Points, subscriptions, and Bits rather than external payment systems, these practices streamline value exchange while allowing Twitch to standardize and profit from the economic activities generated through gamblification.

As creative laborers operating under algorithmic and economic pressures, streamers become the primary architects of gamblification practices on Twitch. The platform is not merely a site of entertainment, but also a workplace that demands continuous creative production, ongoing performance management, and sustained visibility [9, 54, 104, 128]. Our observations show that streamers frequently move beyond Twitch's built-in features to create customized gambling-like interactions, repurposing tools such as Channel Points, third-party bots, and reward systems to sustain viewer participation. Given that algorithmic visibility is closely tied to engagement metrics such as chat activity, viewer retention, and paid interactions [17, 29], gamblification becomes a strategic toolkit for attracting attention and maintaining audience involvement. These practices are motivated not only by a desire to enhance user experience but also by economic and visibility concerns. In some cases, they exhibit characteristics associated with dark patterns [47, 91]. For example, Twitch's Prediction feature foregrounds potential gains while making losses less salient, and streamers may use intermediate currencies such as Channel Points to obscure the value implications of participation. Participation can also become socially reinforced when activities depend on collective contribution goals. By embedding risk, spending, and contribution within routine community interactions, such mechanisms may normalize gambling-like engagement and make it appear as an ordinary part of livestream participation. Importantly, these dynamics are not produced by interface design alone but emerge through the interaction of platform features, streamer practices, and audience participation. Our findings therefore extend existing discussions of dark patterns by showing how persuasive and potentially manipulative dynamics can be co-produced within livestreaming environments, where engagement, monetization, and social interaction are tightly intertwined.

Finally, viewers are not merely passive participants in gamblified interactions. Instead, they exercise substantial agency, and their perspectives and attitudes can significantly shape how these activities unfold. First, Twitch's game-focused content ecology and participatory community culture make viewers particularly receptive to gamblified participation [64]. We observed viewers expressing anticipation for upcoming activities, offering strategic suggestions, and engaging collectively in gamblified interactions. These observations resonate with Binde's model of gambling motivations [11], which emphasizes the role of social rewards, intellectual challenge, and emotional experiences such as anticipation and excitement. However, unlike conventional gambling, these motivations on Twitch were often directed toward community participation and entertainment rather than financial gain, illustrating how gambling-like motivations can be reconfigured within livestream environments. Viewers also influence one another, making social influence a key force in gamblified participation. For example, we frequently observed bandwagon effects [101], where one viewer's use of a chatbot command prompted others to follow. However, such influence could also have negative consequences. Some users reported feeling pressured to contribute during Hype Train events, while others felt excluded when paid participation created visible social hierarchies. Consistent with research on the crowding-out effect [137], these dynamics suggest that visible spending and participation by others can shape viewers' decisions and alter their motivations for engagement.

5.2 The Legal Ambiguity and Ethical Murkiness of Gamblification

While gamblification shares similarities with gambling, it often lacks defining elements such as monetary stakes or direct financial rewards, placing it in a legal gray area [72, 122]. Nevertheless, research has linked gamblification to risks including addictive tendencies [28, 99], the normalization of gambling behaviors [36, 44] and increased vulnerability to future gambling-related harms [16, 61, 115]. As a result, some countries have begun regulating certain forms of gamblification under gambling law [134]. However, the boundaries between gambling and gamblification remain contested. This ambiguity was also evident in Study 2, where users differed in how they assessed the legality of gamblification practices. Some focused on whether participation involved monetary stakes, while others emphasized whether rewards could be converted into money.

More importantly, this ambiguity creates governance challenges for livestreaming platforms. As shown in Study 1, gamblification on Twitch takes multiple forms, ranging from peripheral interactions to platform-supported features and central-performance activities. Because these practices vary in their relationship to money, chance, rewards, and participation, determining which activities should be regulated, restricted, or permitted becomes difficult. Study 2 further suggests that this uncertainty extends to users' own sensemaking, with participants often expressing confusion about where the boundary between entertainment, gamblification, and gambling should be drawn. As a result, legal ambiguity does not merely complicate regulation; it also shapes how gamblification is recognized, governed, and navigated within livestreaming environments.

In the absence of clear legal or regulatory guidance, ethical considerations often function as informal norms that shape public expectations, platform governance, and, at times, future legislation [42, 89]. As a result, even when gamblification operates within a legal gray area, questions of ethical legitimacy remain important for Twitch. Moreover, these ethical tensions extend beyond the platform itself. The three key stakeholder groups identified in our study must all navigate the benefits and harms of gamblification, yet their interests and perceptions of what constitutes acceptable practice do not always align.

First, gamblification creates a tension between viewer autonomy and potential harm by reframing risk as a form of play and participation. Although participation remains formally voluntary, the design of gamblified interactions may shape how viewers perceive and evaluate risk. The excitement, anticipation, and reward-focused presentation of these activities can draw attention away from their potential harms. For example, Twitch's Prediction interface foregrounds potential gains while providing comparatively little emphasis on potential losses, reflecting characteristics of deceptive design [141]. Such designs may normalize high-risk participation while limiting users' awareness of associated risks, particularly among vulnerable groups such as individuals with gambling predispositions. Beyond interface design, harm may also emerge through the mobilization of parasocial relationships Our findings show that streamers do not merely host gamblified activities; they actively mobilize feelings of intimacy and community to encourage participation. While these dynamics can strengthen engagement, they may also create social and emotional pressure. As reflected in Study 2, some users viewed such practices as encouraging impulsive spending or exploiting younger viewers. In this way, the social bonds that characterize livestreaming communities can become mechanisms through which participation and risk are both experienced and negotiated.

Second, Twitch exhibits significant ethical ambivalence as it plays the dual role of beneficiary and regulator of gamblification. On the one hand, Twitch platform is deeply entangled with the profit motives and commercial interests, with many gamblification practices built upon the platform's microtransaction systems, such as Bits, subscriptions, and even Channel Points, which constitute major sources of revenue for Twitch [156], On the other hand, Twitch simultaneously acts as the

platform governor responsible for setting rules, moderating participation, and enforcing platform policies. Given this dual role, the platform's position becomes inherently blurred, giving rise to tensions and challenges in its governance approach. We found that the platform appeared to turn a blind eye to gamblification practices that violated its own policies. From a user perspective, this selective enforcement reveals a prioritization of profit over viewer well-being, transforming self-regulation into a strategic tool for oversight evasion.

Third, streamers navigate a complex ethical landscape where gamblification is framed as a necessity for creative labor. As Twitch functions as a workplace, streaming constitutes a form of affective and performative labor [54, 128], where eliciting viewer emotions and sustaining engagement are central to a voluntary value exchange. From this perspective, the use of gamblification can appear both reasonable and necessary for sustaining their creative labor. As one streamer in Study 2 noted, tools such as Hype Train help them "earn a living" while also entertaining viewers. However, these practices also raise ethical concerns. Similar tensions have been identified in research on dark patterns and livestream commerce, where platform features, social influence, and affective relationships can be leveraged to encourage engagement and spending [47, 90, 91]. In the context of Twitch, gamblification may serve both entertainment and commercial goals, blurring the boundary between participation and persuasion. These dynamics closely resemble concerns identified in livestream commerce, where platform affordances, social influence, and affective relationships can be leveraged to stimulate user spending [130]. Responsibility for such practices is also difficult to locate. Beyond Twitch's built-in features, streamers frequently rely on third-party or self-developed tools that extend platform affordances. As in influencer marketing ecosystems [92], accountability becomes distributed across platforms, streamers, and developers, creating governance challenges and regulatory gray areas.

5.3 Toward Responsible Gamblification Practices

We found that existing gamblification practices present issues and potential risks in terms of platform governance, design and user experience. Therefore, we offer implications for building more responsible forms of gamblification practices.

Implications for Livestreaming and Creator Platforms:

Although this study focuses on Twitch, our findings have implications beyond this specific platform. Twitch is one instance of a broader ecosystem of content-creation livestreaming platforms that facilitate sustained interactions between creators and audiences through platform-mediated engagement and monetization features. While platforms vary in their technical affordances and community cultures, the gamblification practices examined in this work reflect broader design patterns that can emerge across similar platforms. As such, our recommendations may also inform the design and governance of other livestreaming and creator-centered platforms where comparable interaction and engagement mechanisms exist.

On Twitch, Community Guidelines emphasize user safety [145] , yet our findings suggest that existing protections remain insufficient for addressing gamblification practices. Although Twitch restricts content that legally qualifies as gambling, many gambling-like interactions identified in our study fall outside these definitions and therefore occupy a governance gray area. Rather than treating all gamblification as gambling, platforms should develop clearer policies and governance frameworks for gambling-like participation mechanisms, such as spinning-wheel games and prediction-based interactions.

Because many gamblification practices involve value exchange, they may also raise concerns related to consumer protection. The uncertainty embedded in these interactions, combined with limited transparency regarding rules and outcomes, can expose users to potentially deceptive practices. We therefore recommend greater transparency around participation rules, along with

mechanisms for appeals and dispute resolution. Additional safeguards are particularly important for younger users, given evidence that gambling-related content may increase youth exposure to gambling-like behaviors [48, 60, 131]. Platforms should consider age restrictions, content warnings, and other measures that help users recognize potential risks.

Our findings further highlight the importance of governance transparency across creator platforms. Participants frequently questioned how gambling-like practices were interpreted and enforced, suggesting that inconsistencies between platform policies and moderation decisions may undermine user trust. Clearer communication regarding how gambling-like participation mechanisms are assessed, moderated, and appealed would therefore strengthen transparency and accountability.

Implications for Streamers:

In our research, we observed that streamers employ a variety of tools to implement different gamblification practices both within and beyond the livestream. We caution streamers that while gamblification can be a strategy for enhancing user engagement, it can also function as a double-edged sword for user experience. For instance, our findings show that some viewers felt alienated by certain gamblified activities. This is especially important given the strong community culture on Twitch, where viewers' participation and interaction are built on bonds of trust and affection toward streamers [51, 144]. When these emotional connections are undermined—such as through manipulative practices or the overuse of gamblification—the user experience can suffer, leading to feelings of alienation or negative emotions among certain viewers. Responsible practice therefore entails avoiding strategies that trigger impulsive spending and ensuring that any gamblification mechanisms remain within legal and regulatory boundaries. By adopting gamblification in ways that foster interaction without compromising user well-being, streamers can better support the enduring development and health of their communities.

6 Limitation

This study has several limitations to consider when interpreting the findings. First, Study 2 relies on publicly available Reddit data, which introduces sampling biases common to social media research. Reddit posters often exhibit stronger community engagement than passive users [70, 124]. In addition, our keyword-based retrieval strategy may have favored users who discussed Twitch through a gambling-related lens. Consequently, our findings reflect one subset of user perspectives rather than the broader Twitch community. Second, we were unable to reliably identify users' platform roles (e.g., streamer, viewer, moderator) unless explicitly self-disclosed, limiting systematic comparison across stakeholder groups. Future work could address this through targeted recruitment or mixed-method approaches that enable clearer role differentiation. Third, although the two studies provide complementary perspectives on gamblification, they draw on different data sources and research contexts and should not be interpreted as directly comparable or mutually validating. Both studies are interpretive in nature, and our findings should therefore be understood as a situated qualitative account rather than a comprehensive representation of all Twitch users' experiences. Fourth, our study is limited to English-language Twitch streams and Reddit discussions, ensuring analytical consistency but excluding potential cultural variation in how gamblification is understood across regions.

7 Conclusion

In this paper, we conducted a comprehensive analysis of gamblification practices within the Twitch ecosystem. Through ten months of ethnographic observation, we identified three primary forms in which streamers implement gamblification in their live streams. By examining user perspectives, we captured the nuanced ways in which viewers experience and interpret these playful yet risky

interactions. Together, these findings provide a holistic account of how gamblification is co-constructed by streamers' implementational strategies and viewers' participatory engagement.

Our study provides a comprehensive analysis of how gamblification practices emerge and evolve on Twitch, highlighting their legal ambiguity and revealing their ethical murkiness through the lens of the platform's complex multistakeholder ecosystem. Building on these insights, we offer implications for platform governance and streamer conduct to support more responsible forms of gamblification.

References

[1] Brett Abarbanel. 2018. Gambling vs. gaming: A commentary on the role of regulatory, industry, and community stakeholders in the loot box debate. *Gaming Law Review* 22, 4 (May 2018), 231–234. https://doi.org/10.1089/glr2.2018.2243

[2] Brett Abarbanel and Mark R. Johnson. 2020. Gambling engagement mechanisms in Twitch live streaming. *International Gambling Studies* 20, 3 (September 2020), 393–413. https://doi.org/10.1080/14459795.2020.1766097

[3] Martin Adam, Konstantin Roethke, and Alexander Benlian. 2022. Gamblified digital product offerings: an experimental study of loot box menu designs. *Electron Markets* 32, 2 (June 2022), 971–986. https://doi.org/10.1007/s12525-021-00477-0

[4] César Albarrán-Torres. 2018. *Digital gambling: Theorizing gamble-play media*. Routledge.

[5] César Alberto Albarrán-Torres. 2014. Encoding chance: a technocultural analysis of digital gambling. (2014).

[6] American Psychiatric Association. 2013. *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Association, Washington, DC.

[7] Nazanin Andalibi, Oliver L. Haimson, Munmun De Choudhury, and Andrea Forte. 2016. Understanding Social Media Disclosures of Sexual Abuse Through the Lenses of Support Seeking and Anonymity. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, May 07, 2016. ACM, San Jose California USA, 3906–3918. https://doi.org/10.1145/2858036.2858096

[8] Belgian Gaming Commission. 2018. *Onderzoeksrapport loot boxen [Research Report on Loot Boxes]*. Belgische Kansspelcommissie, Brussels, Belgium. Retrieved August 10, 2025 from https://web.archive.org/web/20200414184710/https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoeksrapport-loot-boxen-final-publicatie.pdf

[9] Hemant K. Bhargava. 2022. The Creator Economy: Managing Ecosystem Supply, Revenue Sharing, and Platform Design. *Management Science* 68, 7 (July 2022), 5233–5251. https://doi.org/10.1287/mnsc.2021.4126

[10] Richik "anarkiddie" Bhattacharya. 2023. Twitch's new update to community guidelines bans sponsorships for Counter-Strike: Global Offensive skins gambling. Retrieved August 23, 2025 from https://www.sportskeeda.com/esports/news-twitch-s-new-update-community-guidelines-bans-sponsorships-counter-strike-global-offensive-skins-gambling

[11] Per Binde. 2013. Why people gamble: a model with five motivational dimensions. *International Gambling Studies* 13, 1 (April 2013), 81–97. https://doi.org/10.1080/14459795.2012.712150

[12] Tom Boellstorff, Bonnie A Nardi, Celia Pearce, and T L Taylor. 2013. Ethnography and Virtual Worlds: A Handbook of Method. *Princeton University Press* (2013).

[13] Darrell W. Bolen. 1968. Gambling and the Gambler: A Review and Preliminary Findings. *Arch Gen Psychiatry* 18, 5 (May 1968), 617–630. https://doi.org/10.1001/archpsyc.1968.01740050105018

[14] Virginia Braun and Victoria Clarke. 2021. *Thematic Analysis: A Practical Guide*. SAGE Publications Ltd., London, UK.

[15] Virginia Braun and Victoria Clarke. 2021. To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health* 13, 2 (March 2021), 201–216. https://doi.org/10.1080/2159676X.2019.1704846

[16] Gabriel A. Brooks and Luke Clark. 2023. The gamblers of the future? Migration from loot boxes to gambling in a longitudinal study of young adults. *Computers in Human Behavior* 141, (2023), 107605. https://doi.org/10.1016/j.chb.2022.107605

[17] Taina Bucher. 2012. Want to be on the top? Algorithmic power and the threat of invisibility on Facebook. *New Media & Society* 14, 7 (November 2012), 1164–1180. https://doi.org/10.1177/1461444812440159

[18] William Bunting. 2022. A Better Legal Definition of Gambling: With Applications to Synthetic Financial Instruments and Cryptocurrency. *SSRN Journal* (2022). https://doi.org/10.2139/ssrn.4137847

[19] Anthony N Cabot, Glenn J Light, and Karl F Rutledge. 2010. Economic Value, Equal Dignity and the Future of Sweepstakes. *UNLV Gaming Law Journal* 1, (2010), 1–21.

[20] Jie Cai, Ya-Fang Lin, He Zhang, and John M. Carroll. 2024. Third-Party Developers and Tool Development For Community Management on Live Streaming Platform Twitch. In *Proceedings of the CHI Conference on Human Factors in Computing Systems*, May 11, 2024. ACM, Honolulu HI USA, 1–18. https://doi.org/10.1145/3613904.3642787

[21] Jie Cai and Donghee Yvette Wohn. 2022. Coordination and Collaboration: How do Volunteer Moderators Work as a Team in Live Streaming Communities? In *CHI Conference on Human Factors in Computing Systems*, April 29, 2022. ACM, New Orleans LA USA, 1–14. https://doi.org/10.1145/3491102.3517628

[22] Jie Cai and Donghee Yvette Wohn. 2023. Understanding Moderators' Conflict and Conflict Management Strategies with Streamers in Live Streaming Communities. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, April 19, 2023. ACM, Hamburg Germany, 1–12. https://doi.org/10.1145/3544548.3580982

[23] Beiyan Cao, Changyang He, Muzhi Zhou, and Mingming Fan. 2023. Sparkling Silence: Practices and Challenges of Livestreaming Among Deaf or Hard of Hearing Streamers. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, April 19, 2023. ACM, Hamburg Germany, 1–15. https://doi.org/10.1145/3544548.3581053

[24] Di (Laura) Chen, Dustin Freeman, and Ravin Balakrishnan. 2019. Integrating Multimedia Tools to Enrich Interactions in Live Streaming for Language Learning. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, May 02, 2019. ACM, Glasgow Scotland UK, 1–14. https://doi.org/10.1145/3290605.3300668

[25] Christine Hine. 2008. Virtual ethnography: Modes, varieties, affordances. In *The SAGE Handbook of Online Research Methods*. SAGE, London, 257–270.

[26] John Joon Young Chung, Hijung Valentina Shin, Haijun Xia, Li-yi Wei, and Rubaiat Habib Kazi. 2021. Beyond Show of Hands: Engaging Viewers via Expressive and Scalable Visual Communication in Live Streaming. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 06, 2021. ACM, Yokohama Japan, 1–14. https://doi.org/10.1145/3411764.3445419

[27] E. Mitchell Church and Ravi Thambusamy. 2022. Game-swinging on Twitch: an affordances perspective. *Electron Markets* 32, 3 (September 2022), 1677–1689. https://doi.org/10.1007/s12525-022-00574-8

[28] Luke Clark, Isabelle Boileau, and Martin Zack. 2019. Neuroimaging of reward mechanisms in Gambling disorder: an integrative review. *Mol Psychiatry* 24, 5 (May 2019), 674–693. https://doi.org/10.1038/s41380-018-0230-2

[29] Kelley Cotter. 2019. Playing the visibility game: How digital influencers and algorithms negotiate influence on Instagram. *New Media & Society* 21, 4 (April 2019), 895–913. https://doi.org/10.1177/1461444818815684

[30] Dipto Das, Carsten Østerlund, and Bryan Semaan. 2021. "Jol" or "Pani"?: How Does Governance Shape a Platform's Identity? *Proc. ACM Hum.-Comput. Interact.* 5, CSCW2 (October 2021), 1–25. https://doi.org/10.1145/3479860

[31] Charlotte Aull Davies. 2008. *Reflexive ethnography: a guide to researching selves and others* (Second edition ed.). Routledge, London.

[32] Munmun De Choudhury and Sushovan De. 2014. Mental Health Discourse on reddit: Self-Disclosure, Social Support, and Anonymity. *ICWSM* 8, 1 (May 2014), 71–80. https://doi.org/10.1609/icwsm.v8i1.14526

[33] Emily G. Deans, Samantha L. Thomas, Mike Daube, and Jeffrey Derevensky. 2016. "I can sit on the beach and punt through my mobile phone": The influence of physical and online environments on the gambling risk behaviours of young men. *Social Science & Medicine* 166, (October 2016), 110–119. https://doi.org/10.1016/j.socscimed.2016.08.017

[34] Emily G. Deans, Samantha L. Thomas, Jeffrey Derevensky, and Mike Daube. 2017. The influence of marketing on the sports betting attitudes and consumption behaviours of young men: implications for harm reduction and prevention strategies. *Harm Reduct J* 14, 1 (December 2017), 5. https://doi.org/10.1186/s12954-017-0131-8

[35] Derek Strickland. 2020. GTA V made half a billion dollars in 2019, was #3 best-earning game. *TweakTown*. Retrieved August 16, 2025 from https://www.tweaktown.com/news/69666/gta-made-half-billion-dollars-2019-3-best-earning-game/index.html

[36] Jeffrey Derevensky, Alissa Sklar, Rina Gupta, and Carmen Messerlian. 2010. An Empirical Study Examining the Impact of Gambling Advertisements on Adolescent Gambling Attitudes and Behaviors. *Int J Ment Health Addiction* 8, 1 (January 2010), 21–34. https://doi.org/10.1007/s11469-009-9211-7

[37] Sebastian Deterding, Dan Dixon, Rilla Khaled, and Lennart Nacke. 2011. From game design elements to gamefulness: defining "gamification." 2011. ACM, 9–15. https://doi.org/10.1145/2181037.2181040

[38] Eva Grosemans, Robin Bosmans, Rozane De Cock, Maarten Denoo, and Bieke Zaman. 2025. "GOLD GOLD GOLD": Gambling-like elements on Twitch and Kick. 2025. . https://doi.org/https://doi.org/10.26503/dl.v2025i3.2669

[39] Jessica L. Feuston and Anne Marie Piper. 2019. Everyday Experiences: Small Stories and Mental Illness on Instagram. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, May 02, 2019. ACM, Glasgow Scotland Uk, 1–14. https://doi.org/10.1145/3290605.3300495

[40] FintecHarbor Consulting Ltd. Loot Box Consulting. Retrieved August 16, 2025 from https://www.fintecharbor.com/loot-box-consulting/

[41] Claudia Flores-Saviaga, Jessica Hammer, Juan Pablo Flores, Joseph Seering, Stuart Reeves, and Saiph Savage. 2019. Audience and Streamer Participation at Scale on Twitch. In *Proceedings of the 30th ACM Conference on Hypertext and Social Media*, September 12, 2019. ACM, Hof Germany, 277–278. https://doi.org/10.1145/3342220.3344926

[42] Luciano Floridi. 2018. Soft ethics, the governance of the digital and the General Data Protection Regulation. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 376, 2133 (October 2018), 20180081. https://doi.org/10.1098/rsta.2018.0081

[43] C. Ailie Fraser, Joy O. Kim, Hijung Valentina Shin, Joel Brandt, and Mira Dontcheva. 2020. Temporal Segmentation of Creative Live Streams. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, April 21, 2020. ACM, Honolulu HI USA, 1–12. https://doi.org/10.1145/3313831.3376437

[44] Gerda Reith. 2018. *Addictive Consumption: Capitalism, Modernity and Excess*. Routledge, London.

[45] Seth Glickman, Nathan McKenzie, Joseph Seering, Rachel Moeller, and Jessica Hammer. 2018. Design Challenges for Livestreamed Audience Participation Games. In *Proceedings of the 2018 Annual Symposium on Computer-Human Interaction in Play*, October 23, 2018. ACM, Melbourne VIC Australia, 187–199. https://doi.org/10.1145/3242671.3242708

[46] Robert Gorwa. 2019. What is platform governance? *Information, Communication & Society* 22, 6 (May 2019), 854–871. https://doi.org/10.1080/1369118X.2019.1573914

[47] Colin M. Gray, Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs. 2018. The Dark (Patterns) Side of UX Design. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, April 21, 2018. ACM, Montreal QC Canada, 1–14. https://doi.org/10.1145/3173574.3174108

[48] Eva Grosemans, Rozane De Cock, Lowie Bradt, and Bieke Zaman. 2024. More than loot boxes: the role of video game streams and gambling-like elements in the gaming-gambling connection among adolescents. *Journal of Gambling Issues* (2024). https://doi.org/10.4309/GBVY4097

[49] Eva Grosemans, Tim Smits, Bieke Zaman, and Rozane De Cock. 2023. "Let's unbox!". Gambling-like elements on Twitch and simulated gambling among Flemish teenagers. In *Abstract Proceedings of DiGRA 2023 Conference: Limits and Margins of Games*, 2023. Digital Games Research Association (DiGRA), Seville, Spain.

[50] Haleluya Hadero. 2023. Twitch expands its ban on gambling livestreams. It also says viewership of the content is down 75%. *AP News*. Retrieved August 14, 2025 from https://apnews.com/article/twitch-gambling-policy-ban-4db4f6a03fdc725f75133f0d920d1f9e

[51] William A. Hamilton, Oliver Garretson, and Andruid Kerne. 2014. Streaming on Twitch: Fostering Participatory Communities of Play within Live Mixed Media. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, April 26, 2014. ACM, Toronto Ontario Canada, 1315–1324. https://doi.org/10.1145/2556288.2557048

[52] Noor Hammad, Erik Harpstead, and Jessica Hammer. 2024. Towards a Design Framework for Data-Driven Game Streaming: A Multi-Stakeholder Approach. *Proceedings of the ACM on Human-Computer Interaction* 8, CHI PLAY (October 2024), 1–28. https://doi.org/10.1145/3677107

[53] Erik Harpstead, Juan Sebastian Rios, Joseph Seering, and Jessica Hammer. 2019. Toward a Twitch Research Toolkit: A Systematic Review of Approaches to Research on Game Streaming. In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, October 17, 2019. ACM, Barcelona Spain, 111–119. https://doi.org/10.1145/3311350.3347149

[54] Brandon C Harris. 2022. Twitch Streamers and the Platformization of Cultural Production: Understanding Complementary Labor in the Creative Economy. University of Oregon.

[55] Changyang He, Lu He, Zhicong Lu, and Bo Li. 2023. Seeking Love and Companionship through Streaming: Unpacking Livestreamer-moderated Senior Matchmaking in China. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, April 19, 2023. ACM, Hamburg Germany, 1–18. https://doi.org/10.1145/3544548.3581195

[56] Laura Herrewijn and Sven Charleer. 2023. Spectator LF Streamer: Facilitating Better Stream Discovery through Spectator Motivations and Stream Affordances. In *Companion Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, October 06, 2023. ACM, Stratford ON Canada, 135–142. https://doi.org/10.1145/3573382.3616089

[57] A. Houssard, F. Pilati, M. Tartari, P. L. Sacco, and R. Gallotti. 2023. Monetization in online streaming platforms: an exploration of inequalities in Twitch.tv. *Sci Rep* 13, 1 (January 2023). https://doi.org/10.1038/s41598-022-26727-5

[58] Yang Hu, Guo Freeman, and Ruchi Panchanadikar. 2025. "Grab the Chat and Stick It to My Wall": Understanding How Social VR Streamers Bridge Immersive VR Experiences with Streaming Audiences Outside VR. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*, April 26, 2025. ACM, Yokohama Japan, 1–19. https://doi.org/10.1145/3706598.3713561

[59] Yang Hu, Ruchi Panchanadikar, and Guo Freeman. 2025. Beyond Traditional Gaming: Understanding How Social VR Streaming Creates New Forms of Play. In *Companion Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, October 13, 2025. ACM, Pittsburgh USA, 15–22. https://doi.org/10.1145/3744736.3749361

[60] Chelsea Hughes, Jamie Torrance, Simon Dymond, and Glen Dighton. 2025. The experiences and engagement patterns of young adults who regularly view gambling livestreams: a qualitative interview study. *Addiction Research & Theory* (September 2025), 1–13. https://doi.org/10.1080/16066359.2025.2567270

[61] Soichiro Ide, Miharu Nakanishi, Syudo Yamasaki, Kazutaka Ikeda, Shuntaro Ando, Mariko Hiraiwa-Hasegawa, Kiyoto Kasai, and Atsushi Nishida. 2021. Adolescent Problem Gaming and Loot Box Purchasing in Video Games: Cross-sectional Observational Study Using Population-Based Cohort Data. *JMIR Serious Games* 9, 1 (February 2021), e23886. https://doi.org/10.2196/23886

[62] Mark R. Johnson. 2024. *Twitch*. John Wiley & Sons.

[63] Mark R Johnson and Jamie Woodcock. 2019. The impacts of live streaming and Twitch.tv on the video game industry. *Media, Culture & Society* 41, 5 (July 2019), 670–688. https://doi.org/10.1177/0163443718818363

[64] Mark R. Johnson and Jamie Woodcock. 2019. "And Today's Top Donator is": How Live Streamers on Twitch.tv Monetize and Gamify Their Broadcasts. *Social Media + Society* 5, 4 (October 2019), 2056305119881694. https://doi.org/10.1177/2056305119881694

[65] Mark R Johnson and Jamie Woodcock. 2020. Monetization and Gamification in Twitch Game Live Streaming. In *Abstract Proceedings of DiGRA 2020 Conference: Play Everywhere*, 2020. Digital Games Research Association (DiGRA).

[66] Markus Kaakinen, Atte Oksanen, Anu Sirola, Iina Savolainen, and David Garcia. 2020. Emotions in Online Gambling Communities: A Multilevel Sentiment Analysis. In *Social Computing and Social Media. Design, Ethics, User Behavior, and Social Network Analysis*, Gabriele Meiselwitz (ed.). Springer International Publishing, Cham, 542–550. https://doi.org/10.1007/978-3-030-49570-1_38

[67] Tobias Kauer, Marian Dörk, Arran L. Ridley, and Benjamin Bach. 2021. The Public Life of Data: Investigating Reactions to Visualizations on Reddit. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 06, 2021. ACM, Yokohama Japan, 1–12. https://doi.org/10.1145/3411764.3445720

[68] Soomin Kim, Gyuho Lee, Seo-young Lee, Sanghyuk Lee, and Joonhwan Lee. 2019. Game or Live Streaming?: Motivation and Social Experience in Live Mobile Quiz Shows. In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, October 17, 2019. ACM, Barcelona Spain, 87–98. https://doi.org/10.1145/3311350.3347187

[69] Yubo Kou, Sam Moradzadeh, and Xinning Gui. 2024. Trading as Gambling: Social Investing and Financial Risks on the r/WallStreetBets Subreddit. In *Proceedings of the CHI Conference on Human Factors in Computing Systems*, May 11, 2024. ACM, Honolulu HI USA, 1–17. https://doi.org/10.1145/3613904.3642768

[70] Hui-Min Lai and Tsung Teng Chen. 2014. Knowledge sharing in interest online communities: A comparison of posters and lurkers. *Computers in Human Behavior* 35, (June 2014), 295–306. https://doi.org/10.1016/j.chb.2014.02.004

[71] Nina LaMastra, Jirassaya Uttarapong, Reesha Gandhi, Christine L. Cook, and Donghee Yvette Wohn. 2020. How a Live Streamer's Choice in Played Game Affects Mental Health Conversations. In *Extended Abstracts of the 2020 Annual Symposium on Computer-Human Interaction in Play*, November 02, 2020. ACM, Virtual Event Canada, 297–300. https://doi.org/10.1145/3383668.3419894

[72] D. Leahy. 2022. Rocking the Boat: Loot Boxes in Online Digital Games, the Regulatory Challenge, and the EU's Unfair Commercial Practices Directive. *J Consum Policy* 45, 3 (September 2022), 561–592. https://doi.org/10.1007/s10603-022-09522-7

[73] Crystal Lee, Tanya Yang, Gabrielle D Inchoco, Graham M. Jones, and Arvind Satyanarayan. 2021. Viral Visualizations: How Coronavirus Skeptics Use Orthodox Data Practices to Promote Unorthodox Science Online. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 06, 2021. ACM, Yokohama Japan, 1–18. https://doi.org/10.1145/3411764.3445211

[74] Yi-Chieh Lee, Chi-Hsien Yen, Po-Tsung Chiu, Jung-Tai King, and Wai-Tat Fu. 2018. Tip Me!: Tipping is Changing Social Interactions on Live Streams in China. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*, April 20, 2018. ACM, Montreal QC Canada, 1–6. https://doi.org/10.1145/3170427.3188543

[75] Alex P. Leith. 2021. Parasocial cues: The ubiquity of parasocial relationships on Twitch. *Communication Monographs* 88, 1 (January 2021), 111–129. https://doi.org/10.1080/03637751.2020.1868544

[76] Pascal Lessel, Alexander Vielhauer, and Antonio Krüger. 2017. CrowdChess: A System to Investigate Shared Game Control in Live-Streams. In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, October 15, 2017. ACM, Amsterdam The Netherlands, 389–400. https://doi.org/10.1145/3116595.3116597

[77] Jie Li, Xinning Gui, Yubo Kou, and Yukun Li. 2019. Live Streaming as Co-Performance: Dynamics between Center and Periphery in Theatrical Engagement. *Proc. ACM Hum.-Comput. Interact.* 3, CSCW (November 2019), 1–22. https://doi.org/10.1145/3359166

[78] Hibai Lopez-Gonzalez and Mark D. Griffiths. 2018. Betting, Forex Trading, and Fantasy Gaming Sponsorships—a Responsible Marketing Inquiry into the 'Gamblification' of English Football. *Int J Ment Health Addiction* 16, 2 (April 2018), 404–419. https://doi.org/10.1007/s11469-017-9788-1

[79] Hibai Lopez-Gonzalez and Mark D Griffiths. 2018. Understanding the convergence of markets in online sports betting. *International Review for the Sociology of Sport* 53, 7 (November 2018), 807–823. https://doi.org/10.1177/1012690216680602

[80] Zhicong Lu, Michelle Annett, Mingming Fan, and Daniel Wigdor. 2019. "I feel it is my responsibility to stream": Streaming and Engaging with Intangible Cultural Heritage through Livestreaming. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, May 02, 2019. ACM, Glasgow Scotland Uk, 1–14. https://doi.org/10.1145/3290605.3300459

[81] Zhicong Lu, Chenxinran Shen, Jiannan Li, Hong Shen, and Daniel Wigdor. 2021. More Kawaii than a Real-Person Live Streamer: Understanding How the Otaku Community Engages with and Perceives Virtual YouTubers. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 06, 2021. ACM, Yokohama Japan, 1–14.

https://doi.org/10.1145/3411764.3445660

[82] Zhicong Lu, Haijun Xia, Seongkook Heo, and Daniel Wigdor. 2018. You Watch, You Give, and You Engage: A Study of Live Streaming Practices in China. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, April 21, 2018. ACM, Montreal QC Canada, 1–13. https://doi.org/10.1145/3173574.3174040

[83] Chance Lytle, Parker Ramsey, Joey Yeo, Trace Dressen, Dong Hyun Kang, Brenda Bakker Harger, and Jessica Hammer. 2020. Toward Live Streamed Improvisational Game Experiences. In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, November 02, 2020. ACM, Virtual Event Canada, 148–159. https://doi.org/10.1145/3410404.3414226

[84] Renkai Ma and Yubo Kou. 2021. "How advertiser-friendly is my video?": YouTuber's Socioeconomic Interactions with Algorithmic Content Moderation. *Proc. ACM Hum.-Comput. Interact.* 5, CSCW2 (October 2021), 1–25. https://doi.org/10.1145/3479573

[85] Renkai Ma, Zinan Zhang, Xinning Gui, and Yubo Kou. 2024. Labeling in the Dark: Exploring Content Creators' and Consumers' Experiences with Content Classification for Child Safety on YouTube. In *Designing Interactive Systems Conference*, July 2024. ACM, IT University of Copenhagen Denmark, 1518–1532. https://doi.org/10.1145/3643834.3661565

[86] Joseph Macey, Martin Adam, Juho Hamari, and Alexander Benlian. 2024. Examining the Commonalities and Differences Between Gamblification and Gamification: A Theoretical Perspective. *International Journal of Human–Computer Interaction* (May 2024), 1–14. https://doi.org/10.1080/10447318.2024.2346690

[87] Joseph Macey and Juho Hamari. 2024. Gamblification: A definition. *New Media & Society* 26, 4 (April 2024), 2046–2065. https://doi.org/10.1177/14614448221083903

[88] Kirsti Malterud, Volkert Dirk Siersma, and Ann Dorrit Guassora. 2016. Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qual Health Res* 26, 13 (November 2016), 1753–1760. https://doi.org/10.1177/1049732315617444

[89] Gary Marchant, Lucille Tournas, and Carlos Ignacio Gutierrez. 2020. GOVERNING EMERGING TECHNOLOGIES THROUGH SOFT LAW. *Jurimetrics* 61, 1 (2020), 1–18.

[90] Arunesh Mathur, Gunes Acar, Michael J. Friedman, Eli Lucherini, Jonathan Mayer, Marshini Chetty, and Arvind Narayanan. 2019. Dark Patterns at Scale: Findings from a Crawl of 11K Shopping Websites. *Proc. ACM Hum.-Comput. Interact.* 3, CSCW (November 2019), 1–32. https://doi.org/10.1145/3359183

[91] Arunesh Mathur, Mihir Kshirsagar, and Jonathan Mayer. 2021. What Makes a Dark Pattern... Dark?: Design Attributes, Normative Considerations, and Measurement Methods. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 06, 2021. ACM, Yokohama Japan, 1–18. https://doi.org/10.1145/3411764.3445610

[92] Arunesh Mathur, Arvind Narayanan, and Marshini Chetty. 2018. Endorsements on Social Media: An Empirical Study of Affiliate Marketing Disclosures on YouTube and Pinterest. *Proc. ACM Hum.-Comput. Interact.* 2, CSCW (November 2018), 1–26. https://doi.org/10.1145/3274388

[93] J. Nathan Matias and Merry Mou. 2018. CivilServant: Community-Led Experiments in Platform Governance. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, April 19, 2018. ACM, Montreal QC Canada, 1–13. https://doi.org/10.1145/3173574.3173583

[94] John L. McMullan and Delthia Miller. 2008. All in! The commercial advertising of offshore gambling on television. *JGI* 22 (December 2008), 230. https://doi.org/10.4309/jgi.2008.22.6

[95] Ankit Mittal and Donghee Yvette Wohn. 2019. Charity Streaming: Why Charity Organizations Use Live Streams for Fundraising. In *Extended Abstracts of the Annual Symposium on Computer-Human Interaction in Play Companion Extended Abstracts*, October 17, 2019. ACM, Barcelona Spain, 551–556. https://doi.org/10.1145/3341215.3356280

[96] Carol Moser, Sarita Y. Schoenebeck, and Paul Resnick. 2019. Impulse Buying: Design Practices and Consumer Needs. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, May 02, 2019. ACM, Glasgow Scotland Uk, 1–15. https://doi.org/10.1145/3290605.3300472

[97] Khizar Mundia. 2025. Twitch adds new notes clarifying its gambling rules, more. *win.gg*. Retrieved August 23, 2025 from https://win.gg/twitch-adds-notes-clarifying-gambling-rules-more/

[98] Anthony Naaeke, Anastacia Kurylo, Michael Grabowski, David Linton, and Marie L Radford. 2011. Insider and Outsider Perspective in Ethnographic Research. *Proceedings of the New York State Communication Association* 2010, 1 (2011). Retrieved from http://docs.rwu.edu/nyscaproceedings/vol2010/iss1/9

[99] Philip W. S. Newall. 2019. Dark nudges in gambling. *Addiction Research & Theory* 27, 2 (March 2019), 65–67. https://doi.org/10.1080/16066359.2018.1474206

[100] Fiona Jean Nicoll. 2019. *Gambling in everyday life: spaces, moments and products of enjoyment*. Routledge, Taylor and Francis group, New York, NY.

[101] William Clyde Partin. 2020. Bit by (Twitch) Bit: "Platform Capture" and the Evolution of Digital Platforms. *Social Media + Society* 6, 3 (July 2020), 2056305120933981. https://doi.org/10.1177/2056305120933981

[102] Patricia E. Vance. 2024. What Parents Need to Know About Twitch. *ESRB Ratings*. Retrieved August 14, 2025 from https://www.esrb.org/blog/what-parents-need-to-know-about-twitch/

[103] Thomas Poell, David Nieborg, Brooke Duffy, Robert Prey, and Stuart Cunningham. 2017. The platformization of cultural production. In *Selected papers of AOIR 2017*. 1–19.

[104] Samuel Poirier-Poulin. 2020. Watch Me Play: Twitch and the Rise of Game Live Streaming. *New Media & Society* 22, 8 (August 2020), 1505–1507. https://doi.org/10.1177/1461444820939317

[105] Raquel Breejon Robinson, Ricardo Rheeder, Madison Klarkowski, and Regan L Mandryk. 2022. "Chat Has No Chill": A Novel Physiological Interaction For Engaging Live Streaming Audiences. In *CHI Conference on Human Factors in Computing Systems*, April 29, 2022. ACM, New Orleans LA USA, 1–18. https://doi.org/10.1145/3491102.3501934

[106] I. Nelson Rose. 2012. Gambling and the Law®: An Introduction to the Law of Internet Gambling. *UNLV Gaming Research & Review Journal* 10, 1 (December 2012). https://doi.org/10.9741/2327-8455.1146

[107] Alexander Ross and David Nieborg. 2021. Spinning is winning: Social casino apps and the platformization of gamble-play. *Journal of Consumer Culture* 21, 1 (February 2021), 84–101. https://doi.org/10.1177/1469540521993931

[108] Brijesh Saran. 2024. From casinos to clicks: The evolution of gambling in the digital age. *Santosh University Journal of Health Sciences* 10, 2 (July 2024), 173–183. https://doi.org/10.4103/sujhs.sujhs_57_24

[109] Iina Savolainen, Anu Sirola, Ilkka Vuorinen, Eerik Mantere, and Atte Oksanen. 2022. Online Communities and Gambling Behaviors — a Systematic Review. *Curr Addict Rep* 9, 4 (July 2022), 400–409. https://doi.org/10.1007/s40429-022-00430-x

[110] Joseph Seering, Saiph Savage, Michael Eagle, Joshua Churchin, Rachel Moeller, Jeffrey P. Bigham, and Jessica Hammer. 2017. Audience Participation Games: Blurring the Line Between Player and Spectator. In *Proceedings of the 2017 Conference on Designing Interactive Systems*, June 10, 2017. ACM, Edinburgh United Kingdom, 429–440. https://doi.org/10.1145/3064663.3064732

[111] J. Simpson. 2023. Everything You Need To Know About the Reddit API Changes | Nordic APIs |. *Nordic APIs*. Retrieved July 28, 2025 from https://nordicapis.com/everything-you-need-to-know-about-the-reddit-api-changes/

[112] Max Sjöblom, Maria Törhönen, Juho Hamari, and Joseph Macey. 2019. The ingredients of Twitch streaming: Affordances of game streams. *Computers in Human Behavior* 92, (March 2019), 20–28. https://doi.org/10.1016/j.chb.2018.10.012

[113] Thomas Smith, Marianna Obrist, and Peter Wright. 2013. Live-streaming changes the (video) game. In *Proceedings of the 11th European Conference on Interactive TV and Video*, June 24, 2013. ACM, Como Italy, 131–138. https://doi.org/10.1145/2465958.2465971

[114] Qiurong Song, Renkai Ma, Yubo Kou, and Xinning Gui. 2024. Collective Privacy Sensemaking on Social Media about Period and Fertility Tracking post Roe v. Wade. *Proc. ACM Hum.-Comput. Interact.* 8, CSCW1 (April 2024), 1–35. https://doi.org/10.1145/3641000

[115] Stuart Gordon Spicer, Chris Fullwood, James Close, Laura Louise Nicklin, Joanne Lloyd, and Helen Lloyd. 2022. Loot boxes and problem gambling: Investigating the "gateway hypothesis." *Addictive Behaviors* 131, (August 2022), 107327. https://doi.org/10.1016/j.addbeh.2022.107327

[116] Stuart Gordon Spicer, Laura Louise Nicklin, Maria Uther, Joanne Lloyd, Helen Lloyd, and James Close. 2022. Loot boxes, problem gambling and problem video gaming: A systematic review and meta-synthesis. *New Media & Society* 24, 4 (April 2022), 1001–1022. https://doi.org/10.1177/14614448211027175

[117] Alina Striner, Andrew M. Webb, Jessica Hammer, and Amy Cook. 2021. Mapping Design Spaces for Audience Participation in Game Live Streaming. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 06, 2021. ACM, Yokohama Japan, 1–15. https://doi.org/10.1145/3411764.3445511

[118] John C. Tang, Gina Venolia, and Kori M. Inkpen. 2016. Meerkat and Periscope: I Stream, You Stream, Apps Stream for Live Streams. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, May 07, 2016. ACM, San Jose California USA, 4770–4780. https://doi.org/10.1145/2858036.2858374

[119] Paul Tassi. 2018. Here's How To Get Your Free Twitch Prime Wrecking Ball Loot Boxes In "Overwatch." *Forbes*. Retrieved September 9, 2025 from https://www.forbes.com/sites/insertcoin/2018/07/25/heres-how-to-get-your-free-twitch-prime-wrecking-ball-loot-boxes-in-overwatch/

[120] Thomas R. Lindlof and Michael J. Shatzer. 1998. Media ethnography in virtual space: Strategies, limits, and possibilities. *Journal of Broadcasting & Electronic Media* 42, 2 (1998), 170–189.

[121] Twitch Interactive, Inc. 2025. Chat & Chatbots. *Twitch Developers*. Retrieved June 29, 2025 from https://dev.twitch.tv/chat/

[122] Tyler Hamilton. 2020. Taking a Gamble: Analyzing How the Regulation of Loot Boxes in Video Games May Change a Billion Dollar Industry. *University of Illinois Law Review* 2020, 2 (2020), 727–770.

[123] Vixio Regulatory Intelligence. 2022. Twitch Bans Gambling Streams From Unlicensed Sites. Retrieved August 14, 2025 from https://www.vixio.com/insights/gc-livestreaming-site-twitch-bans-gambling-streams-unlicensed-sites

[124] Beth Walker, Janice Redmond, and Andras Lengyel. 2010. Are They All The Same? Lurkers and Posters on The Net. *eCULTURE* 3, 1 (2010), 16.

[125] PiaoHong Wang and Zhicong Lu. 2023. Let's Play Together through Channels: Understanding the Practices and Experience of Danmaku Participation Game Players in China. *Proc. ACM Hum.-Comput. Interact.* 7, CHI PLAY (September 2023), 1025–1043. https://doi.org/10.1145/3611059

[126] Donghee Yvette Wohn, Guo Freeman, and Caitlin McLaughlin. 2018. Explaining Viewers' Emotional, Instrumental, and Financial Support Provision for Live Streamers. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, April 21, 2018. ACM, Montreal QC Canada, 1–13. https://doi.org/10.1145/3173574.3174048

[127] Donghee Yvette Wohn, Peter Jough, Peter Eskander, John Scott Siri, Masaho Shimobayashi, and Pradnya Desai. 2019. Understanding Digital Patronage: Why Do People Subscribe to Streamers on Twitch? In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, October 17, 2019. ACM, Barcelona Spain, 99–110. https://doi.org/10.1145/3311350.3347160

[128] Jamie Woodcock and Mark R. Johnson. 2019. The Affective Labor and Performance of Live Streaming on Twitch.tv. *Television & New Media* 20, 8 (December 2019), 813–823. https://doi.org/10.1177/1527476419851077

[129] Liwei Wu, Qing Liu, Jian Zhao, and Edward Lank. 2023. Interactions across Displays and Space: A Study of Virtual Reality Streaming Practices on Twitch. *Proc. ACM Hum.-Comput. Interact.* 7, ISS (October 2023), 242–265. https://doi.org/10.1145/3626473

[130] Qunfang Wu, Yisi Sang, Dakuo Wang, and Zhicong Lu. 2023. Malicious Selling Strategies in Livestream E-commerce: A Case Study of Alibaba's Taobao and ByteDance's TikTok. *ACM Trans. Comput.-Hum. Interact.* 30, 3 (June 2023), 1–29. https://doi.org/10.1145/3577199

[131] Raymond Wu, Brett Abarbanel, and Luke Clark. 2024. Watch and yearn? Effects of watching gambling livestreams on cravings. *JBA* 13, 4 (December 2024), 974–986. https://doi.org/10.1556/2006.2024.00062

[132] Leon Y. Xiao. 2022. Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms. *Int J Ment Health Addiction* 20, 1 (February 2022), 437–454. https://doi.org/10.1007/s11469-020-00372-3

[133] Leon Y. Xiao, Laura L. Henderson, Rune K. L. Nielsen, PawełGrabarczyk, and Philip W. S. Newall. 2022. Loot Boxes: Gambling-Like Mechanics in Video Games. In *Encyclopedia of Computer Graphics and Games*, Newton Lee (ed.). Springer International Publishing, Cham, 1–7. https://doi.org/10.1007/978-3-319-08234-9_459-1

[134] Leon Y Xiao, Laura L. Henderson, Rune K. L. Nielsen, and Philip W. S. Newall. 2022. Regulating Gambling-Like Video Game Loot Boxes: a Public Health Framework Comparing Industry Self-Regulation, Existing National Legal Approaches, and Other Potential Approaches. *Current Addiction Reports* 9, 3 (2022), 163–178. https://doi.org/10.1007/s40429-022-00422-y

[135] Saelyne Yang, Changyoon Lee, Hijung Valentina Shin, and Juho Kim. 2020. Snapstream: Snapshot-based Interaction in Live Streaming for Visual Art. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, April 21, 2020. ACM, Honolulu HI USA, 1–12. https://doi.org/10.1145/3313831.3376390

[136] Saelyne Yang, Jisu Yim, Juho Kim, and Hijung Valentina Shin. 2022. CatchLive: Real-time Summarization of Live Streams with Stream Content and Interaction Data. In *CHI Conference on Human Factors in Computing Systems*, April 29, 2022. ACM, New Orleans LA USA, 1–20. https://doi.org/10.1145/3491102.3517461

[137] Dai Yao, Shijie Lu, and Xingyu Chen. 2025. Crowding-Out in Content Monetization Under Pay What You Want: Evidence From Live Streaming. *Production and Operations Management* 34, 12 (December 2025), 3937–3957. https://doi.org/10.1177/10591478231224948

[138] Ryan Yen, Li Feng, Brinda Mehra, Ching Christie Pang, Siying Hu, and Zhicong Lu. 2023. StoryChat: Designing a Narrative-Based Viewer Participation Tool for Live Streaming Chatrooms. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, April 19, 2023. 1–18. https://doi.org/10.1145/3544548.3580912

[139] Michael Yin and Robert Xiao. 2022. The Reward for Luck: Understanding the Effect of Random Reward Mechanisms in Video Games on Player Experience. In *CHI Conference on Human Factors in Computing Systems*, April 27, 2022. ACM, New Orleans LA USA, 1–14. https://doi.org/10.1145/3491102.3517642

[140] Ye Yuan, Jan Cao, Ruotong Wang, and Svetlana Yarosh. 2021. Tabletop Games in the Age of Remote Collaboration: Design Opportunities for a Socially Connected Game Experience. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, May 06, 2021. ACM, Yokohama Japan, 1–14. https://doi.org/10.1145/3411764.3445512

[141] José P Zagal, Staffan Björk, and Chris Lewis. 2013. Dark Patterns in the Design of Games. In *Proceedings of the International Conference on the Foundations of Digital Games*, 2013. Chania, Crete, Greece, 39–46.

[142] Andrei Zanescu, Martin French, and Marc Lajeunesse. 2021. Betting on DOTA 2's Battle Pass: Gamblification and productivity in play. *New Media & Society* 23, 10 (October 2021), 2882–2901. https://doi.org/10.1177/1461444820941381

[143] David Zendle, Rachel Meyer, Paul Cairns, Stuart Waters, and Nick Ballou. 2020. The prevalence of loot boxes in mobile and desktop games. *Addiction* 115, 9 (September 2020), 1768–1772. https://doi.org/10.1111/add.14973

[144] Keran Zhao, Yuheng Hu, Yili Hong, and J. Christopher Westland. 2021. Understanding Characteristics of Popular Streamers on Live Streaming Platforms: Evidence from Twitch.tv. *JAIS* 22, 4 (2021), 1076–1098. https://doi.org/10.17705/1jais.00689
[145] Community Guidelines. *Twitch Safety Center*. Retrieved August 23, 2025 from https://safety.twitch.tv/s/article/Community-Guidelines?language$=$en_US
[146] Purchase Bits - Twitch. *Twitch*. Retrieved August 18, 2025 from https://www.twitch.tv/bits
[147] How to Subscribe. *Twitch*. Retrieved August 18, 2025 from https://help.twitch.tv/s/article/how-to-subscribe?language$=$en_US
[148] Channel Points FAQ. *Twitch*. Retrieved August 18, 2025 from https://help.twitch.tv/s/article/channel-points-faq?language$=$en_US
[149] Twitch Languages Statistics. *TwitchTracker*. Retrieved November 17, 2025 from https://twitchtracker.com/languages
[150] r/Twitch Wiki: A Guide to Streaming & More. *Reddit*. Retrieved May 7, 2025 from https://www.reddit.com/r/Twitch/wiki/index/
[151] Channel Points Guide for Creators. Retrieved November 30, 2025 from https://help.twitch.tv/s/article/channel-points-guide?language$=$en_US#managing
[152] Hype Train Guide. *Twitch*. Retrieved May 8, 2025 from https://help.twitch.tv/s/article/hype-train-guide?language$=$en_US#participating
[153] Channel Points Predictions. *Twitch*. Retrieved May 8, 2025 from https://help.twitch.tv/s/article/channel-points-predictions?language$=$en_US
[154] Welcome to Twitch Legal. *Twitch.tv*. Retrieved November 29, 2025 from https://legal.twitch.com/en/legal/terms-of-service/
[155] Content Classification Labels. Retrieved May 26, 2026 from https://help.twitch.tv/s/article/content-classification-labels?language$=$en_US
[156] About Monetization on Twitch. *Twitch*. Retrieved September 6, 2025 from https://help.twitch.tv/s/article/streamer-benefits?language$=$en_US

Appendix 1: Detailed Overview of Gamblification Practices on Twitch

This appendix provides a detailed breakdown of the gamblification forms identified in our analysis. For each form, we outline the specific tools and technical carriers involved, the gambling-related elements embedded within the mechanism, the degree of streamer involvement, the modes of viewer participation, and related field notes.

Degree of Integration with Livestream	Gamblification practice	Tool Type	Gambling-related Elements			Streamer Involvement	Viewer Participation	Example Field Notes Excerpts
			Consideration	Chance-based Mechanism	Prize			
Independent of the Livestream	Custom Rewards	Twitch Built-in Features	Channel points	The outcome is largely random (depending on the specific reward rules)	Subscription, random emote etc.	Streamers customize the reward rules and may engage in certain activities based on those rules	Individual participation	*"Streamers have substantial flexibility in configuring reward rules, and there is strategy behind how these rewards are designed. In some cases, viewers can spend only one-fifth of the usual cost for a chance at the same prize, though they might also walk away with nothing. Still, I'm sure there are people who would be willing to take that wager."* *"The amount of channel points needed to redeem the interesting rewards is way too high! If you don't spend money and only rely on watch time to earn channel points, it's just not realistic."*
	Chatbot (e.g., Nightbot, StreamElements Bot, and Wizebot)	Twitch Officially Supported Third-party Tools	Channel points	Purely code-generated random outcome	Channel points	None(setup only)	Individual participation	*"Viewers can use command to play slot machine with the robot of the channel."* *"When I see other viewers using commands I haven't seen before, it makes me want to try them out to see what they do."*
	Extension (e.g., Stream Avatars)	Twitch Officially Supported Third-party Tools	Bits / in-extension currency	Purely random, though in some cases partially influenced by the user level.	Avatar upgrades/ gain in-extension rewards	None(setup only)	Collective participation (cooperative or competitive)/ Individual participation	*"During the brief moments when the streamer stepped away from the camera, it was surprisingly fun to battle with other viewers using our avatars, and it even made me forget about leaving the stream."* *"As the streamer continued their streaming, we were busy playing the Avatars mini-games. The Avatars layer sat right on top of the stream, covering most of the livestream. At some point, the livestream faded into background sound, and the Avatars game became the real focus of what we were doing."*

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			Consideration	Chance-based Mechanism	Prize			
Augmenting the Livestream	Prediction	Twitch Built-in Features	Channel points	The outcome is determined by subsequent uncertain events that occur during the livestream	Channel Points re-distributed	Streamers (or moderators) manually set up and initiate every single event	Collective participation (cooperative or competitive)	*"XX (a gaming streamer) set up a Prediction based on the outcome of a round in the game Liar's Bar that they was playing.I placed a small bet of 10 Channel Points and unexpectedly won. I felt a little rush of excitement and realizing that I could potentially use this feature to quickly multiply my points. In the next round, I wagered a larger amount, 70 Channel Points, and won again. My Channel Points in the streamer's channel spiked almost instantly, and I felt genuinely thrilled by the sudden increase."* *"The design of the Prediction felt quite appealing, and the celebratory animation that played when I won amplified my sense of joy."*
	Hype Train	Twitch Built-in Features	Subscription, Bits	Each viewer who participates receives an emote randomly pulled from the chest tied to the level of the Hype Train	Random emote from final level chest	None(setup only)	Collective participation (cooperative)	*"A part of the hype train includes a 'hype chest,' which is similar to a loot box."* *"On the left-side panel of the Twitch interface, where followed and currently live streamers are listed, it is easy to spot channels that have an ongoing Hype Train, because their names are marked with a badge indicating that a Hype Train is in progress."*
	Extension (e.g., APGs)	Twitch Officially Supported Third-party Tools	Bits / in-extension currency	Based on the livestream content (similar to Predictions)	Influence gameplay / gain in-extension rewards	Streamers customize the extension and may engage in certain activities based on certain rules	Collective participation (cooperative or competitive)	*"In this extension, viewers could vote on where the streamer should go next, and many of them actively voiced support for their chosen option in the chat."*
Being the Main Content of the Livestream	Physical spinning wheel	Physical tools	Subscription,Bits	Purely random outcome	Streamer-defined rewards (e.g., Subscription, physical items, merch, penalties the streamer must perform etc.)	Streamers design, configure, and remain actively involved throughout the entire gamblification practice.	Collective participation (cooperative)/ Individual participation	*"When I opened the stream and saw the spinning wheel, I thought it was pretty amusing, cause I didn't expect such a simple, almost 'old-school' way of rewarding viewers. But it seemed like the chat really enjoyed this format. Most of the chat messages revolved around the spinning wheel, people were either reacting to the prizes or making wishes for what they hoped the wheel would land on."* *"On this wheel, the streamer landed on Marbles, so it shifted directly from one chance-based game to another."*

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	Digital Spinning Wheel	External Tools	Subscription, Bits	Purely random outcome	Streamer-defined rewards (e.g., Subscription, physical items, merch, penalties the streamer must perform etc.)	Streamers design, configure, and remain actively involved throughout the entire gamblification practice.	Collective participation (cooperative)/ Individual participation	*"In this spinning-wheel setup, everyone has to work together to reach the goal that triggers the streamer to spin it. The streamer discusses with the chat what kinds of punishments or activities would be fun, and the viewers' messages all revolve around these ideas."*
	Third-party Chance-based Games (e.g., Marbles)	External Tools	None or symbolic (entry typically free but sometimes subscriber-only)	Purely code-generated random outcome	Streamer-defined rewards (e.g., Subscription, physical items, merch etc.)	Streamers remain actively involved throughout the entire gamblification practice.	Collective participation (competitive)	*"The prize for winning this round of Marbles was a set of Pokémon cards, reserved for the channel's first one thousand subs. When the streamer announced the rules, the chat became extremely excited and people kept spamming messages like 'let's go' and 'do it.'"* *"After the streamer started the Marbles game, he became extremely excited. He kept tracking the camera on the players in the leading positions, shouting during the race and expressing regret whenever someone's marble fell off. Watching the match felt highly contagious. His reactions pulled me in, and I found myself getting emotionally invested and eager to see the final result."*
	Technical Gambling-like Demonstrations (e.g., AI gambling robot)	Content-based demonstrations (non-interactive)	/	/	/	Streamers remain actively involved throughout the entire gamblification practice.	Viewers only watch and interact through the chatbox, but do not directly participate.	*"This streamer spent several hours developing an AI 'gambling robo' (a name the streamer coined) to predict in-stream game outcomes, and continuously debugged its code throughout the development process."* *"The chat was filled with comments about the robot, with some viewers calling it 'dumb' while others thought it was 'pretty cool.'"*

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	Experiential Gambling-like Demonstrations (e.g., livestreamed gambling-like activities)	Content-based demonstrations (non-interactive)	/	/	/	Streamers remain actively involved throughout the entire gamblification practice.	Viewers only watch and interact through the chatbox, but do not directly participate.	*"The streamer spent a long moment building suspense before opening the blind box, repeatedly expressing hope for a specific item. It wasn't the one she wanted, but she said the figure was still cute and beyond her expectations. Viewers in the chat echoed her reaction, calling it cute as well."* *"The streamer was trading CSGO skins on a third-party platform, fully absorbed in the transactions with almost no interaction with viewers. Even so, a large number of viewers stayed to watch."*