RITPU | IJTHE
Revue internationale des technologies en pédagogie universitaire
International Journal of Technologies in Higher Education
RITPU.CA
IJTHE.CA

ISSN 1708-7570 Volume 23, n° 1, article 5 2026

The Role of English Proficiency in French Language Acquisition: A Case Study of *Assassin's Creed Unity* Gamers

Le rôle de la maîtrise de l'anglais dans l'apprentissage du francais : une étude de cas dans le cadre du jeu Assassin's Creed Unity

https://doi.org/10.18162/ritpu-2026-v23n1-05

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Available online: June 19, 2026

Abstract

Language learning methodologies have diversified significantly in recent years, with video games emerging as a prominent technological tool over the past decade. Given the predominance of English as the primary language of interaction in the gaming industry, it can be reasonably assumed that gamers often develop a functional command of English. Furthermore, existing scholarship has extensively documented the linguistic similarities between French and English. This study employs an explanatory research design to investigate the potential influence of English proficiency (minimum B1 level) on French language acquisition among Iranian gamers ($N = 18$), specifically English undergraduates, addressing the research question: To what extent does prior English proficiency facilitate French language acquisition in a game-based learning environment? Utilizing *Assassin's Creed Unity* – a game featuring French as its primary language – the research assessed participants' French comprehension through standardized tests evaluating both written and oral competence. The findings contribute to the growing body of knowledge on cross-linguistic transfer in digital learning environments while simultaneously highlighting the limitations inherent in small-scale studies. Based on the results, the paper proposes recommendations for future research to further explore the efficacy of game-based learning for French as a second language (L2).

Keywords

Language acquisition, game-based learning, gamers and language, foreign language education, French

Résumé

Les méthodologies d'apprentissage des langues se sont considérablement diversifiées ces dernières années, les jeux vidéo s'étant imposés comme un outil technologique de premier plan au cours de

la dernière décennie. Étant donné la prédominance de l'anglais comme langue principale d'interaction dans l'industrie du jeu vidéo, il est raisonnable de supposer que les joueurs développent souvent une maîtrise fonctionnelle de l'anglais. De plus, les recherches existantes ont largement documenté les similitudes linguistiques entre le français et l'anglais. Cette étude adopte une démarche de recherche explicative pour examiner l'influence potentielle de la maîtrise de l'anglais (niveau minimum B1) sur l'acquisition du français chez des joueurs iraniens (N = 18), en particulier des étudiants en licence d'anglais. Elle s'articule autour de la question suivante : dans quelle mesure une compétence préalable en anglais facilite-t-elle l'acquisition du français dans un environnement d'apprentissage basé sur le jeu ? En utilisant *Assassin's Creed Unity* – un jeu dont la langue principale est le français – la recherche a évalué la compréhension du français des participants à l'aide de tests standardisés mesurant la compréhension écrite, la compréhension orale et la reconnaissance lexicale. Les résultats contribuent à l'enrichissement du corpus de recherches sur le transfert linguistique dans les environnements d'apprentissage numériques, tout en soulignant les limites inhérentes aux études de petite échelle. Sur la base de ces résultats, l'article propose des recommandations pour de futures recherches visant à explorer davantage l'efficacité de l'apprentissage du français langue étrangère (FLE) via les jeux vidéo.

Mots-clés

Acquisition des langues, apprentissage basé sur le jeu, joueurs et langues, enseignement des langues étrangères, français

1. Introduction

The relationship between video games and learning has become an increasingly prominent area of study within educational research, cognitive psychology, and instructional design. Video games, as interactive and immersive digital environments, provide unique opportunities for engagement, skill development, and knowledge retention. Research has shown that video games can enhance various cognitive functions, including problem-solving and critical thinking (Gee, 2003), memory and attention (Green & Bavelier, 2012), spatial reasoning (Uttal et al., 2013), and multitasking (Basak et al., 2008). For example, complex game scenarios require players to analyze situations and make strategic decisions, thereby fostering analytical skills. Fast-paced games have been found to improve working memory and selective attention, while action and puzzle games enhance spatial visualization and mental rotation abilities. Additionally, real-time strategy games train players to manage multiple objectives simultaneously, improving executive function. As noted by Bavelier and Green (2011), while popular media often sensationalizes video games for their supposed effects – or lack thereof, it is important to recognize that the term "video games" is far too broad to hold any meaningful scientific predictive value. Beyond their cognitive benefits, video games leverage intrinsic and extrinsic motivational mechanisms that support learning. The immersive nature of games sustains player interest through challenge-reward cycles, creating a state of flow in which learners remain highly engaged (Csikszentmihalyi, 1990). Immediate feedback mechanisms reinforce learning by enabling players to adjust strategies in real time, while goal-oriented progression systems promote persistence and mastery (Ryan & Deci, 2020). These motivational elements make video games particularly effective in educational contexts, where maintaining student engagement is often a challenge.

On the other hand, linguistic transfer – a key concept in second language acquisition (SLA) – refers to the influence of a learner's native or previously acquired language on the learning of a target

language (Odlin, 1989). In the context of English speakers learning French, this phenomenon manifests in both facilitative and inhibitory ways. Positive transfer occurs when similarities between English and French – such as shared lexical cognates (e.g., "important/*important*") or syntactic structures (subject-verb-object word order) – enhance comprehension (Ringbom, 2007). For instance, gamers encountering French dialogue may recognize Latinate vocabulary embedded in the game's narrative or environmental texts (e.g., "*révolution*"), leveraging their English knowledge to decode meaning (Jarvis & Pavlenko, 2008). However, negative transfer can also occur, particularly in pronunciation (e.g., "*hôtel*" pronounced with an English /h/ instead of the French's silent /h/) or false cognates (e.g., "*librairie*" meaning "bookstore" rather than "library") (Kellerman & Sharwood Smith, 1986). The immersive, context-rich environment of *Assassin's Creed Unity* mitigates some challenges by providing visual and narrative cues that clarify meaning – a dynamic aligned with Gass and Selinker's (2008) assertion that input comprehensibility reduces reliance on direct translation.

Empirical studies on game-based language learning (e.g., Reinhardt, 2019) suggest that interactive media enhance incidental vocabulary acquisition through repeated exposure, a process amplified when the L1 (English) and L2 (French) share typological features. This aligns with Jarvis's (2000) findings on lexical transfer in SLA, where learners unconsciously map their L1 knowledge onto L2 input. Consequently, video games represent a powerful medium for learning, offering cognitive, motivational, and pedagogical benefits. However, their effectiveness depends on thoughtful design, appropriate integration into educational contexts, and consideration of learner characteristics. This study investigates the extent to which English proficiency (minimum B1 level) facilitates initial French language acquisition among Iranian gamers with no prior knowledge of French, within a digital game-based learning (DGBL) context.

2. Literature Review

2.1 Game-Based Learning

The concept of game-based learning (GBL) involves utilizing games to enhance educational experiences by integrating interactive and engaging elements. In the context of language education, game-based language learning (GBLL) employs both digital and non-digital games to facilitate second language acquisition (L2). This literature review examines research on GBL and GBLL from 2000 to 2025, exploring key trends, benefits, challenges, and future directions. The theoretical foundations of GBL are rooted in constructivist and experiential learning theories (Piaget, 1950; Vygotsky, 1978). Prensky (2001) emphasized that digital games engage learners through challenges, feedback, and rewards. Gee (2003) introduced the idea of semiotic domains, arguing that games help learners acquire new literacies by immersing them in rule-based systems. Later, self-determination theory (SDT) (Ryan & Deci, 2000) became influential in explaining how digital games satisfy three core psychological needs – autonomy, competence, and relatedness – thereby enhancing motivation and engagement (Ryan et al., 2006). Through a series of four experiments, Ryan et al. (2006) demonstrated that games fulfilling these needs significantly improve player engagement, increase preferences for future play, and promote short-term well-being. Their research further underscores the importance of intuitive controls and immersion ("presence") in facilitating need satisfaction, suggesting that game designs prioritizing these elements optimize motivational outcomes. Complementing SDT, flow theory (Csikszentmihalyi, 1990) offers additional insights into how well-designed games sustain engagement. According to flow theory, learners achieve an optimal psychological state – flow – when challenges are balanced with their skill levels, avoiding both boredom (tasks are too easy) and frustration (tasks are too

difficult). Cornillie (2017) supports this perspective, noting that adaptive game mechanics dynamically adjust difficulty to maintain this balance, which is a key condition for flow. Furthermore, games provide immediate feedback, allowing learners to correct errors and refine skills in real time, which further sustains immersion and motivation.

The evolution of GBL from 2000 to 2025 can be divided into three phases. 1. *Early developments (2000–2010)*: This phase focused on motivation and engagement, with studies indicating that educational games improved problem-solving skills (Squire, 2003) and knowledge retention (Garris et al., 2002). However, skepticism regarding their academic efficacy compared to traditional teaching methods persisted. 2. *Expansion and digital integration (2011–2020)*: During this period, mobile games such as Kahoot! and Duolingo gained popularity (Wang et al., 2016). Research demonstrated enhanced collaborative learning (Hamari et al., 2016) and adaptive learning (Shute et al., 2015). 3. *Recent trends (2021–2025)*: Current research explores AI-driven adaptive games, virtual reality (VR) language games, and gamified social platforms like Minecraft Education.

2.2 Game-Based Language Learning

In the realm of game-based language learning (GBLL), several benefits have been identified. Games such as Memrise improve vocabulary acquisition through spaced repetition (Nakata, 2011). Unlike traditional apps that just teach vocabulary, Memrise uses authentic content to build practical intercultural skills. It goes beyond grammar to show you how language is actually used in real-life contexts. Role-playing games (RPGs) like The Sims contextualize grammar rules (Reinders & Wattana, 2015). Virtual reality (VR) games, including Mondly VR, improve speaking and pronunciation skills, while multiplayer games such as Among Us foster intercultural communication (York, 2020). Research highlights the advantages of digital games in creating authentic, low-anxiety environments for language practice, which is particularly beneficial for second language acquisition (SLA) (Sykes & Reinhardt, 2012). For example, massively multiplayer online games (MMOs), such as World of Warcraft, facilitate meaningful interactions in the target language, promoting negotiation of meaning and pragmatic competence (Rasekh Eslami & Zohoor, 2023). Empirical evidence supports these benefits, with a meta-analysis by Wu et al. (2011) demonstrating that GBLL significantly enhances L2 proficiency. Ryan and Deci (2020) confirmed that intrinsic motivation increases with game-based tasks. Despite these advantages, challenges remain. Poorly designed games may distract from learning (Mayer, 2019), and measuring learning gains in a gaming context is difficult (Plass et al., 2020). In pedagogical terms, “poor game design” refers to games that fail to effectively support learning objectives, despite their educational intent. They are often criticized for a disconnect between the mechanics of the game and the educational content. Additionally, not all learners have equal access to digital games.

Looking beyond 2025, future directions for GBL and GBLL include AI-powered personalization through adaptive learning games that use natural language processing (NLP) (Zhang et al., 2023). Research into the neuroscience of GBL is expected to grow, with studies using EEG and fMRI to analyze brain engagement (Mayer, 2024). Hybrid learning models that blend GBL with traditional classrooms are also expected to gain traction (Petersen et al., 2024). This is supported by Bregni's (2021) study, which uses a content-oriented framework. In conclusion, GBL and GBLL have evolved significantly over the past two decades, demonstrating notable benefits in engagement, motivation, and learning outcomes. Our case study on the role of English proficiency in French acquisition through *Assassin's Creed Unity* directly exemplifies these benefits. It provides a real-

world illustration of how a commercial game can create an immersive, motivating environment that facilitates authentic language practice and metalinguistic awareness. Future research, building on studies like this one, should focus on AI integration, equitable access, and neuroscientific validation to maximize the educational potential of GBL.

2.3 Cross-Linguistic Transfer (CLT) in GBLL Environments

A particularly promising area of investigation examines cross-linguistic transfer (CLT) in GBLL environments. Research demonstrates how games can optimize positive transfer while minimizing interference between a learner's first language (L1) and the target language. Lexical studies show that games effectively teach cognates, with multilingual games like Influent enhancing cross-language recognition (Legault et al., 2021). Emerging research on multilingual game design shows promise for supporting translanguaging practices (García & Sylvan, 2023).

In contrast, current challenges in CLT research include addressing persistent negative transfer through game design (Mazzaggio & Stateva, 2023) and developing more sophisticated adaptive systems. For example in their 2024 study, Mazzaggio and Stateva provide a precise empirical demonstration of negative pragmatic transfer at the semantics-pragmatics interface. Their research reveals that Italian-Slovenian bilinguals, when processing Slovenian as a second language (L2), systematically fail to internalize the nuanced pragmatic distinction between the two Slovenian quantifiers *precej* and *veliko* (both translational equivalents of the English "many"). Future directions point toward neuroscientific investigations of transfer processes (Mayer, 2024). The integration of these approaches with hybrid learning models suggests continued growth in the field. Collectively, this research demonstrates how game-based environments uniquely support language acquisition by leveraging digital affordances to create engaging, adaptive spaces for linguistic development. The intersection of GBL, language acquisition, and cross-linguistic studies presents rich opportunities for future innovation in educational technology and applied linguistics.

While most studies of game-based language learning (GBLL) focus on English as the target language, fewer examine how native English speakers acquire French through gaming, and even fewer investigate contexts where English functions as a second language (L2). It is precisely within this under-researched nexus that the present study positions itself. This research moves beyond the Anglocentric focus to investigate how Iranian gamers, for whom English is a second language, utilize an English-language video game set in France to acquire French vocabulary and cultural knowledge. By doing so, it directly investigates the role of L2 English proficiency as a potential facilitator or mediator in the learning of a subsequent language (L3 French), a complex and highly relevant multilingual process that has been largely overlooked in the GBLL literature. This study therefore not only expands the linguistic scope of GBLL but also introduces a crucial new variable – the learner's L2 proficiency – into the model of game-based language acquisition. Research conducted by Václavík (2020) in the Czech Republic on the role of English proficiency in learning French revealed that students perceived French as more challenging to acquire than English, particularly in developing active skills such as speaking and writing. Additionally, the study found that French was closely tied to its cultural context, whereas English was viewed as culturally neutral due to its global dominance.

3. Methodology

3.1 Method

This study adopts an explanatory research design to investigate the influence of English proficiency (ranging from B1 to C1) on French language acquisition among 18 Iranian undergraduate English majors with no prior exposure to French. All participants – regular gamers with no previous experience playing Assassin's Creed Unity – voluntarily took part in a four-week intervention involving six hours of weekly gameplay in French. Participants were divided into two groups: an audio-only group (n = 9) and a group that received French audio with subtitles (n = 9). The comparison between these two modes is grounded in theories of cognitive load and multimedia learning. The audio-only condition tests listening comprehension and the development of bottom-up processing skills, forcing learners to rely on auditory input alone. In contrast, the audio-with-subtitles condition provides dual-channel input, which may aid in vocabulary acquisition and form-meaning mapping by linking the spoken word directly to its written form, but may also risk dividing attention and encouraging a reliance on reading over listening. To examine cross-linguistic transfer and learner engagement, participants completed custom-designed pre- and post-tests measuring vocabulary recognition, listening comprehension, and reading comprehension based on the content of their completed in-game missions. The tests were constructed by extracting high-frequency vocabulary and dialogue excerpts directly from the game's narrative and mission objectives. To ensure content validity, the instruments were reviewed by a panel of three applied linguists with expertise in French language acquisition, who assessed the tests for relevance, clarity, and alignment with the game's linguistic content. A pilot study with four non-participant learners who fit the same profile was conducted to refine question phrasing and establish an appropriate time limit of 45 minutes for test completion.

Lexical development was assessed using the *Test de la taille du vocabulaire* (TTV), developed by Batista and Horst (2016). The TTV was selected for its efficiency in estimating overall vocabulary growth, which aligns with the diverse and high-frequency lexical demands of navigating the game's historical Parisian environment and completing narrative-driven missions. Additionally, semi-structured interviews were conducted with all 18 participants (nine from each group) to gain qualitative insights into their perceptions of English-to-French transfer and motivational factors. The interviews, which lasted between 25 and 40 minutes each (averaging 32 minutes), were conducted in Persian to ensure comfort and depth of expression. They were audio-recorded, transcribed verbatim, and subsequently translated into English for analysis. The interview protocol consisted of 12 core, open-ended questions designed to explore themes of cross-linguistic strategy use, cognitive load, and engagement with the game environment. Quantitative data were analyzed using descriptive statistics and paired t-tests to evaluate learning gains, while qualitative data were thematically coded to identify recurring patterns and learner perspectives. Ethical protocols were rigorously followed, including the assurance of participant anonymity. By employing a mixed-methods approach, this study aims to assess the extent to which prior English proficiency supports French language acquisition in a game-based learning (GBL) context. The findings contribute to the broader discourse on digital language learning and cross-linguistic influence.

3.2 The Game-Based Learning Tool: Assassin's Creed Unity

Assassin's Creed Unity (Ubisoft, 2014) was selected as the central learning tool for this study due to its authentic linguistic and cultural environment, narrative complexity, and linguistic modality options. As part of the widely acclaimed Assassin's Creed franchise, Unity is set during the French

Revolution and is notable for its extensive use of spoken and written French within a richly detailed historical recreation of late 18th-century Paris. The game presents an immersive open-world experience where players engage in missions, explore iconic landmarks, and interact with non-playable characters (NPCs), all of which provide authentic linguistic exposure. In this study, the game was configured with French audio for all sessions. To assess the role of textual reinforcement in comprehension and acquisition, French subtitles were displayed for one experimental group, while the other group experienced the game in an audio-only mode.

The game's multimodal design – combining voice acting, environmental text (e.g., signs, documents), and player-driven decision-making – creates a context-rich environment conducive to incidental language acquisition. Through its dynamic narrative and realistic dialogue, players encounter a broad lexical range, including period-specific terminology, idiomatic expressions, and high-frequency verbs. Additionally, the game employs narrative scaffolding and visual cues, such as mission prompts, map labels, and context-driven animations that support meaning-making even in the absence of explicit translation. These features align with the pedagogical principles of comprehensible input (Krashen, 1985) and contextual learning, offering repeated and meaningful exposure to target-language input in a low-anxiety, interactive setting.

Participants were free to navigate the game world, select optional side quests, and interact with in-game materials such as letters, posters, and overheard conversations, encouraging the active processing of linguistic input. Historical narrative not only reinforces cultural competence but also situates language within an authentic sociopolitical context, thereby enhancing learners' pragmatic and inferential comprehension skills. For instance, a mission involving the revolutionary leader Georges Danton (Le sacrifice de Danton) requires players to understand dialogues rich with terms like "*la liberté*" (liberty), "*l'égalité*" (equality), "*la trahison*" (treason), and "*le peuple*" (the people). By encountering this vocabulary within the high-stakes context of betrayal and political upheaval, learners infer meaning and usage that transcend simple word definitions, grasping the charged ideological weight these terms carried during the French Revolution.

From a methodological standpoint, Assassin's Creed Unity offers several advantages: it is a commercially available AAA game with stable technical performance, customizable language settings, and a consistent narrative arc across all players' experiences. These factors ensured both ecological validity and experimental control. Importantly, participants had no prior exposure to the game, eliminating familiarity bias and allowing for a more accurate assessment of linguistic gain attributable to gameplay. The game's episodic structure facilitated structured weekly sessions and supported the design of targeted comprehension assessments based on mission-specific vocabulary and events.

In summary, Assassin's Creed Unity functioned as both a linguistic corpus and an experiential learning environment, uniquely positioned to evaluate the role of English proficiency in facilitating French acquisition through game-based immersion. Its integration into this study reflects a broader pedagogical shift toward leveraging commercial games for second-language learning, particularly in contexts where learner motivation, engagement, and authenticity are paramount.

4. Results

The study examined the influence of English proficiency (B1–C1 level) on French language acquisition among Iranian gamers ($N = 18$) using *Assassin's Creed Unity* as an immersive learning environment. Quantitative analyses revealed significant improvements across key linguistic domains. A paired t-test demonstrated statistically meaningful gains in vocabulary recognition

(pre-test: M = 42.3, SD = 8.1; post-test: M = 58.7, SD = 9.4; $p < 0.05$), with the subtitled group (n = 9) showing superior written vocabulary retention compared to the audio-only group ($n = 9$) ($p < 0.01$). In listening comprehension, both groups progressed, though the audio-only condition resulted in marginally better oral comprehension ($p = 0.06$), potentially indicating that unimodal auditory input sharpens processing skills. Conversely, the subtitled cohort performed significantly better in reading tasks ($p < 0.01$), underscoring the scaffolding role of textual reinforcement in decoding French orthography.

Qualitative insights from interviews further contextualized these outcomes. Participants consistently leveraged English-French cognates (e.g., "*révolution*" → "revolution") to deduce meaning, showing evidence of positive cross-linguistic transfer. For example, one participant noted:

> When I saw the word "*révolution*," I immediately connected it to "revolution" in English. (Participant 12)

Another echoed this strategy:

> Words like "information" and "nation" were almost the same – just pronounced differently. That helped me guess a lot of vocabulary without looking things up. (Participant 7)

Motivational patterns also emerged strongly, with many participants expressing deep engagement with the game's narrative. However, some struggled with French phonology, particularly silent letters and unfamiliar sounds. One participant shared:

> I kept mispronouncing words because letters just... disappeared! Like "*beaucoup*" – why is the "p" silent? It messed with my confidence at first. (Participant 9)

Divergent preferences emerged regarding input modality. Those who relied on subtitles emphasized their usefulness for vocabulary retention:

> Having subtitles meant I could read and listen at the same time. I wrote down new words and remembered them better. (Participant 4)

In contrast, learners relying solely on auditory input encountered significant comprehension challenges, as indicated by their self-reported struggles with rapid speech and unfamiliar phonological patterns.

> Without subtitles, I found it extremely difficult to follow the dialogue, especially when characters spoke quickly or used words I hadn't heard before. (Participant 6)

These findings suggest that while English proficiency facilitates initial French acquisition in game-based learning, outcomes are shaped by input modality preferences and the dynamic interplay between linguistic transfer and motivation. The participants' experiences highlight both the advantages of cross-linguistic similarities and the need for adaptive strategies to overcome phonological hurdles.

5. Discussion

The findings of this study contribute to the growing body of research on game-based language learning (GBLL) and cross-linguistic transfer (CLT), particularly in the context of French acquisition among learners who are proficient in English. The results align with prior studies while

also highlighting unique insights into the role of input modality and linguistic similarities in digital learning environments.

Consistent with Ringbom (2007) and Jarvis & Pavlenko (2008), participants leveraged lexical cognates (e.g., *révolution*, *information*) to infer meaning, demonstrating positive transfer from English to French. This supports the typological proximity hypothesis, which posits that languages with shared linguistic features facilitate faster L2 acquisition (Odlin, 1989). However, as observed by Kellerman & Sharwood Smith (1986), negative transfer occurred in phonological adaptation, where participants struggled with silent letters (e.g., *beaucoup*) and French-specific phonemes.

These findings align with Václavík's (2020) study on Czech learners of French, where English proficiency contributed to vocabulary recognition but not oral production. Our study extends this by showing that gamified input – particularly visual reinforcement (subtitles) – enhanced written vocabulary retention, while audio-only exposure marginally improved listening skills. These competencies were measured using multiple choice questions. This suggests that multimodal input (visual + auditory) may optimize incidental vocabulary acquisition, as proposed by Mayer's (2019) cognitive theory of multimedia learning.

This study demonstrates that English proficiency facilitates initial French acquisition in GBLL environments, primarily through lexical transfer and multimodal input processing. However, phonological differences and input modality preferences significantly influence outcomes.

6. Limitations

The study's limited sample ($N = 18$) of Iranian English majors may not reflect broader populations. Future research should diversify participants by age, L1, and gaming experience. Additionally, the participants' specialized academic training in English may have introduced bias, as their metalinguistic awareness and prior exposure to Romance-derived vocabulary could enable them to comprehend the French language more readily than learners without such training. Furthermore, the four-week intervention period precludes drawing conclusions about long-term retention, necessitating longitudinal follow-ups to assess the durability of results. Another constraint arises from *Assassin's Creed Unity*'s historical lexicon, which may limit the transferability of acquired vocabulary to modern conversational French. An example would be the word "*maréchaussée"* in the phrase "*Va chercher la maréchaussée"*. Despite these limitations, the study offers preliminary evidence of how English proficiency leverages language acquisition in French GBLL. Future work should explore AI-driven adaptive games and neurocognitive measures (e.g., EEG) to deepen our understanding of cross-linguistic transfer in digital environments.

Note

Data Availability

The data supporting this article and collected during the research described in this article are not available.

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