Understanding the Dynamics of Attitude Contagion in Multiplayer Minecraft

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This research explores how player interactions within multiplayer Minecraft influence the spread and reinforcement of attitudes and norms, addressing how this decentralized platform can support both pro-social behaviours and the normalization of problematic, and potentially extremist, viewpoints. The study combines two research components: a technical software development enabling the analysis of in-game player behaviour and a qualitative study of player motivations for engaging with multiplayer servers in Minecraft.

Research Question

The core objective of this research was to examine **how the multiplayer environment of Minecraft enables and constrains the transmission of attitudes through player-to-player interactions**.

The study is situated within a broader discussion of online platforms where social dynamics, technical features (affordances), and governance interact to create conditions that either foster positive community building or facilitate the diffusion of extremist ideologies. Because multiplayer Minecraft is a decentralized network of user-run servers, it shares characteristics with platforms like Discord where governance is often challenging and where extremist actors can cultivate private, invite-only communities with minimal oversight, despite being perceived by most as a child-friendly game.

The study implemented the first steps towards deconstructing this process by asking:

- How can researchers model and track player-to-player relationships and influence pathways in real time using platform-specific behavioural data (telemetry)?
- What are the lived experiences, motivations, and choices of players regarding multiplayer participation, and how do they respond to and reshape their online social environments?

Key Findings of the Study

The research comprised two projects: Project 1, focusing on the development of a telemetry-based method to map player relationships; and Project 2, a qualitative exploration of player experiences.

Project 1: Mapping Relational Structures through Telemetry

This resulted in the development of a **telemetry-driven method** for extracting and analyzing real-time player data from a Minecraft server over a 12-week intervention involving 29 players. This approach utilized Social Network Analysis (SNA) to model player relationships based on **sustained proximity** (defined as being within 10 blocks of another player for at least 30 seconds).

Key Findings from Study 1:

- **Feasibility of Telemetry:** The study demonstrated the practical ability to design server-compatible software to retrieve real-time player locations and actions (like block placement or chat logs), thus providing a scalable and replicable framework for modelling diffusion processes in naturalistic gameplay.

- **Strong Connectivity:** The resulting network exhibited a high density (0.52), indicating **frequent co-presence and strong social connectivity** among the participants on the intervention server.
- **Meaningful Social Structures:** Community detection algorithms revealed two distinct groups that aligned accurately with known player roles: a primary cluster of intervention participants (staff, volunteers, and youth clients) and a smaller cluster of builders who were active prior to the intervention launch. This validated the method's ability to capture meaningful social divisions.
- **Identification of Key Roles:** Measures of network centrality helped identify players with different roles of influence:
- **Structured Interaction:** Visualizations showed that player interactions were not random but were structured around central landmarks and emergent congregation zones.

Project 2: Player Motivations and Experience

Using qualitative interviews with seven young adult New Zealand Minecraft players, the study sought to understand their personal experiences and choices regarding multiplayer participation. The analysis revealed that players actively curate their environment by prioritizing three factors: safety, competence boundaries, and relational intimacy.

Key Findings from Study 2:

- **Safety in the Small:** Players consistently gravitate toward **small, intimate multiplayer settings** like local area networks (LAN), Minecraft Realms, or whitelisted/private servers, rather than large public servers. This is primarily driven by a desire for comfort, predictability, trust, and familiarity.
    - *Avoidance of Public Servers:* This preference is often a response to prior negative experiences, such as "griefing" (sabotaging others' creations) or frustration with perceived moderation lapses and ineffective reporting systems. For these participants, "'safe' multiplayer is 'small' multiplayer".
- **Competence Gap Anxiety:** Players frequently narrated feeling overwhelmed and anxious by the high skill ceiling, evolving combat mechanics, and competitive "min-maxing" (optimization) in Player-versus-Player (PvP) minigames. This anxiety causes voluntary withdrawal from competitive public spaces, as public multiplayer is viewed as a "performance arena" rather than a site of playful interaction.
- **Relational Motivations for Play:** The primary value of multiplayer is intimacy, not exposure or status. Participants frame gameplay as a way to **improve social relationships** and bond with people they already know offline (partners, friends, co-workers) through shared projects. Minecraft functions as a "third place" for existing relationships.
- **Social Division of Labor:** In small-group settings, players naturally adopt complementary roles (miner, builder, redstoner) based on their preferences. This division of labor transforms diverse play styles into **mutual dependence and social recognition**, allowing players who may feel inadequate in combat to find a sense of belonging through valued contributions in other specialized areas.

Integrated Finding: The Reinforcement Mechanism

By combining the findings, the research highlights a critical mechanism: players' self-selection into **small, predictable micro-communities** limits their exposure to large, anonymous contexts, creating dense, inward-facing relational networks.

- While these structures enhance belonging and stability, they also create specific zones where **norms become strongly reinforced** through repeated co-presence.
- This mechanism means that attitudes—positive or negative—are more strongly reinforced within these echo chambers. If an online environment shares and validates a player's prejudiced viewpoints, it is perceived as welcoming and supportive, inadvertently facilitating the reinforcement of problematic (e.g., extremist) attitudes. The study concludes that this process of self-selection may lead to the formation of stronger echo chambers.

1. Recommendations and Practical Applications

The insights from this research are relevant for platform governance, intervention design, and harm-prevention strategies in online gaming ecosystems.1. Recommendations for Intervention Design

Interventions aimed at promoting positive social outcomes should align with players' natural preferences for smaller, stable groups.

- **Structure Activities:** Activities should be designed around tight-knit groups to foster relational coherence.
- **Foster Role Differentiation:** Promote the division of labour, as it provides pathways for identity and contribution, broadening participation and sense of belonging for diverse players.
- **Identify Influencers:** Identify and support individuals who naturally serve as social bridges or stabilizing influences, as prior work suggests these influential players may significantly influence interpersonal dynamics in multiplayer environments.

2. Recommendations for Server Governance and Harm Prevention

Given that players actively avoid large servers with perceived or actual moderation lapses, consistent and preventative governance is critical for maintaining healthy communities.

- **Establish Strong Governance:** Server administrators must ensure consistent, transparent, and proactive moderation to prioritise player safety, as weak governance creates "pockets of vulnerability". One suggestion could be formal **university-led psychological safety training** for server moderators and community managers.
- **Implement Telemetry-Based Monitoring:** Server administrators should use telemetry and SNA to identify early warning signs of negative dynamics. These indicators include:
    - *Fragmentation:* Identifying isolated clusters of players or the isolation of new players.
    - *Dominance:* Detecting dominance by a small number of central actors.
    - *Insularity:* Monitoring structural indicators like high edge weights within closed clusters and sparse bridging connections, which signal a community is susceptible to harmful norm formation.
- **Strengthen Positive Structures:** Prevention efforts should focus on strengthening alternative relational structures that actively promote belonging, oversight, and positive engagement as an antidote to harmful norm reinforcement.

The study emphasizes that the developed telemetry and SNA framework offers the computational tools needed to observe and model the formation of these potential "echo chambers" as they develop in real time. Future longitudinal research integrating behavioural data with attitudinal surveys is recommended to directly model attitude change over time.