

Coupling Specialization with Affordance: A Developmental Framework for the Deepening of Digital Leisure Engagement

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ABSTRACT: Digital leisure engagement (defined as the sustained, discretionary involvement of users with IT enabled leisure activities such as competitive gaming, quantified fitness, hobbyist communities, and creator economies) has become a defining behavioral phenomenon of the platform era. It is conventionally theorized as a matter of intensity, an approach that captures variance in adoption and use but underexplains the IT-enabled qualitative deepening through which recreational users become committed, identity-defining, and increasingly institutionalized participants. To bridge this gap, this article develops the Affordance-Actualized Specialization (AAS) framework, which specifies the mechanisms through which such deepening occurs across digital leisure domains. Drawing on conceptual synthesis, the framework integrates leisure specialization theory with IT affordance theory through the mediating mechanism of affordance actualization. Three dimensions of leisure specialization (*i.e.*, behavioral, cognitive, and affective) are coupled to four functionally distinct classes of IT affordance (*i.e.*, performative, relational, visibility, and institutional) through goal-directed enactment that is reinforced by feedback loops. Six propositions are derived and illustrated through a focal case of amateur esports. The framework predicts that digital leisure engagement deepens along two divergent developmental trajectories: (1) staying with the activity versus (2) stepping forward into institutionalized participation, which are determined not by aggregate engagement intensity but by which affordance classes that participants preferentially actualize and in what sequence. Moreover, asymmetric actualization produces structurally fragile engagement carrying elevated risk of adverse downstream outcomes. The study contributes to immersive media and user experience research by offering a mechanism-level, cross-domain account of digital leisure engagement deepening and by reconceptualizing immersion as the layered actualization of affordances rather than as a perceptual property of digital media.

Keywords: Digital leisure engagement, Leisure specialization, IT affordance, Affordance-Actualized Specialization (AAS) framework, Amateur esports.

1. INTRODUCTION

Digital leisure engagement as the sustained, discretionary involvement of users with IT enabled leisure activities has emerged as a constitutive behavioral phenomenon of the platform era. Recreational runners graduate into quantified athletes (Zeng *et al.*, 2023); occasional hobbyists cultivate curated personas and extend the leisure experience beyond playing (Kankainen, 2026); and recreational gamers traverse pathways culminating in amateur, semi-professional, and professional esports (Boldi & Sanseverino, 2026; Ke *et*

al., 2022). What these leisure-based trajectories share is not the volume of engagement they entail but a structural transformation in how leisure engagement is organized, valorized, and inhabited. This transformation exposes a theoretical gap. Conventional motivational theories explain why individuals accumulate commitment (Deci &

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Ryan, 2000), but they leave under-specified how technological environments render certain trajectories structurally available and foreclose others. Affordance theories articulate what a technology makes possible (Norman, 1988), but they often treat the actor as an abstract goal-holder and obscure the developmental process through which goals themselves are transformed as engagement matures. The result is a conceptual asymmetry: the developmental logic of the participant and the affordance structure of the platform have been theorized on parallel tracks.

This article addresses that asymmetry by coupling two established but previously disconnected traditions. From the participant side, leisure specialization (Bryan, 1977, 2000; Scott & Shafer, 2001) specifies three dimensions along which participants progress from broad, casual involvement toward focused, skill- and identity-laden orientation. From the technology side, IT affordance (Du *et al.*, 2020; Gibson, 1986; Norman, 1999; Volkoff & Strong, 2013) specifies the action possibilities that emerge when goal-oriented actors encounter the material and symbolic features of a technology. Integrating these two traditions through the mediating mechanism of affordance actualization yields the Affordance-Actualized Specialization (AAS) framework. The framework specifies through which technological mechanisms digital leisure engagement deepens, and along which developmental dimensions.

Esports refers to professionalized, organized video game competition enabled by IT (Ke *et al.*, 2022), while amateur esports denotes competitive play by mass gamers on grassroots platforms such as ESL Open (Ke & Wagner, 2024). Amateur esports serves as the focal case for the framework because its deepening pathway is empirically observable and is mediated by identifiable technological features, including matchmaking systems, replay analytics, voice infrastructures, streaming platforms, ladder systems, and recruitment interfaces (Ke & Wagner, 2024, 2026). The case also displays a divergent central to contemporary debates on digital participation: Engagement may deepen either by intensifying attachment within the activity frame or by reorienting attachment toward institutionalized participation. We argue that this bifurcation recurs wherever the four affordance classes we identify are structurally co-present. The article thus contributes a mechanism-level, cross-domain account of digital leisure engagement deepening. It also reopens a normatively significant question: whether deeper engagement is always desirable, or whether certain affordance–specialization couplings channel participants into

structurally fragile developmental pathways. Beyond digital leisure, the framework speaks to immersive media and user experience research by reconceptualizing immersion as a developmental outcome. Immersion is produced not by sensory fidelity or presence (Slater, 2009) but by the recursive actualization of coupled affordances through which participants become progressively bound to a digital activity system (O'Brien & Toms, 2008).

■ 2. THEORETICAL BACKGROUND

Leisure specialization, introduced by Bryan (1977, 2000), is a framework designed to explain why participants within the same leisure activity differ not only in how much time they invest but also in the depth, sophistication, and personal significance of their involvement. Research has consolidated the construct around three interrelated dimensions (McIntyre & Pigram, 1992; Scott & Shafer, 2001): behavioral (frequency, duration, and material investment), cognitive (skill and domain-specific knowledge), and affective (centrality-to-lifestyle, commitment, and identity salience). Recent work no longer treats specialization as monotonic; participants may accumulate leisure capital without linear progression and may reconfigure their involvement laterally (Backlund & Kuentzel, 2013). Specialization is therefore not an automatic outcome of prolonged exposure but a contingent achievement whose realization depends on identifiable structural supports.

An IT affordance is a possibility for goal-directed action that emerges when a particular actor with particular goals encounters a particular technological configuration (Du *et al.*, 2020; Volkoff & Strong, 2013). Faraj and Azad (2012) characterize this as a multifaceted relational structure that combines technological properties with users' perceptions and goals. The IT affordances are consequential only when actualized, that is, recognized, taken up, and enacted in the pursuit of concrete goals (Suh & Wagner, 2017). Prior research on gamified information systems has shown that affordance actualization, rather than feature exposure alone, drives sustained engagement, a finding that motivates the developmental orientation adopted here (Du *et al.*, 2020). Four functionally distinct classes of affordance recur with sufficient regularity to warrant explicit typologization for this paper. Performative affordances are technological possibilities for structured, diagnostic practice, instantiated by training modes, replay analytics, skill-rating dashboards, and ladder systems that convert activity into feedback on individual performance (Ke & Wagner, 2022). Relational affordances are technological possibilities for embedding activity within persistent social

structures, instantiated by voice channels, group and team systems, and content-sharing infrastructures that support recurrent, role-bearing interaction (Kim *et al.*, 2022). Visibility affordances are technological possibilities for externalizing internal states into signals legible to broader audiences, instantiated by live streaming, publicly visible leaderboards, tracker profiles, and public achievement records (Suh *et al.*, 2017). Institutional affordances are technological possibilities for connecting digital activity to formally recognized statuses, instantiated by ranking pipelines, tournament registration, certification, and monetization interfaces (Cestino *et al.*, 2023). Together, these four classes span a functional gradient from the intrapersonal to the institutional, which aligns with the developmental grammar of leisure specialization.

■ 2.1. Distinction from Prior Engagement and Immersion Frameworks

Situating the AAS framework against established engagement and immersion models clarifies its distinctive theoretical contribution. Three reference points are particularly instructive. The flow paradigm (Csikszentmihalyi, 1990) locates engagement in the momentary balance between challenge and skill and captures optimal experience within a single episode, but theorizes neither the cumulative deepening that occurs across episodes nor the technological features that scaffold it. The sensory tradition (*e.g.*, presence and plausibility illusion; Slater, 2009) locates immersion in the perceptual and sensory rendering of the environment, explaining why mediated environments feel compelling but treating engagement as a within-episode state rather than a developmental process. The serious leisure perspective (Stebbins, 2007) explicitly theorizes career-like commitment and distinguishes hobbyist, amateur, and volunteer trajectories, but treats the technological conditions of contemporary digital activity as background rather than as constitutive of the deepening mechanism.

■ 3. THE AFFORDANCE-ACTUALIZED SPECIALIZATION FRAMEWORK

Neither leisure specialization nor IT affordance, taken alone, specifies the mechanism by which the developmental potential of the participant meets the enabling potential of the technology. We propose that this mechanism is affordance actualization as a specialization driver: the process whereby a participant, pursuing goals characteristic of a given specialization dimension, enacts specific affordance classes and thereby accumulates the resources that constitute deepening along that dimension. Digital leisure engagement deepens through the

progressive coupling of specialization dimensions with functionally corresponding classes of IT affordance, mediated by goal-directed actualization and reinforced through feedback loops that render further coupling increasingly likely.

Three dimensions of leisure specialization (behavioral, cognitive, and affective) couple to four functionally distinct classes of IT affordance through the mechanism of affordance actualization. Relational affordances function as a cross-cutting scaffold that stabilizes the other couplings. The coupling structure yields two divergent developmental trajectories: staying with the activity versus institutionalized participation. Figure 1 summarizes the framework.

The framework yields six propositions. **P1 Performative Coupling:** Performative affordances, such as ranked ladders, replay analytics, and skill-rating dashboards that provide diagnostic feedback on individual performance, deepen the behavioral and cognitive dimensions of specialization more strongly. Between two participants matched on platform exposure, the one who actualizes the performative affordance accumulates skill and structured practice routines faster than the one who does not. **P2 Visibility Coupling:** Visibility affordances, such as live streaming, publicly visible ladder standings, and clip-sharing infrastructures, deepen the affective dimension through identity externalization: internal self-narratives are converted into publicly recognizable identity claims and reinforced by perceived audience recognition. Participants who actualize visibility affordances therefore report higher centrality-to-lifestyle and commitment than comparable participants who do not. **P3 Relational Scaffolding:** Relational affordances scaffold the other couplings through the obligation structures they instantiate, including scheduled team practice, role assignments (for example, in-game roles or team functions), and reputational stakes carried by attendance and coordination. Participants embedded in such persistent group structures sustain performative practice routines, visibility exposure, and institutional exposure more reliably than otherwise comparable participants, because those enactments are anchored in recurrent social obligations rather than in individual motivation alone. **P4 Cross-Dimensional Reinforcement:** Gains produced by any primary coupling raise the marginal return on actualizing adjacent affordance classes, producing a reinforcing spiral rather than isolated dimensional gains. Mature engagement therefore exhibits correlated rather than modular deepening. **P5 Trajectory Bifurcation and Sequential Gating:** Specialization trajectories bifurcate according to

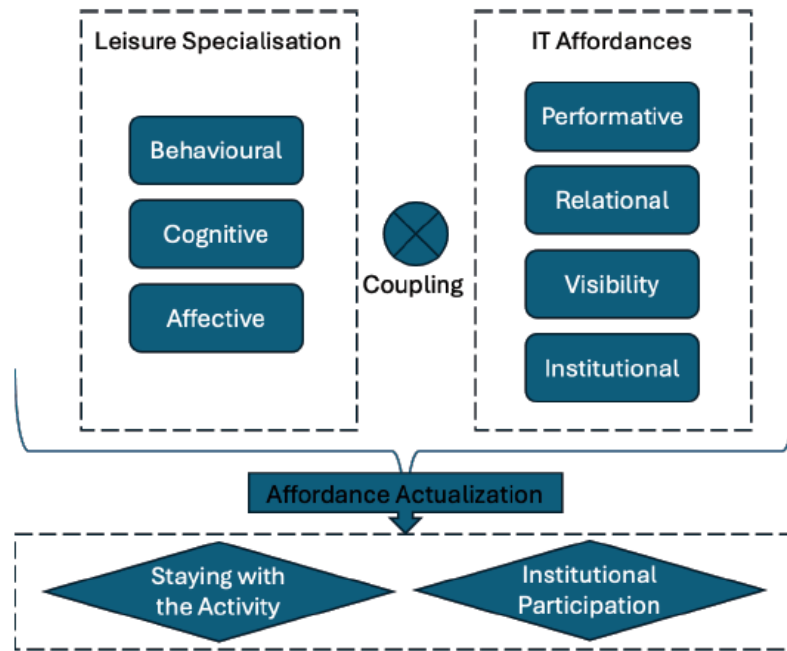


Figure 1: The Affordance-Actualized Specialization (AAS) framework.

the participant's dominant actualization profile. Concentration on performative actualization, scaffolded by relational affordances, produces Trajectory A (staying with the activity), whereas extension into visibility and institutional affordances produces Trajectory B (institutionalized participation). Transition to Trajectory B is gated not by aggregate engagement intensity but by the sequential actualization of visibility affordances prior to institutional ones. In digital leisure, discovery is largely platform mediated. Public leaderboards, matchmaking-rating tiers, tracker profiles, stream metrics, and clip-sharing infrastructures function as the primary discovery layer through which institutional actors, where they intervene at all, identify candidates. Traditional scouting is thereby displaced or restructured (Kang, 2025). **P6 Fragility of Asymmetric Deepening:** When actualization profiles are asymmetric, that is, when visibility and institutional affordances are actualized rapidly without proportionate performative deepening or relational scaffolding, the resulting engagement is intensely felt but structurally fragile, because participants lack the diversified specialization and social anchoring required to absorb shocks such as skill-meta shifts, roster displacement, or performance-limiting conditions (Kang & Kim, 2025).

■ 4. ILLUSTRATION: AMATEUR ESPORTS AS A FOCAL CASE

Amateur esports exposes all four affordance classes, which makes it a strategically informative case for

illustrating the framework. Granular skill-rating infrastructures (for example, League of Legends' ranked ladder and Valorant's Competitive tiers) render performative affordances continuously available (Ke *et al.*, 2022). Persistent team and communication infrastructures (for example, Discord servers, in-game socialization systems, and dedicated scrim-scheduling channels) render relational affordances routinely available for organizing recurrent practice and coordination (Gong *et al.*, 2024). Tightly coupled third-party visibility ecosystems (for example, Twitch and tracker.gg) render competitive activity publicly legible (Jang *et al.*, 2021). Layered institutional pathways, from online amateur competition through community tournaments, collegiate leagues, and academy teams to franchised professional competition, render institutional actualization empirically traceable (Cestino *et al.*, 2023).

The typical entry into amateur specialization is the moment a player selects "Play Ranked". The platform converts diffuse play into diagnostic feedback on individual performance: a player who loses three ranked games or win can review vision score, damage-per-minute, gold differential, and team-fight positioning. Two participants with equal weekly playtime therefore diverge sharply in cognitive specialization depending on whether they actualize the performative stack, an asymmetry that configurational evidence corroborates (Ke & Wagner, 2026). P1 and the actualization-necessity claim therefore hold in the focal case: performative actualization

selectively deepens behavioral and cognitive specialization, and mere gaming platform exposure is insufficient.

The second inflection is the moment the participant becomes publicly legible, whether through a Twitch stream, a visible ranked tier badge, and so on (Carter & Eglinton, 2021; Ke & Wagner, 2022). The AAS framework predicts something categorically stronger, namely that visibility affordances reconfigure the participant's self-narrative through identity externalization. Recent qualitative work corroborates this reading. Participants describe the moment their tier or stream is recognized as an instance of perceived audience recognition, and it is at that moment that they become, psychologically rather than merely aspirationally, a competitive player (Boldi & Sanseverino, 2026). P2 therefore holds in the focal case. These couplings examined so far are analytically separable but developmentally entangled: performative gains raise the return on relational actualization, which raises the return on visibility actualization, which raises the return on institutional actualization. P4 therefore holds in the focal case; what unfolds is precisely the reinforcing spiral the proposition specifies, in which gains at each coupling raise the marginal return on the next, and mature engagement exhibits correlated rather than modular deepening.

The third inflection arrives when a player exits solo queue for a five-stack or joins an amateur roster. Superficially social, this move analytically marks the moment relational affordances instantiate an obligation structure that scaffolds the other couplings, rather than merely amplifying sociability (Freeman & Wohn, 2019; Seo & Jung, 2016). Discord servers exemplify the scheduled recurrence and role architecture that P2 identifies: they assign roles, schedule scrim blocks, coordinate VOD reviews, and impose reputational stakes on attendance and coordination. Under these obligation structures, performative practice becomes routinized rather than improvised, and later moves into visibility and institutional actualization gain a durable social anchor. Two players with identical hours of team engagement therefore diverge sharply depending on whether their team instantiates such scaffolding structures. P3 therefore holds in the focal case: relational affordances stabilize the other couplings when their obligation structures are enacted, rather than deepening a distinct participant-side dimension.

Not every amateur player traverses all the couplings. Trajectory A characterizes participants who attain high ranked tiers, sustain stable teams, and attend community

LAN events, yet do not stream or enter tournaments beyond friendly community brackets. Their engagement is deeply serious (Ke & Wagner, 2023; Stebbins, 2007), yet the leisure frame remains intact. Trajectory B characterizes participants who extend actualization into visibility and institutional affordances: regular streaming, curated tracker profiles, and, for a small subset, amateur contracts, franchised academy rosters, or Challengers-tier play (Cestino *et al.*, 2023; Seo, 2016). Aggregate engagement intensity does not discriminate the two trajectories, because both populations may engage twenty or more hours weekly. What discriminates them is the sequential actualization of visibility affordances prior to institutional ones. Because discovery in amateur esports runs primarily through platform-legible signals, such as ranked-tier standings, tracker profiles, clip metrics, and streaming audiences, rather than through offline scouting networks, a highly skilled but publicly invisible player is, from the institutional standpoint, effectively invisible. P5 therefore holds in the focal case.

The framework's normatively distinctive proposition is that deeper engagement is not invariably better engagement. Consider a paradigmatic risky pathway: a teenage player reaches Challenger tier through intensive solo-queue laddering, streams to a growing audience, and is signed at seventeen to an academy roster. Performative actualization is extreme; visibility and institutional actualization follow rapidly. However, cognitive breadth is narrow, social embeddedness thin, and affective identity and commitment almost entirely tied to competitive standing. When the meta shifts or a wrist injury compromises mechanical precision, the participant lacks the diversified specialization to absorb the shock. Recent work documents precisely this pattern of accelerated ascent followed by early retirement and difficult post-career transition (Kang, 2025; Kang & Kim, 2025). P6 therefore holds in the focal case: asymmetric actualization produces structurally fragile engagement, and this fragility is a structural prediction of the framework rather than an incidental empirical observation.

■ 5. DISCUSSION AND CONCLUSION

The AAS framework offers a mechanism-level, cross-domain account of how digital leisure engagement deepens. It closes a persistent gap between motivational theories that specify participant-side antecedents and affordance theories that specify technology-side possibilities. The framework's distinctive move is to specify the mediating mechanism of goal-directed actualization that binds them, in terms general enough to

apply across digital domains characterized by the fourfold affordance configuration.

The framework also reconceptualizes immersion, with direct implications for immersive media and user experience research. Immersive media research has traditionally located immersion in the perceptual and sensory qualities of media, including place illusion and plausibility illusion (Slater, 2009), embodied simulation, and continuous sensorimotor contingencies (Jennett *et al.*, 2008). This tradition captures the moment-to-moment experience of a mediated environment but says little about how a participant becomes progressively bound to that environment over time. AAS complements this tradition by identifying a developmental dimension of immersion: the process through which an activity's infrastructures and affordances (training modes, communities, visibility channels, and institutional gateways) become self-reinforcing parts of how participants live and understand themselves. Where sensory immersion asks whether the participant feels present, developmental immersion asks whether the participant has become entangled with the activity, shaped by its structures, and defined in part through it. The distinction matters most for experiences that are not primarily perceptual, such as competitive gaming, quantified fitness, hobbyist communities, and creator economies. In these domains, immersion deepens not through better sensory rendering but through the accumulation of interlocking affordances.

The framework has practical implications for three groups whose decisions shape whether digital leisure engagement develops along resilient or structurally fragile trajectories. For platform designers, moving beyond scalar engagement dashboards is a concrete priority. Platforms should instead track how participants are developing across all four affordance classes so that those whose visibility or institutional exposure has outrun their skill base or social ties can be identified and supported before the imbalance deepens. For game and application developers, each new feature decision is also a coupling decision. When a new affordance is introduced, the question should not only be what capability it adds, but which specialization dimension it deepens and whether complementary affordances exist in adjacent classes to sustain it. For community managers and esports organizers, participant well-being is an outcome of coupling balance, not moderation alone. Structured amateur leagues, sequenced institutional exposure tied to prior visibility and social embeddedness, and community health metrics that go beyond engagement volume to include coupling balance are all

practical steps, and ones that align with broader calls to protect participant well-being in high-commitment digital environments (Ke *et al.*, 2025).

■ 5.1. Limitations and An Agenda for Empirical Testing

The framework is subject to several limitations. It remains conceptual in nature: its propositions are formulated with empirical testability in mind, yet have not been evaluated against primary data, and the focal-case analysis is offered as illustration rather than confirmation. The fourfold affordance typology is analytically generative but empirically porous, insofar as real-world features frequently participate in more than one category simultaneously. A further limitation concerns scope: the framework is developed at the level of participant-affordance coupling and does not directly theorize the upstream structural conditions—platform governance arrangements and algorithmic curation, in particular—that determine which affordances are made visible or accessible to a given participant in the first place. Algorithmic ranking, matchmaking, and recommendation systems plausibly shape the rate and sequence of affordance exposure described in the framework, and their systematic incorporation represents an important direction for future theoretical extension. Notwithstanding these constraints, the framework's most consequential claim is also its most normatively significant: deeper engagement is not invariably better engagement, and the shape of the affordance-actualization profile through which deepening unfolds determines whether the resulting participation proves sustainable or fragile. In this respect, the framework constitutes a meaningful point of departure for articulating the phenomena of professionalization and specialization that information systems make possible.

Although the framework is conceptual, its propositions are formulated in a manner that invites empirical evaluation, and three broad design strategies appear well suited to this task. A cross-sectional survey approach could operationalize the specialization dimensions using established serious-leisure inventories (e.g., perceived-career and social-world subscales) and the affordance classes using adapted IT-affordance actualization measures, and could then use structural equation modeling to examine the coupling propositions and the divergence they imply. Such a design would also permit multi-group comparisons to test contextual moderators, most notably life-stage (e.g., adolescent versus adult participants, for whom institutional and parental constraints on time and mobility differ substantially) and

the cultural legitimacy accorded to the activity in a given setting (e.g., contexts where competitive gaming is institutionally recognized, such as through scholastic esports programs, versus contexts where it remains culturally marginal). A longitudinal panel approach, following participants across several points in time within a competitive season, a fitness program, or a creator's early trajectory, would allow the sequencing implied by the framework to be examined more directly, helping to clarify whether one developmental pathway tends to precede the other, and whether this sequencing itself varies by life-stage or cultural context. A third approach could draw on behavioral traces generated naturally within digital platforms—including, where accessible, algorithmically mediated exposure such as matchmaking-tier placement or recommendation frequency—linking such records to complementary survey measures in order to characterize how asymmetries in coupling relate to the fragility the framework anticipates. Beyond the amateur esports context examined here, we see particular value in extending this agenda to quantified-fitness communities (e.g., running or cycling platforms structured around leaderboards and badges) and to creator-economy contexts (e.g., livestreaming or short-form video platforms), both of which plausibly instantiate distinct and incomplete affordance configurations worth comparing systematically against the esports case.

AUTHORS' CONTRIBUTION STATEMENT

Both authors contributed to the study conception and design. Xiaobo Ke performed the case selection and wrote the first draft of the manuscript. Christian Wagner contributed to manuscript preparation and reviewed and revised the manuscript. Both authors read and approved the final manuscript.

CONFLICT OF INTEREST

The author declares no conflict of interest with respect to the research, authorship, or publication of this article.

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