

A Theory-based Evaluation of Watching Gameplay for Second Language Acquisition

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In recent years, researchers have advocated for incorporating digital games into second-language learning. Games have been shown to offer numerous merits for language learning in terms of pedagogy and entertainment, yet the current research has primarily focused on learners playing games themselves. This paper explores the under examined phenomenon of watching gameplay, where individuals observe others playing games. Watching gameplay potentially provides a means of rich, authentic language input and may be considered an appealing method of language learning to younger learners. However, its potential for second-language acquisition (SLA) remains minimally researched. By drawing on cognitive and sociolinguistic accounts of SLA, this paper establishes a foundation for future studies by examining the empirical data on relevant themes, such as cognitive load, language suitability, learner affective states, and communicative interactions. Additionally, it highlights further opportunities to expand research grounded in these theoretical perspectives.

近年教育学的・エンタテインメント的観点から多くの利点を提供するとされるデジタルゲームを第二言語学習に組み込むことが提唱されている。従来の研究は主に学習者自身がゲームをプレイすることに焦点化してきたが、本稿では、他者がプレイする様子を観察する「ゲームプレイの視聴」というまだ十分に研究されていない現象に着目する。ゲームプレイの視聴は、多様かつ生きた言語のインプット機会を提供する手段となり、特に若い学習者にとって魅力的な言語学習法と成りうるだろう。しかし、ゲームプレイの視聴と第二言語習得 (SLA) に関わる研究は少ない。そこで本稿では、SLAの認知的・社会言語学的観点から、認知負荷、言語の適切性、学習者の情動状態、コミュニケーション的相互作用といった関連テーマの実証データを検討することで、今後の研究の基盤を築くとともに、これらの理論的枠組みに基づいた研究のさらなる展開の機会についても強調したい。

Watching gameplay refers to the act of observing another person (i.e., a streamer) play a digital game. These sessions can be live or prerecorded and are typically hosted on platforms like Twitch.tv and YouTube, with the latter being particularly popular in Japan (Andersson, 2022). Watching gameplay is described as “...a kind of real-time video social media that integrates traditional broadcasting and online gaming” (Li et al., 2020: 1). During live streams, streamers often provide commentary, and viewers can interact with both the streamer and other audience members through chat features. The earliest known instance of a digital game video with live commentary may date back to 2007 (Recktenwald, 2014). Since then, watching gameplay has evolved into a global sensation.

In recent years, the popularity of watching gameplay has skyrocketed, with significant growth seen in both viewership and market value (Hamilton et al., 2014). Platforms like Twitch.tv and YouTube now attract audiences comparable to, or even surpassing, those of traditional television networks (Gilbert, 2018). Content ranges broadly from casual gameplay by amateurs to highly organized Esports events. Esports has an estimated audience of 495 million (Jang et al., 2020) and plays a pivotal role in the game streaming ecosystem, generating approximately USD 1.38 billion annually (Newzoo, 2023). These events are supported by multinational corporations, feature substantial prize pools, and command significant attention worldwide. Game streaming is especially popular among younger demographics, with 41% of Twitch.tv’s audience estimated to be between the ages of 16 and 24 (Iqbal, 2022).

Watching gameplay has also gained widespread appeal in Japan. A 2021 survey of Japanese middle and high school students indicated that “game streamer” was among the most desired future career professions (“Awareness Survey,” 2021). Moreover, studies surveying Japanese university studies have shown higher proportions of those who watch games than play them (Andersson, 2022; Andersson, 2023b). These studies also indicate that YouTube is the dominant platform over Twitch.tv in Japan. The popular Japanese game streamer 2Bro Entertainment (n.d.) has over three million followers on its YouTube channel.

The Watching Gameplay Phenomenon and Language Learning

Beyond its entertainment value, watching gameplay holds great potential for educational applications and SLA. On the one hand, Japanese university students have expressed skepticism toward the effectiveness of such language for SLA purposes, citing preconceived negative ideas about the prevalence of slang, inappropriate words, and undesirable language (Andersson, 2022). Nevertheless, the research by Chien (2019) and Sylvén and Löwenadler (2023) provides evidence to contradict this notion. Both studies constructed and analyzed the corpora of various popular streamers. The spoken language was found to contain a healthy mix of common and academic-level words that can foster learning (Chien, 2019). Moreover, streamers frequently provide live commentary to and engage with their viewers and narrate their actions during gameplay. Such authentic language has been shown to serve as valuable input for language learners. In this regard, Sylvén and Löwenadler found that the context of the streamers' language included essential contextual scaffolding to help viewers understand what was happening in the game. These two studies will be discussed in greater depth later.

There is also an indication that learners express positive attitudes toward watching gameplay for language-learning purposes. Studies have found instances where more people choose to watch gameplay rather than play games themselves, as it allows them to experience the game without the associated effort of playing (Andersson, 2022, 2023b; Kaytoue et al., 2012; Orme, 2021). Additionally, a survey by Andersson (2022) of 132 Japanese university students indicated positive attitudes toward pedagogy for individuals interested in playing or watching games, including moderate levels of preference, ease of use, and learning opportunities. An experiment of 32 Japanese participants produced similar findings in that ease of use, learning opportunities, and preference for language learning were rated as moderate (Andersson, 2023b). Overall, this suggests that watching gameplay may be an accessible and engaging medium for language learners, especially given its appeal among younger age groups.

However, despite the growing popularity and potential educational value of watching gameplay, there has been minimal research on its effectiveness for language learning. Few studies have explored how watching gameplay might contribute to linguistic development or investigated learners' attitudes and perceptions of its usefulness in language acquisition. Nevertheless, attempts at language learning are already taking place online outside of academia, where some streamers purposely teach their audience a second language (L2) while playing (Figure 1). This gap highlights a promising avenue for future research into the intersection of digital game-based learning and language education.

Figure 1

Autonomous Efforts of Pedagogy on Twitch.tv



The streamer JapanQuest (n.d.) is seen teaching his audience Japanese on Twitch.tv

Despite the potential merits of learning a language through watching gameplay, researchers caution against adopting the latest technological trends solely for their novelty or popularity (Peterson, 2013). Instead, empirical analyses grounded in SLA theory are essential (Peterson & Jabbari, 2023). Therefore, this paper addresses the theoretical foundations researchers can apply when evaluating the suitability of watching gameplay for language learning. While various theories could be considered, most research is informed by either cognitive or sociocultural perspectives of SLA (Huang & Schmidt, 2023). The following sections first explore how these perspectives shape research on playing digital games. Then, an examination of their theoretical implications for watching gameplay will be provided, mainly focusing on the cognitive perspective and outlining future opportunities to explore the sociocultural perspective.

Cognitive Accounts of SLA

The cognitive perspective of SLA views language learning as primarily an internal mental process that occurs within the minds of individuals (Zuengler & Miller, 2006) (Table 1). While this perspective emphasizes the individual's language processing independent of social interaction (Gass, 2000), it still recognizes the value of social communication as input that can support cognitive processing. Research grounded in this perspective explores the role of internal cognitive functions such as memory, attention, perception, attitudes, and problem-solving in facilitating the use of an L2. These studies focus on enhancing learners' positive mental processing while mitigating cognitive barriers (Fernández et al., 2018).

Table 1
Cognitive Accounts of SLA

	Description
Central tenets	Language learning is mainly an internal mental phenomenon. Social communication is input that fosters cognitive processing.
Relevant themes	Memory, attention, perception, attitudes, problem-solving
Concerned with	Selecting games that promote positive mental processing Eliminating extraneous mental processing
Merits of games	Engagement and motivation Meaningful and relevant tasks Generative mental processing and sense-making Appropriate and timely feedback Positive affective state Rich L2 input

Cognitive Load Theory further asserts that learners have a finite capacity for processing information at any given time (Huang & Schmidt, 2023). As a result, researchers aim to optimize generative processing—cognitive activities that promote learning—while minimizing extraneous tasks that lead to unnecessary processing and hinder effective learning.

Digital Games and Cognitive Accounts

Digital games are recognized for offering various cognitive benefits, particularly in language learning (Table 1). They engage learners through positive emotions, meaningful tasks, and responsive feedback tailored to learners' needs (Plass et al., 2020). From a cognitive perspective, learners' emotional states are critical, as emotions significantly impact the success of language acquisition (Krashen, 1981). Accordingly, researchers emphasize fostering positive affective states while reducing affective barriers, which are emotional factors such as anxiety and low self-esteem that impede learning (Hwang et al., 2017). In this regard, Hung et al.'s (2018) review of 50 studies conducted between 2007 and 2016 found that digital games consistently placed learners in positive affective states conducive to language acquisition.

In addition to emotional engagement, digital games promote behavioral and cognitive engagement through immersive narratives (Schwartz & Plass, 2020). Emotional connections between players and the characters they control enhance cognitive processes, such as selecting relevant information, organizing it meaningfully, and integrating it with prior knowledge (Mayer, 2014). These strong narratives can foster generative processing, a type of cognitive activity that helps learners make sense of content and motivates deeper engagement with the material (Mayer, 2020).

Digital games facilitate these processes through individualized experiences, exposure to the target language, and opportunities for communication within the game environment (Peterson et al., 2020). They also promote meaningful connections between learners and the learning system, enhancing engagement when solving tasks (Plass et al., 2020). Personalized feedback is another key feature of digital games, offering mechanisms such as repetition, tutorials, gradual progression, and critiques of gameplay progress. These features reinforce reflection, noticing, and a sense of achievement, which support language acquisition (Peterson et al., 2020).

However, certain game features may hinder language learning. Researchers have examined how player-game interactions can impact cognitive load and vocabulary acquisition, noting that excessive cognitive demands or poorly designed game mechanics can impede learning (Chang et al., 2018; deHaan & Kono, 2010). Consequently, cognitive-oriented DGBLL researchers focus on selecting games with mechanics that support language learning while minimizing unnecessary cognitive burdens.

In an attempt to analyze the potential of watching gameplay through the cognitive perspective, the following discussion specifically looks at the aspects of cognitive load, L2 input suitability, and learner affective states.

Watching Gameplay and Cognitive Load

When considering the relative cognitive benefits of watching gameplay over playing digital games, it is necessary to distinguish their greatest difference; playing involves controlling the gameplay through a handheld remote, termed physical interactivity (deHaan et al., 2010), while watching does not. Several scholars argue that physical interactivity in digital games can contribute to extraneous (i.e., adverse) cognitive load. Mayer (2020, p. 89) explains that digital games may “create extraneous processing and reduce essential processing because of many distracting details on the screen.” Similarly, Ninaus et al. (2020, p. 847) caution that “the poor use of game elements may lead to situations in which players have to use most of their cognitive capacity for extraneous processing...” Earlier research by deHaan and colleagues has examined the cognitive load associated with physical interactivity. Their findings indicate that physical interactivity in reflex-based games (deHaan & Kono, 2010) and music games (deHaan et al., 2010) constitutes extraneous cognitive load. Furthermore, they note that watching gameplay demands less cognitive effort than playing, as viewers “...are required only to attend to input, and their cognitive resources may not be so taxed as while playing a video game” (deHaan et al., 2010 p. 76). Therefore, since individuals are not required to control the gameplay, several experiments that compare watching gameplay versus playing games have shown better language learning outcomes for the watchers (Andersson, 2023a; deHaan et al., 2010; Zhonggen, 2018).

However, conflicting evidence complicates the argument regarding cognitive load in gameplay. Pellouchoud et al. (1999) conducted an experiment with 14 children who either briefly played or watched a Tetris-like commercial game. While EEG measures showed that the player group experienced increased cognitive load, this did not significantly affect their learning outcomes. This suggests that, although playing the game heightened cognitive load, it did not result in adverse effects. Similarly, Marucci et al.’s (2021) study of 18 participants in Italy examined cognitive load in a virtual environment using EEG and Galvanic Skin Response measurements. The study found that participants exposed to the virtual treatment performed better despite experiencing higher cognitive load conditions. Additionally, Andersson’s (2023b) related experiment produced nuanced results. In the study, participants played or watched a real-time strategy game for five weeks. The results showed both players and watchers experienced vocabulary gains despite the players reporting higher mental effort and task difficulty. The interviews indicated that watching gameplay may simultaneously free up mental resources while also lowering participant concentration through less engagement. Overall, further studies are necessary to better understand the impact of physical interactivity in digital games.

Watching Gameplay and Language Suitability

Cognitive linguists are concerned with selecting digital games with rich L2 input. In this regard, a review of the available research yielded two studies addressing the quality of vocabulary spoken during sessions of watching gameplay. In the first study, Chien (2019) used a mixed-methods approach to explore the lexical coverage of vocabulary in recorded streaming sessions of the popular sandbox game Minecraft. Quantitative data consisted of 106 video transcripts from three popular native-English-speaking streamers, generated using YouTube’s auto-transcription feature. A corpus of 464,605 words was analyzed for vocabulary frequency, commonality, and lexical coverage. In addition, the study qualitatively analyzed a 10-minute gameplay session between two young EFL L2 learners to evaluate their spoken discourse, vocabulary usage, and coverage.

The results revealed that L2 learners familiar with the 3,000 most frequent English words in the British National Corpus would understand only 94% of the vocabulary used by the streamers. To reach 95% comprehension, learners would need to know between 4,000 and 6,000 words. By comparison, a five-million-word spoken corpus showed that 3,000 word families accounted for nearly 96% of its lexical coverage, suggesting that Minecraft videos feature more low-frequency words than daily conversation. However, the corpus also highlighted a significant proportion of common vocabulary, with 88.11% of the words coming from the first 1,000 words and 92.37% from the first 2,000 words. This indicates that Minecraft gameplay videos combine frequent and less frequent vocabulary, offering rich and diverse language exposure. Based on these findings, Chien (2019) concluded that “Minecraft YouTube videos can serve as authentic language input sources with rich vocabulary coverage” (p. 1).

In the second study, Sylvén and Löwenadler (2023) also examined the potential of watching gameplay for language learning, highlighting that “the language learning potential of LPs (Let’s Play) arguably represents an understudied research area” (p. 94). Their mixed-methods study analyzed the occurrence of sophisticated academic vocabulary in Let’s Play videos. The authors collected approximately 20 hours of gameplay transcripts from three popular streamers, creating a corpus of 180,000 words. Keywords were extracted using an academic vocabulary dictionary and compared with BBC articles and an English proficiency test. The study also qualitatively analyzed various excerpts to contextualize the language use.

One key finding was that the videos featured a relatively high density of academic vocabulary; 37% of the academic words included in the English proficiency test appeared at least once in the gameplay transcripts. The authors then categorized the word corpus

into four types of support for the viewers: contextual support (explaining in-game events), text support (reading aloud in-game text), visual support (describing objects and actions on-screen), and explanatory support (simplifying academic terms). These contextual elements were identified as potentially beneficial for learning academic vocabulary. The study concluded that watching gameplay provides extensive academic vocabulary in supportive contexts conducive to language learning.

Watching Gameplay and Learner Affective States

There is currently minimal evidence to draw upon to assess the learners' sentiments for learning an L2 through watching gameplay. However, there are indications that it may be well-received. First, the recent global popularity of watching gameplay may indicate its positive reception. Additionally, the previously mentioned survey of Japanese middle and high school students showed that students are interested in pursuing careers as game streamers ("Awareness Survey," 2021). Moreover, the demographic data shows that watching gameplay is popular amongst individuals between the ages of 16 and 24 (Iqbal, 2022), thus falling suitably within the high school and university bracket. Finally, the data on learners' technology usage indicates learners commonly play games on cell phones or consoles, with fewer using PCs (Andersson, 2022). This aligns well with watching gameplay, which requires only an internet connection and can be done on a phone. Furthermore, some research indicates that learners generally express positive attitudes and perceptions of effectiveness for learning a language through watching gameplay. The previously mentioned survey by Andersson (2022) of university students in Japan revealed that learners showed mixed but generally positive attitudes toward language learning through watching gameplay. Participants, however, desired subtitles to be available, and some expressed concerns about the casual language used. Enjoyment emerged as a key motivating factor, with many seeing watching gameplay as both engaging and beneficial for language acquisition. The study also identified a distinct group of learners who exclusively watch gameplay, with a higher proportion of females engaging in this activity than gaming. Additionally, more learners reported watching games in English (22.38%) than playing them in English (11.86%), suggesting broader accessibility and appeal.

Nevertheless, other research has provided contrary or nuanced results. A one-time preliminary experiment by Andersson (2023a) of 11 Japanese university students showed that preference for learning English through watching gameplay decreased, while ease of use remained unchanged, and learning opportunities slightly increased. The

follow-up longitudinal study (2023b) of 32 Japanese university students reached similar conclusions. Although after five weeks of watching other peers play a digital game, participants rated ease of use higher, learning opportunities and preferences both slightly decreased. However, they still were interpreted as moderate. The interviews conducted in both studies discovered that the participants desired players to possess better gaming skills to create an entertaining environment. Overall, additional studies will be required to solidify and strengthen the evidence.

The cognitive perspective highlights the potential benefits of watching gameplay, and the current evidence offers cautious optimism. Further studies should be pursued to provide additional insight. Now that the cognitive accounts have been addressed, the remaining section of this paper will outline the potential for future research to be grounded in the sociocultural perspective.

Sociocultural Accounts of SLA

The sociocultural account of SLA represents a more contemporary approach to language learning that has gained significant traction in recent years (Huang & Schmidt, 2023) (Table 2). Sociocultural theories emphasize the interdependence of mental processes and social activities (Lantolf & Thorne, 2006). From this perspective, cognitive development originates in social interactions, which are later internalized as inner speech (Li, 2019). Thus, language learning is not viewed as solely an internal process but as a fundamentally social phenomenon driven by interaction among learners (Peterson et al., 2020; Zuengler & Miller, 2006).

A key concept in this framework includes the zone of proximal development, which highlights the importance of learners working alongside more proficient peers to bridge the gap between their current and potential abilities (Lantolf & Thorne, 2006). Additionally, the concept of mediation underscores how mental development emerges through ongoing dialogue between cognitive and social tasks, with language serving as a critical tool for facilitating these processes (Lantolf, 2000).

Table 2
Sociocultural Accounts of SLA

	Description
Central tenets	Cognitive development originates externally through social interactions and is internalized. Mental processes and social activities are determined by each other. L2 learning is primarily a social phenomenon instigated through social interactions between learners.
Relevant themes	Social and cooperative peer interactions, zone of proximal development, mediation
Concerned with	Fostering language learning through peer social and communicative interactions
Merits of games	Communicative dialogues, co-construction of meaning, co-learning Socially supportive environments Positive social norms (mentoring, interdependence, collaboration, teamwork, community engagement)

Digital Games and Sociocultural Accounts

Research on digital games within the sociocultural framework often investigates the role of multiplayer environments in fostering SLA. Thorne (2008) proposed that social interactions in online games create environments conducive to the zone of proximal development by facilitating dialogue and collaborative meaning-making. Jabbari and Eslami (2019) support this idea with their review of studies on massively multiplayer online games. The authors concluded that these games foster socially supportive environments for SLA by promoting peer mentoring, collaboration, teamwork, and communal learning practices. Such multiplayer environments also encourage interactions between novice and proficient players, nurturing social bonds and advancing L2 learning.

Watching Gameplay and Sociocultural Accounts

When considering how watching gameplay can facilitate SLA through the lens of sociocultural accounts, researchers should focus on the communicative interactions between those involved. In this case, this would include the discourse taking place between streamers and viewers. Watching gameplay can entail either watching live or

pre-recorded content. While each offers unique opportunities for learning, the former is more relevant to sociocultural linguists as it enables real-time communication. Hamilton et al. (2014, p. 1315) believe that “live-streaming combines high-fidelity computer graphics and video with low-fidelity text-based communication channels to create a unique social medium.” Recktenwald (2014) explains how such commentary is essential for establishing a relationship between the streamers and the audience.

A review of the available research shows that there have been no attempts to directly measure how discourse in live watching gameplay sessions may foster language learning. Some studies have assessed the social interactions taking place during these sessions, but they are unrelated to language learning (Hamilton et al., 2014; Lessel et al., 2017). The reason for the lack of evidence is that most experiments testing watching gameplay for L2 purposes entail controlled environments where communicative interactions are eliminated. Nevertheless, a study by Ebrahimzadeh (2017) allowed for communication between participants. In the experiment, 241 male high school students either read reading materials, played a digital game, or watched the game for five weeks. The watchers were encouraged to assist the players with verbal advice and support. No statistical difference was discovered between the players and watchers for vocabulary achievement, while the players and watchers both outperformed the readers.

There are many opportunities for researchers to explore how the interactive and collaborative nature of live-streamed gameplay can facilitate SLA. For instance, future studies could investigate how real-time exchanges between streamers and viewers may promote vocabulary acquisition, conversational skills, or pragmatic competence. Additionally, researchers might examine how the social bonds formed through these interactions contribute to learner motivation and engagement, both of which are critical factors in language learning. By addressing these gaps, scholars can expand our understanding of the sociocultural dimensions of gameplay and their potential for facilitating language development.

Conclusion

Watching gameplay has emerged as a widely popular activity, yet its potential for language learning remains underexplored. While it holds promise as an engaging and accessible tool for SLA, researchers have emphasized the importance of thoroughly evaluating new technologies before integrating them into educational contexts. This evaluation requires grounding the research in established SLA theories to provide a robust framework for understanding its potential impact.

Andersson: A Theory-based Evaluation of Watching Gameplay for Second Language Acquisition

This paper has taken an initial step in addressing this gap by presenting a theory-based approach to assessing the feasibility of watching gameplay as a language-learning tool. By connecting watching gameplay to SLA theories and identifying specific areas for empirical investigation, it outlines a path for future research to generate data-driven insights. Such research is essential for making informed, objective determinations about the effectiveness of watching gameplay as a method for language learning. Overall, this work serves as a foundation for advancing our understanding of how modern digital phenomena can be harnessed for educational purposes, emphasizing the need for rigorous, theory-informed studies to guide innovation in language education.

Bio Data

Shawn Andersson is a specially appointed associate professor at the Division of Foreign Studies at Osaka University. His research interests include computer-assisted language learning (CALL), game-based language learning (GBLL), and self-access language learning (SALL).

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