From Catching Pokémon to Catching Truths: Scientific Inquiry Among PokémonGo Gamers

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Abstract

This study investigates the scientific reasoning practices exhibited by gamers in the early PokémonGo community. Through document analysis of forum posts, it reveals how gamers systematically observed phenomena, formed hypotheses, and tested them using empirical data—particularly in response to gameplay uncertainties. These practices mirror key elements of the scientific method, including experimentation, comparative analysis, and peer validation. The findings highlight how gaming contexts can foster rational inquiry and data-driven collaboration, offering insights into how informal gaming experiences may cultivate foundational scientific literacies.

Keywords: gamer, gaming experience, co-construction literacies, Pokémon Go

1   Introduction

Acknowledging the dual nature of video games and learning—as two sides of the same coin—marks a significant shift from the long-held belief that gaming and education are mutually exclusive. An increasing number of scholars are urging the investigation of how the gaming generation's learning methods have evolved, and how they have developed what the MacArthur Foundation (2014) describes as "latent gaming intelligences." These hidden capacities are often embedded in gamers' everyday activities, only to be activated and made visible through gaming.

Digital natives, who have grown up in a symbiotic relationship with technology and cannot fathom a world without computers (Prensky, 2001), embody this shift. From early experiences with Super Mario and Tetris to contemporary immersion in World of Warcraft and League of Legends, they have absorbed a unique set of competencies, communicative modes, and problem-solving logics through extensive gameplay.

Today, gamers collectively spend over billion hours weekly on video games, illustrating how deeply gaming has become woven into modern life (McGonigal, 2011). Nevertheless, crucial questions remain unresolved: What specific literacies are cultivated through gaming? What learning dividends does this medium yield for the gaming generation? These questions lie at the heart of ongoing research in the field of game-based learning (Kebritchi, Hirumi, & Bai, 2010).

2   Literature Review

Building on this momentum, Gee (2007) argued that video games are powerful tools for teaching, and that well-designed games can promote deep, transferable learning. McGonigal (2011) further emphasized the immersive appeal of games, where gamers frequently engage in collaborative problem-solving and sustained, meaningful activity. These scholars share a critical objective: to

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mobilize researchers to systematically deconstruct and articulate the lesser-known capabilities fostered by long-term gameplay.

Such "unrecognized gamer capacities" defy easy classification and are more aptly framed as latent gaming intelligences. Within the evolving field of GBL researchers have consistently observed gamers demonstrating unique cognitive and behavioral abilities. These are often subtle or context-dependent, and have historically eluded formal academic validation (Author, 2021).

For example, Gee (2003; 2007) noted that gamers routinely interact with diverse texts—narratives, user manuals, online forums—cultivating a form of cross-textual literacy that enables them to navigate and synthesize information across multiple sources. In a related vein, a wide spectrum of learning and skill acquisition occurring through gaming, ranging from strategic thinking to creative collaboration.

These studies collectively affirm that games, as learning platforms, facilitate the development of multi-dimensional intelligences and non-traditional competencies. Crucially, aspects such as social interaction, collaborative creation, and translingual communication offer observable manifestations of latent gaming intelligences. If researchers can more precisely identify and theorize these capacities, it would significantly advance our conceptual and practical understanding of learning in the digital age.

This study places particular emphasis on the peer-based processes of knowledge co-creation and sharing among gamers. The author (2016), for example, emphasizes that if video games are understood as communities of practice, then gamers' knowledge represents a form of participatory competence—recognized and valued within the broader gaming collective. Numerous studies echo this framing: from altruistic walkthrough authorship, willingness to share knowledge in virtual contexts, peer instruction in multi-gamer environments (Steinkuehler & Duncan, 2008; Squire & Giovanetto, 2008). These works reflect a shared assumption that gamers often collaborate and problem-solve fluidly (McGonigal, 2011).

A review by Li and Tsai (2013) on game-based science learning research from 2000 to 2011 found that fewer than one-third of studies explicitly promoted collaborative problem-solving. This suggests an ongoing gap in directly identifying co-creative capabilities among gamers. The present study aims to address this lacuna by highlighting collective competencies emerging in peer interactions, adopting the often-overlooked emic perspective of "insiders within game worlds" (Lin, 2011). Through academic conceptualization, it seeks to represent the richly textured phenomena of co-creation that characterize many gaming environments.

Such research is fundamentally anchored in the mutual exploratory journeys of gamers as they navigate between the known and the unknown. These studies illustrate how gamers, outside formal learning environments, often acquire strategic expertise through in-game challenges and peer exchange. In the absence of structured curricula or professional instruction, by what informal mechanisms do gamers develop their gaming literacies? (Author, 2018). This inquiry aligns closely with contemporary concerns in the learning sciences, which are increasingly attentive to socially distributed, informal learning processes.

The world of Pokémon Go exemplifies such dynamics. From organizing communal walks to catch creatures, encountering peers at well-known "hunting grounds," coordinating online raids, collaborating in gym battles, to engaging in social media displays and discussions, gamers routinely engage in high-density knowledge exchanges. These richly social co-creative practices—characterized by both teaching and learning—frequently emerge within community spaces. However, existing research on gamer knowledge-sharing tends to rely heavily on quantitative methods aimed at identifying motivational patterns or behavior categories. In contrast, few studies adopt qualitative, empirical approaches to examine specific mechanisms of interaction. This research seeks to fill that void by offering detailed accounts of co-creative practices within a

Pokémon Go gamer community. The central research question is: What collective competencies of co-creation are displayed by gamer communities during Pokémon Go gameplay?

3   Methodology

This chapter is structured around three key sections: the research context and background, data collection, and research analysis and trustworthiness.

3.1   Research Context and Background

Pokémon Go: Blending Innovation with Nostalgic Appeal. Since its debut, Pokémon Go has been widely recognized as a groundbreaking development in the gaming world. Created by Niantic Labs—an industry leader known for its pioneering work in augmented reality (AR)—the game's success is often credited to its seamless integration of AR technologies with interactive mobile experiences (Tsai & Wang, 2018).

More than just a standalone title, Pokémon Go builds on the enduring popularity of the Pokémon franchise. Designed as an AR-based, location-aware multi-gamer game, it invites gamers to step into the role of Pokémon Trainers, encountering various Pokémon species tied to specific geographical features—for instance, water-type Pokémon often appear near coastlines or lakes. Through the mobile app, users physically navigate real-world environments and view virtual Pokémon layered onto their surroundings via their smartphone cameras (Tsai & Wang, 2018).

Gameplay involves capturing these Pokémon by skillfully throwing Poké Balls, with core mechanics centered on collection and training. Gamers also engage in dynamic interactions with others through gym battles, team-based raids, and limited-time challenges. This immersive and interactive structure has drawn millions of participants worldwide, producing significant cultural and social ripples—from transforming public spaces into meeting grounds to fostering transnational gaming communities.

Selecting Pokémon Go—a widely adopted game imbued with educational affordances—provides a compelling opportunity to examine gamer learning in real-world contexts. Its commercial and cultural success marks a pinnacle that many mobile learning application developers strive to emulate, particularly for its innovative fusion of augmented reality (AR), virtual reality (VR), and game-based learning mechanisms. From the vantage point of biological sciences, some scholars have remarked that Pokémon Go mirrors the essence of field-based scientific inquiry, blending discovery with enjoyment. The game effectively serves as a form of large-scale citizen science, inviting the public to engage in playful ecological exploration.

3.2   Data Collection

This study collected two main types of data: gamer posts and field notes. The first category, gamer-generated posts in gaming forums, serves as concrete evidence of collaborative practices among gamers. Specifically, data collection focused on "gamer posts" from virtual gaming communities in Taiwan, spanning the period from July 2016 to June 2017. These data were drawn from online forums and websites centered on gaming discussions. In terms of sampling representativeness, Taiwan's online gaming communities tend to exhibit a "winner-takes-all" dynamic, where a few platforms dominate user activity (Chu & Chen, 2007). Based on prolonged observation, the researchers identified Bahamut and the PTT Bulletin Board System as the two primary platforms where Pokémon Go gamers in Taiwan congregated. Therefore, the study sampled posts

from Bahamut's Pokémon Go board and both the Pokémon and Pokémon Go boards on PTT.

A total of 11,016 posts were sampled: posts numbered 15,142 to 19,042 from the Pokémon board on PTT; posts numbered 1 to 6,919 from the Pokémon Go board on PTT; and 197 posts from the Pokémon Go board on Bahamut. The sampling criteria prioritized walkthroughs and strategic discussions that reflected collective knowledge creation among gamers. Notably, some references to international gaming content also emerged through citations within these Taiwanese community posts.

The second type of data comprises field notes initiated at the game's launch, guided by the ethnographic principle of "thick description" (Geertz, 1973). The first author began playing Pokémon Go immediately upon its release in July 2016, conducting participant observation across diverse play contexts. This immersive approach enabled a nuanced understanding of how gamers engage in spatially and temporally distributed interactions. The author conducted gameplay both in Taiwan and the United States during the initial months and participated in online communities that included gamers from both local and international backgrounds. Through these interactions, the phenomenon of gamer co-creation emerged as a salient focus of inquiry. Field notes were systematically recorded after each observation session, typically around 1,000 words in length, and served as a key source for analytical interpretation.

3.3 Data Analysis and Trustworthiness

To address the central research question—What collective co-creative capacities emerge within Pokémon Go gamer communities?—this study adopted a document analysis methodology. Leveraging the lead author's extensive engagement with video games, the research sought to distill key analytical foci embedded within what might otherwise appear to be casual or recreational walkthrough posts. Document analysis refers to a systematic approach to examining the contents of texts to generate insights into their contextual meanings and discursive environments. This is accomplished through identifying themes, recurring issues, and underlying motifs that enable interpretive synthesis (Denzin & Lincoln, 2005). More precisely, the study utilized an interpretive mode of document analysis, incorporating expert-driven and phenomenologically attuned coding procedures—commonly referred to as interpretive content analysis (Ahuvia, 2001). The analytic process unfolded across three sequential stages: data organization, close reading and descriptive annotation, and thematic classification with interpretive elaboration (Denzin & Lincoln, 2005).

To ensure research trustworthiness, the study implemented two standard validation strategies commonly used in qualitative inquiry. The first was data triangulation, which involves integrating data from multiple sources to achieve a more comprehensive understanding of the research phenomenon. This enhances the credibility and completeness of the findings and reflects a structure grounded in evidence-based structural corroboration (Ary, Jacobs, & Sorensen, 2010). The second strategy was the code-recode method, also known as intra-rater agreement (Ary et al., 2010). This approach involves re-coding the same data corpus after a time lapse to assess the consistency of coding decisions. The initial coding phase was completed in January 2019, with a follow-up coding session conducted in July 2023. The results demonstrated a high degree of consistency between the two coding iterations, thereby affirming the intra-rater reliability of the analysis.

4   Finding

The findings of this study indicate that gamers' co-creative competencies are enacted across a variety of dimensions. This section specifically draws parallels between these gamer-generated

enactments and established epistemic practices in academic research.

Gamers' processes of observation, hypothesis generation, and experimentation

In Pokémon Go, gamers actively engaged in hypothesis-driven inquiry, using empirical testing and comparative analysis to validate assumptions and differentiate fact from rumor. Traditionally, game companies would disclose internal game mechanics through official guidebooks. However, in the contemporary landscape, companies often avoid this approach. While guidebook sales may provide supplementary revenue, community-driven discourse has become essential in the digital era. A game's sustainability and its ability to attract new participants increasingly rely on the vibrancy of user-generated discussion. Consequently, prematurely resolving all uncertainties may inadvertently suppress the exploratory dynamics central to an active game community.

During the first six months after Pokémon Go launched—when available information was minimal and conclusions were still in flux—gamers actively debated a range of unresolved questions. Two prominent examples include:

A. Whether using a curveball increases the likelihood of capturing a Pokémon.

B. Whether region-exclusive Pokémon can be obtained through egg hatching.

In the absence of authoritative data, gamers independently constructed hypotheses and attempted to verify or falsify them through systematic observation. One notable instance comes from the PTT Pokémon board, where a gamer initiated a collaborative inquiry by posting a detailed dataset. Using Excel, the gamer recorded over a thousand capture attempts comparing straight and curveball throws, and then invited fellow gamers to critique, validate, or refute the findings—a clear manifestation of crowd-based experimentation in action.

Figure 1: A Gamer's Empirical Record of Throwing Outcomes for Investigating the Validity of In-Game Rumors. Data source: https://reurl.cc/yY5L1l

The example discussed above illustrates how gamers adopt rigorous, community-based analysis to evaluate gameplay rumors. By distinguishing between an "experimental group" (curveball throws) and a "control group" (straight throws), gamers systematically tested the hypothesis that curveballs increase capture success rates. They further incorporated variables such as the use of berries—items known to affect catch probabilities—conducting parallel trials to identify the most efficient strategy from both mechanical and resource perspectives.

What makes this case particularly compelling is the methodological dedication gamers displayed. Despite Pokémon Go requiring GPS-based, real-world mobility and offering limited in-app documentation tools, gamers manually logged their data using spreadsheet software like Excel. This practice required persistence and logistical ingenuity, underscoring a commitment to

empirical rigor rarely associated with casual gaming. Their intent was clear: to contribute verifiable findings to the broader community discourse.

Equally significant is how these gamers embodied the scientific spirit in their interactions with others. They followed a clear process—observation, hypothesis formulation, experimentation, and conclusion—that closely aligns with academic standards of inquiry. Although this article spotlights the curveball investigation due to space constraints, other contentious claims—such as the possibility of hatching region-exclusive Pokémon—also triggered scientifically framed debates. Gamers critically evaluated user-submitted content, scrutinizing manipulated images and data from external plug-ins, thereby engaging in peer review-like practices.

In sum, these gamers are far from the stereotypical image of passive users mindlessly consuming digital entertainment. On the contrary, they engage in disciplined acts of observation, analysis, persuasion, and verification. Through this iterative process of communal experimentation, gamers not only co-create game knowledge but also develop competencies akin to scientific literacy—skills cultivated informally yet persistently through play.

5   Conclusion and Discussion

This study brings to light previously unacknowledged co-creative competencies among gamers. A rational and empirical scientific mindset evident in observation, hypothesis testing, and experimentation. Beneath the surface, gamers engage in substantial cognitive and collaborative labor—analogous to the unseen paddling beneath a gliding duck—indicative of their deep investment in co-creative knowledge practices.

Forum walkthroughs represent a vital component of the gamer community's shared repertoire (Lave & Wenger, 1991)—a concept encompassing not only material artifacts such as documents and tools, but also shared narratives and participation-based knowledge. These are symbolic and practical resources that preserve communal memory and shape cultural identity.

Accordingly, this study undertook extensive document analysis of walkthrough posts, categorizing and interpreting their content through iterative reading. By tracing the emergence, context, impact, and latent structures within these texts, the research deepens our understanding of how gamer communities engage in meaningful, culturally situated knowledge production.

Acknowledgement

References

[1] MacArthur Foundation (2014). Learning Games Network. Retrieved February 28, 2025 from https://reurl.cc/la1lq

[2] Prensky, M. (2001). Digital game-based learning. McGraw-Hill.

[3] McGonigal, J. (2011). Reality is broken: Why games make us better and how they can change the world. Jonathan Cape..

[4] Kebritchi, M., Hirumi, A., & Bai, H. (2010). The effects of modern mathematics computer games on mathematics achievement and class motivation. *Computers and Education, 55*(2), 427-443.

[5] Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. Palgrave/St. Martin's.

[7] Gee, J. P. (2007). *Good video games+ good learning: Collected essays on video games, learning, and literacy*. Peter Lang.

[6] Steinkuehler, C.A., & Duncan, S. (2008). Scientific habits of mind in virtual worlds. Journal of Science Education and Technology, 17(6), 530-543.

[7] Squire, K., & Giovanetto, L. (2008). The higher education of gaming. E-Learning and Digital Media, 5(1), 2-28.

[8] Li, M.-C., & Tsai, C.-C. (2013). Game-Based Learning in Science Education: A Review of Relevant Research. *Journal of Science Education and Technology, 22*(6), 877-898.

[9] Geertz, C. (1973). *The interpretation of cultures*. Basic Books.

[10] Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research*. Sage.

[11] Ahuvia, A. (2001). Traditional, interpretive, and reception based content analyses: Improving the ability of content analysis to address issues of pragmatic and theoretical concern. *Social Indicators Research, 54*(2), 139-172.

[12] Ary, D., Jacobs, L. C., Sorensen, C., & Razavieh, A. (2010). Introduction to research in education. Cengage Learning.

[13] Lave, J., & Wenger, E. (1991). Situated Learning: Legitimate peripheral participation. Cambridge University Press.