

AI-Buddies in MMORPGs: Player Perceptions of Conceptual LLM-Driven NPCs in World of Warcraft

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Abstract—This study investigates player perceptions of conceptual Large Language Model (LLM)-driven Non-Player Characters (NPCs) in *World of Warcraft* (WoW), referred to as “AI-Buddies.” Building on prior work on Conversational Artificial Autonomous Agents (CA-bots), it explores how such companions could enhance gameplay and player experience. A mixed-method survey of 273 WoW players was conducted, using visual mock-ups to present the AI-Buddy concept rather than a working prototype. Participants evaluated interaction features, customization options, and potential gameplay impact.

Results show general support, particularly among *Casual* players, for using AI-Buddies to improve solo content, personalization, and immersion. However, concerns were raised about balance, multiplayer exploitation, and ethical implications. Thematic analysis also revealed worries about reduced social interaction and technical feasibility. This short study contributes to ongoing discussions on CA-bots and LLM-driven NPCs in MMORPGs and offers early insights into how such features are perceived by the WoW playerbase.

I. INTRODUCTION

Recent advancements in Large Language Models (LLMs) and platforms that make them easily available (such as ChatGPT) [1], have sparked growing interest in their use within game development, with several games already exploring the possibilities offered by these models [2]. While LLMs have the potential to transform gameplay, it remains unclear how and where they should be used, limiting their adoption in commercial games.

This paper investigates:

- RQ1: How do Massive Multiplayer Online Role-Playing Game (MMORPG) players react to the concept of LLM-based agents?
- RQ2: What features are players interested in?

We present the results of a survey conducted with *World of Warcraft* (Blizzard Entertainment, 2004) players. The findings contribute to the ongoing discussion on LLMs in games and offer insights for developers and researchers.

II. BACKGROUND

A. World of Warcraft and Solo Play Trends

World of Warcraft (WoW) is a long-standing MMORPG released in 2004 as an expansion of the RTS series *Warcraft*. It became a global success and has since evolved through

ten expansions, adding new quests, storylines, and NPCs. The latest is *The War Within* (2024).

While WoW was originally built around group play, recent expansions have supported solo players more directly. Features like automatic matchmaking and weaker open-world enemies have lowered the barrier for solo content. Systems such as *Follower Dungeons* and *Delves* allow players to complete instanced content with AI-controlled companions, sometimes alongside lore characters like *Brann Bronzebeard*.

This growing reliance on AI companions makes WoW a strong candidate for LLM-driven NPCs. However, reducing the need for human interaction risks weakening the social dynamic that defines the genre.

B. The AI-Buddy Concept

The “AI-Buddy” is a hypothetical implementation of Ganz *et al.*’s CA-bot, tailored for WoW [3]. It acts as a personal companion NPC with its own backstory, personality, and small daily tasks. Players can customize its behavior and features.

What sets it apart from traditional NPCs is its ability to hold open-ended conversations using an LLM. It can comment on achievements, share lore, and respond dynamically to player actions. It can also initiate conversations, unlike standard NPCs. The AI-Buddy could replace current AI companions in *Follower Dungeons* and *Delves*, retaining their existing combat AI while introducing a more personal layer through shared memories with the player. It can still take on roles like tank, healer, or damage dealer, and be geared up using spare equipment, making it both functional and personalized.

III. LITERATURE REVIEW

A. NPCs and LLM-Driven Dialogue

NPCs are essential to video games, serving as quest-givers, adversaries, and companions [4]. Their behavior is often governed by behavior trees, which enable basic reactivity but limit adaptability, prompting interest in more flexible AI systems.

Recent advances in LLMs have introduced open-ended dialogue capabilities, enabling richer NPC interactions. However, issues such as hallucinations, verbosity, and memory limitations remain [5]. Solutions include long-term memory and structured grounding through function calling or knowledge graphs [6].

These approaches have been explored in games like *AI Dungeon* and *1001 Nights* [2], though most applications focus on

single-player titles. LLM-driven NPCs in multiplayer settings, particularly MMORPGs, remain underexplored.

B. CA-Bots in Multiplayer Contexts

Ganz et al. [3] introduced Conversational Artificial Autonomous Agents (CA-bots), capable of natural dialogue, in-game decision-making, and adaptive behavior. They classify these agents as:

- **Independent:** Balancing economies or filling underpopulated areas.
- **Complementary:** Assisting with quests or gameplay.
- **Intermediary:** Supporting multiplayer organization.

While their framework focuses on multiplayer design, this paper explores CA-bot integration in a single game context. We examine how WoW players perceive LLM-driven companions and their potential to enhance solo content while respecting MMORPG social dynamics.

IV. METHOD

A. Survey Design and Measures

This study used a mixed-method, cross-sectional survey to gather qualitative and quantitative data from WoW players. A survey with visual mock-ups was chosen over a prototype to efficiently explore player perceptions of a hypothetical CA-bot implementation.

Mock-up images were created by editing in-game screenshots to depict AI-driven conversations, gearing mechanics, and UI changes (see Fig. 1 for some of the mock-ups). The term *AI-Buddy* was used to simplify the concept: a personal, interactive NPC capable of open-ended dialogue, assisting with gameplay and reacting dynamically to player actions.

The survey was structured into ten sections:

- S1: **Player Info:** Demographics
- S2: **In-game Info:** Playstyle and content preferences
- S3: **Social Play:** Guilds and group vs solo habits
- S4: **Gameplay Preferences:** Enjoyment, AI-NPC satisfaction
- S5–S9: **AI-Buddy:** Features, customization, impact, and dynamics
- S10: **Feedback:** Open-ended concerns and suggestions

Participants were shown seven mock-ups and an explanatory text midway through the survey. This ensured a logical transition from general gameplay questions to AI-Buddy content. The survey consisted of 50 questions, including 36 Likert-scale items (1 = Strongly Disagree, 5 = Strongly Agree).

A small pilot with three participants helped refine the survey by identifying unclear wording and improving consistency.

B. Participants

Participants were recruited from three Facebook groups, three Subreddits, and ten Discord servers. These included general WoW forums, a PvP subreddit, guild servers, and class-specific communities.

A standardized post was shared in each forum with a brief description and survey link. The survey was open for ten days in October 2024. As an incentive, respondents could enter a draw for two €20 Blizzard Store gift cards, one for NA and one for EU.



Fig. 1: Mock-ups illustrating the AI-Buddy concept. *Top:* NPC comments on a recent achievement. *Middle:* Map icon shows AI-Buddy’s location. *Bottom:* AI-Buddy invites player to join content.

C. Data Analysis

1) *Quantitative Data Analysis:* Quantitative responses from the 36 Likert-scale items were analyzed using SciPy. Descriptive statistics (medians, standard deviations) were calculated to summarize overall trends.

Mann-Whitney U tests were used to assess group differences, reflecting the ordinal nature of the data. Players self-identified as *Casual*, *Hardcore*, or in between, and were grouped accordingly for analysis.

No correction for multiple comparisons was applied, as the analyses were exploratory and aimed to identify patterns for future research.

2) *Qualitative Data Analysis:* Qualitative feedback was collected from two open-ended questions about AI-Buddy concerns and suggestions. These responses were analyzed using thematic analysis. Comments were first grouped into themes (e.g., balance, social dynamics), then refined into higher-order categories to capture common views.

V. RESULTS

A. Descriptive Statistics

The survey received 273 responses. Of these, 86% identified as male, 14% as female, and one as another gender. Most participants played on the European (71%) or North American server (29%).

Participants self-identified as *Casual* (21%), *Hardcore* (18%), or in between (62%). Many had played WoW for

years, with large groups joining during *Vanilla*, *The Burning Crusade*, and *Wrath of the Lich King*.

Regarding roles, 25% played *Tank*, 33% *Healer*, and 82% *DPS*. The most popular content types were *Mythic+ Dungeons*, *Delves*, and *Non-queueable Raids*.

Socially, 81% were in a guild, and 63% had at least three active in-game friends. On a scale from *Never* to *Often*, players reported moderate friend play ($M = 3.34$, $SD = 1.16$), slightly lower than general group play ($M = 3.55$, $SD = 1.08$).

B. Quantitative Findings

1) *Social Play and Group Dynamics*: Group play was generally important to enjoyment ($M = 3.82$), with a clear preference for playing with friends ($M = 4.2$). Players were open to using AI-Buddies when friends were unavailable ($M = 3.66$), but still preferred real teammates when possible ($M = 4.54$).

Hardcore vs. Casual: Hardcore players valued group play significantly more ($U = 698$, $p < 0.0001$), preferred friends over randoms ($U = 776$, $p = 0.0001$), and were less inclined to use AI-Buddies ($U = 1882$, $p = 0.0003$). Casual players were correspondingly more likely to rely on AI-Buddies when friends were offline ($U = 1882$, $p = 0.0003$).

2) *Solo Content and Preferences*: Players enjoyed *WoW* overall ($M = 4.44$), though solo play was not preferred ($M = 2.63$). Still, the shift toward solo content was appreciated ($M = 3.29$), and AI-Buddies were seen as a useful enhancement ($M = 3.99$).

Hardcore vs. Casual: Hardcore players reported higher overall enjoyment ($U = 1001$, $p = 0.011$), whereas Casual players preferred solo content ($U = 2290$, $p < 0.0001$) and welcomed the solo-oriented shift more ($U = 2117$, $p < 0.0001$).

3) *Current AI Feature Satisfaction*: Players disagreed that AI companions in *Follower Dungeons* ($M = 2.63$) and *Delves* ($M = 2.50$) behaved like humans. Satisfaction with these systems was neutral, though *Delves* were slightly more enjoyable ($M = 3.75$) than *Follower Dungeons* ($M = 3.17$).

Hardcore vs. Casual: Casual players found AI behavior more realistic in both systems (*Follower* $U = 1728$, $p = 0.010$; *Delves* $U = 1766$, $p = 0.004$) and rated both experiences as more enjoyable (*Follower* $U = 1752$, $p = 0.006$; *Delves* $U = 1776$, $p = 0.003$).

4) *Desired AI-Buddy Features*: Highly rated features included adaptive learning ($M = 4.28$), memory of past interactions ($M = 4.34$), and role flexibility (tank, healer, DPS) ($M = 4.51$). Players also supported customization (appearance $M = 4.53$, personality $M = 3.97$), assistance with world events, resource gathering, and storytelling.

Mixed responses were given to role-play participation ($M = 3.06$) and idle-initiated conversations ($M = 3.38$). Assisting in world PvP was broadly disliked ($M = 2.15$).

5) *Immersion and Emotional Impact*: Players generally agreed that AI-Buddies would increase immersion ($M = 3.61$) and might help reduce solo-play loneliness ($M = 3.31$).

Hardcore vs. Casual: Casual players were significantly more likely to feel an immersion boost from AI-Buddies ($U = 1711$, $p = 0.013$).

6) *Concerns and Limitations*: Players were moderately concerned about reduced player interaction ($M = 3.21$). Most agreed AI-Buddies should be limited to solo or casual content ($M = 4.05$) and clearly distinguishable from real players ($M = 4.58$).

Hardcore vs. Casual: Hardcore players were more insistent about restricting AI-Buddy use in group content ($U = 964$, $p = 0.006$).

7) *Overall Perception*: The overall perception of the AI-Buddy concept was positive; most players agreed it could be a valuable addition to *WoW* ($M = 3.85$).

C. Qualitative Findings

Responses were grouped into two main themes: *Concerns* and *Suggestions*.

1) *Player Concerns*: **Balance and Fairness**: Players feared AI-Buddies could be exploited for gear or economic gain. One wrote, “AI farming materials would completely demolish the auction house.”

Social Dynamics: Many worried AI-Buddies might reduce interaction with real players. “It would lead to people playing with the AI-Buddy over other players.”

Immersion: Some were uneasy about NPCs mimicking friendships. “I don’t like the idea of an NPC that tries to be my personalized friend.”

Technical Feasibility: Concerns included lag and scalability. One asked, “What if everyone has an extra NPC tagging along?”

2) *Player Suggestions*: **Integration and Balance**: Some suggested using player *alts* as AI-Buddies and stressed they should never outperform real teammates.

Customization: Players wanted control over name, race, appearance, and personality.

Assistance: Many supported AI help with questing and navigation. “Maybe the AI-Buddy could nudge me toward the right quest.”

Lore and Storytelling: Some preferred interactions with major characters like *Thrall*; others favored generic companions to preserve immersion.

Limits and Monetization: Players suggested opt-in servers and warned against locking features behind paywalls.

VI. DISCUSSION

A. Summary of Key Findings

The results from 273 participants show general support for the AI-Buddy concept, particularly for enhancing solo gameplay. Casual players were more open to using AI-Buddies, while Hardcore players remained skeptical, preferring human teammates.

Casual players reported they would be more likely to:

- Use AI-Buddies when friends were offline,
- Prefer solo content and recent solo-friendly features,

- Find AI companions in Delves and Follower Dungeons more realistic and enjoyable,
- Report stronger immersion benefits.

Hardcore players reported they would be more likely to:

- Value group play and playing with friends,
- Be concerned about AI-Buddy use in competitive content,
- Express skepticism about replacing real teammates.

Players across both groups valued adaptive learning, memory, and customizable roles and appearance. Customization, both visual and personality-based, was also highly appreciated. Concerns focused on balance in multiplayer content, especially PvP, and the possibility of AI-Buddies reducing social interaction or being overpowered. Emotional attachment and immersion were seen as both strengths and risks.

Overall, the WoW community was intrigued by the concept but highlighted important limitations and conditions for successful implementation.

B. Coherence with Prior Research

This study builds on Ganz et al. [3] by exploring CA-bot integration in an established MMORPG. Players preferred *Complementary* CA-bots that support solo content and enhance immersion, which aligns with previous findings on AI companions reducing loneliness [7].

There was less support for *Intermediary* CA-bots, especially those initiating multiplayer coordination, and strong concerns about *Independent* CA-bots disrupting balance or economies. Ethical concerns like jailbreaking and hallucinations were also consistent with existing literature [8], [9].

Taken together, the feedback underlines the importance of designing AI systems that enhance gameplay without undermining the social dynamics central to MMORPGs.

C. Limitations

The main limitation of this study was the inability to implement AI-Buddies in WoW. A prototype would lack the complex social environment that makes WoW unique. Instead, visual mock-ups were used to illustrate possible scenarios. While useful, this method may have introduced bias by prompting hypothetical use cases rather than real gameplay experience.

The second limitation is demographic: only North American and European players participated, potentially excluding cultural perspectives from other regions — especially Asia.

D. Future Work

Future studies should test CA-bots in live MMORPG environments. While early LLM-powered games like *1001 Nights* [2] show promise, they lack the scale and complexity of games like WoW. Only full integration can reveal real-world effects on gameplay and social interaction.

Further research should compare different MMORPG communities, such as those in *Runescape*, *EVE Online*, and *Black Desert Online*, to examine how reception varies by game culture. Exploring regional differences, especially in Asia, could also provide valuable insight, as the present study did not include those populations.

VII. CONCLUSIONS

This study explored player perceptions of a hypothetical LLM-driven NPC in the MMORPG *World of Warcraft*, building on the CA-bot concept introduced by Ganz et al. The AI-Buddy was presented through mock-up images simulating potential in-game scenarios.

In response to RQ1, overall perceptions were positive. Most players saw the AI-Buddy as a valuable addition, especially for enhancing solo gameplay. Concerns centered on balance in PvP and the need to clearly distinguish AI-Buddies from human players. *Casual* players were generally more enthusiastic, while *Hardcore* players expressed more reservations.

For RQ2, players showed strong interest in features like customizable appearance and personality, long-term memory, and support for solo content, especially among *Casual* players.

These findings offer insight into the desires and concerns of an active MMORPG community. The results can guide future prototypes and help developers integrate LLM-driven NPCs in ways that meet player expectations.

In conclusion, the AI-Buddy concept shows potential to enhance MMORPG experiences through personalized, dynamic interactions. However, careful attention to balance, social dynamics, and ethical considerations will be crucial for successful implementation. This study contributes to the broader conversation on LLMs in games and lays the groundwork for future research.

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