

Cross-platform language learning: A spatial perspective on narratives of language learning across digital platforms

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ABSTRACT

In the current reality of digital activity, individuals often explore more than one digital platform for language learning. Despite increasing research on the uses of digital platforms for language learning in informal contexts, the cross-platform experience remains in need of elucidation. Drawing on spatial perspectives on digital technology and language learning to conceptualize digital platforms as digital spaces, this study examines the cross-platform experiences of two international students studying English in Australia based on narrative data collected from journal entries, stimulated recall interviews, and social media posts. A narrative approach to the analysis reveals precisely how they organized a variety of digital resources and learning opportunities in online gaming, searching, media-sharing, social networking, and language learning spaces. The learners strategically orchestrated this particular range of digital spaces in alignment with personal interest and need. In accordance with the specific affordances of technological features in these spaces, they created a shared space of interaction in which learning occurred across geographically remote, networked individuals through multimodal language practices. The narrative approach is seen to add analytical power to the issue of space in the sphere of informal digital language learning, in which unique learning pathways for navigating diverse digital spaces are important.

1. Introduction

The current reality of language learning increasingly involves autonomous and creative uses of digital media and technology in informal contexts. Researchers have explored non-formal, digital platforms that are designed or adaptable for language learning to show the value of language practices in these platforms and the implications for incorporation into language classrooms (Dressman & Sadler, 2020; Reinhardt, 2019). Terms such as Online Informal Learning of English (OILE) (Sockett, 2014) and Informal Digital Learning of English (IDLE) (Soyoo et al., 2021) have been coined to explore English learning activities that are mediated by a range of electronic devices and enabled by the frequent use of the Internet, such as social networking, watching TV series or films, and listening to popular music. This research highlights the capacity of individual learners to choose resources that are not necessarily developed for language learning, laying a foundation for the study of independent, out-of-school digital learning. In this out-of-school language learning context, many studies have shown the value of extramural engagement that is initiated by students, especially for vocabulary learning (Sundqvist & Sylvén, 2014, 2016; Sylvén & Sundqvist, 2012).

The term 'digital wilds' has emerged to describe digital spaces designed for social and recreational rather than educational purposes

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(Sauro & Zourou, 2019). Research has shown that they can be rich learning spaces, involving, for example, digital games (Gee, 2007; Reinhardt & Thorne, 2020), fandom groups (Black, 2009), and social networking, with emerging multimodal media-sharing platforms like Instagram and TikTok (Gomes Junior, 2020; Lee, 2022) receiving particular attention. The concurrent use of multiple social and recreational platforms for the purposes of informal learning has been the focus of a recent line of research (Han & Reinhardt, 2022; Jensen, 2019). The findings of these studies suggest that a learner who uses a non-educational, social, and recreational platform for language use and learning may also explore other digital platforms specifically designed for language learning. It is the current reality of digital activity that individuals often use more than one digital platform for language learning. However, we know little about the cross-platform experience of language learning.

Drawing on spatial perspectives on digital technology and language learning to conceptualize digital platforms as digital spaces, this study examines the experience of language learning *across* a range of digital spaces from the perspectives of two international students studying English in Australia. These participants were drawn from a larger project on language learners' use of social media for informal learning and selected as cases that demonstrated interesting and substantial variations in choices of digital resources, the use of technology, and learning strategies. Employing a narrative approach to the issue of space and characteristics of informal learning experiences, the present study focuses on ways in which individuals explore and orchestrate diverse digital spaces to craft their own learning space.

2. Literature review

2.1. Complexity of cross-platform language learning and importance of user perspectives

An emerging line of research in informal language learning points to the cross-platform experience in which language use and learning occur across a range of digital platforms, often accessed on different devices. In an early study, Fallahkhalil et al. (2007) report on a television- and mobile phone-based language learning service and how it supported learners in cultivating their own cross-platform assisted learning environment with different devices. In a study of young Danish learners of English exploring the digital wilds, Jensen (2019) examines how they explored linguistic opportunities to navigate personal learning trajectories in social and recreational platforms, including online gaming and multimodal media-sharing platforms such as YouTube. In a multiple case study on language learning autonomy in the digital wilds, Han and Reinhardt (2022) show how three learners using various digital platforms and devices managed language activities and digital literacy-mediated language identities in alignment with their interests and needs. In a cross-platform overview of language learning applications such as Duolingo and Busuu, Karasimos (2022) observes that participants adjusted the use of different applications according to their language proficiency as part of the learning process. These studies demonstrate the complexity of cross-platform learning, in which individual learners organize language resources and learning opportunities available across digital platforms, in the construction of their learning pathways.

Researchers highlight the need to understand the perspectives of the individuals who choose digital resources and take action for learning. Based on French university students' logs on English learning, Sockett and Toffoli (2012) observed the dynamics of informal digital learning and identified a range of unexpected behaviors and outcomes. Sockett (2013) emphasizes that researchers need to tap into individual learners' perspectives in order to achieve an in-depth understanding of the contextual factors underpinning the emergence of such behaviors and outcomes. To explore how particular learning strategies are effective in specific contexts, Lee and Patkin (2017) highlight the power of learners' narratives – the approach used in the present study.

In the realm of self-directed learning beyond the classroom, narrative research has contributed to our understanding of how individuals deliberately select, design, and orchestrate their learning. Kao and Oxford (2014), for instance, report on the first author's learning of English through deep engagement with Hip Hop music, involving a three-stage approach designed by the learner. In a longitudinal study, Chik and Ho (2017) trace the out-of-class autonomous language learning endeavors of three learners of Spanish, Korean, and Italian. Their findings highlight how transitions between life stages and evolving technology can have a profound effect on an individual's self-directed learning strategies and activities.

The findings of the studies reviewed above suggest that user-focused approaches may be a key to characterizing informal language learning. Case and narrative studies particularly show *how* language use and learning occur within digital platforms that individuals choose and orchestrate in alignment with personal interests, needs, and lives. However, there is little research that conceptualizes these platforms as digital *spaces* that enable technologically mediated learning interactions over global distances. It is thus important to employ space-focused approaches that elicit the ways in which individuals in dispersed locations are brought into contact with each other in a digital space where a language is learned.

2.2. Spatial perspectives on digital technology and language learning

In research that explores digital technology, four key aspects of digital space can be conceptualized: integrated geography (Ciolfi, 2013), global networks (Castells, 2010), screenspace (Saether & Bull, 2020), and circulation of multimodal digital information (Hand, 2017). An important task here is to tease out insights from the literature on informal language learning that contribute to these aspects of digital space. A useful starting point is Gibson's (1979) notion of 'affordance' – what opportunities the environment offers to an individual (a language learner in this case) – which provides a framework for understanding how learning is technologically mediated in digital spaces.

2.2.1. Integrated geography

Ciolfi (2013) highlights the value of the notion of *space* for understanding human interactions and activities as being geographically situated in the environment where they access digital media and devices. She draws upon the fundamental affordance of digital technology that connects users in distant locations. This represents the integrated geography in digital space, focusing on the interrelation between physical and digital spaces rather than viewing them as separate entities. Applying this aspect of integrated geography in digital space to language learning, Benson (2021a) emphasizes that the physical mobility of a learner carrying and accessing digital devices and resources shapes the circulation of language use and learning within the terrestrial world of geographical areas and physical settings. Based on data collected from a GPS-enabled mobile application, Diaro, recording spaces where individuals visited, Benson (2021b) stresses why *space* matters for understanding language learning in daily life in terms of the geographical distribution of digital resources and technologies in urban environments.

2.2.2. Global networks

Drawing upon affordances of digital media that have enabled the mass circulation of self-generated information, Castells (2010) uses the idea of ‘a networked society’ to describe a social structure “made up of global networks connecting major metropolitan regions and their areas” (p. 2737). Castells (2016) argues that a sense of space no longer depends on participants’ physical contiguity in interactions but on flows of interactions. In the context of global networks on social media for language learning, Dong and Blommaert (2016) examine intersections between national (formal) and global (informal) learning scales in the formation of Chinese middle-class identities. They show connections between transnational practices and spatial repertoires, layered from virtual engagements with popular culture and mobilities across the globe. Lam (2014) investigates transnational networks managed through literacy practices in instant messaging among Chinese immigrants in the United States. She views these networks as digital learning spaces, mediating national spaces and thus providing opportunities for translanguaging experiences. These studies highlight the role of social media as digital spaces in which global users with diverse language backgrounds engage in translanguaging interactions.

2.2.3. Screenspace

Regarding spatial configurations *on* or *within* the screen, Saether and Bull (2020) view screenspace as a surface for projecting moving images. This suggests how the screen functions as a space on and through which one has digital experiences, and how media and physical spaces are integrated into that screenspace for a visual representation of one’s experiences with it. Richardson and Wilken (2012) discuss the experiences of space and (tele)presence in consideration of the body and mobile-screen relation that represents a perceptual sense of engagement with mobile screen technologies. Concerning language learning, Lee (2022) focuses on technological features on TikTok that support the creation of video content, resulting in digital spaces in which learning interactions among geographically remote, networked individuals are mediated through the mobile screen. As Jacquemet (2013) puts it, the almost instantaneous transmission of video images from one screen to another thus creates “a new kind of place” over great distances (p. 476).

2.2.4. Circulation of multimodal digital information

In recently developed visual forms of social media, in which digital interaction is more based on sharing images rather than writing, Hand (2017) identifies characteristics of digital information circulation in multimodal media-sharing social networking platforms. He explains that the process of circulating images through digital platforms is not only user-directed but often also involves algorithms employed in the homepage structure. Addressing the circulation of multimodal digital media as the new activity for informal language learning, Benson (2016) investigates intercultural and interactional learning in YouTube video comments that involved English-Chinese translanguaging practices. He emphasizes that globalized multimodal platforms involve a range of mobile modes and transnational spaces of communication. Gomes Junior (2020) invited participants to an Instagram space (@instanarratives), in which they shared language learning experiences via image posting and commenting. He shows how this online space supports the visual circulation of content and how users made strategic use of it for learning.

This literature reviewed above indicates why *space* is crucial in digital language learning, as learning occurs when individuals are brought into a shared space of interaction in which language learning is manifest multimodally through the screen, across global geographical spaces. However, despite the large number of studies on language learning and digital technology, we lack a clear understanding of how individuals explore diverse digital platforms and how their language use and learning occur across those platforms. This is, firstly, due to the scarcity of published research addressing user perspectives. Previous research has tended to focus on digital learning ‘tailored to’ certain platforms (Karasimos, 2022), rather than exploring ‘natural’ or ‘experiential’ data on the use of an array of platforms in the process of cultivating individual learning pathways. Secondly, there has been limited work to establish ways in which digital platforms can be conceptualized as digital spaces. It is thus important to understand how the different aspects of digital space work and create affordances for learning, given that new technologies in emerging platforms like Instagram and TikTok have the potential to offer such affordances (Lee, 2022). Therefore, it is also important to examine how individual learners organize digital learning across digital platforms from their own perspectives, and to understand how they utilize technological features and language resources afforded in digital platforms. To fill these gaps, two research questions were formulated.

- (1) How do individual learners utilize diverse digital platforms for their own language learning?
- (2) How do they create and navigate a shared digital space of learning interaction?

We use the term ‘digital spaces’ to refer to digital platforms (such as TikTok and Instagram), and ‘a shared digital space’ to denote a space in which online users engage in learning interactions.

3. Methodology

3.1. Research design

This case-study of two international students studying English in Australia was designed to examine their cross-platform learning experience, employing a narrative approach to the issue of *space* in the sphere of informal learning. A useful starting point was Benson's (2021b) 'spatial approach' to narrative research highlighting the capacity of narrative inquiry to unfold learning experiences across space in terms of the distribution of digital technologies and resources in urban environments. Based on the key aspects of digital space – integrated geography, global networks, screenspace, and circulation of multimodal digital information – the narrative inquiry was used to understand how individuals make connections across digital spaces to create a shared space of interaction in which language learning is manifest multimodally through the screen, across global geographical spaces. The data analysis involved two main narrative methods: (1) 'narrative analysis', through which narratives gathered from journal diaries, stimulated recall interviews, and social media posts were synthesized into stories of individual 'cases'; and (2) 'analysis of narratives', through which these synthesized narratives were analyzed to identify themes that emerged from the coding process (Benson, 2014).

3.2. Participants and setting

This study focuses on the experiences of 'Prem' and 'Amir' – an 18-year-old Thai student and a 19-year-old Iranian student – drawn from a larger project on language learners' use of social media for informal learning that recruited participants from a university-based intensive language course in Australia offering academic English as a pre-requisite to university degrees. Importantly, the learning activities explored in this study were entirely learner-initiated and were not connected with any classroom-based activities. Inclusion criteria were that participants: (1) voluntarily agreed to participate; and (2) were willing to plan/conduct/organize digital language learning or had experienced learning with digital platforms or tools (e.g., watching video materials and using searching applications). Through purposeful sampling (Creswell, 2013), Prem and Amir were selected for in-depth analysis because their data aligned most closely with the focus of this study – how individuals orchestrate diverse digital spaces to create a shared digital space for their learning.

3.3. Data collection

Three data collection resources were used for triangulation to construct a multidimensional understanding of the complexity of cross-platform language learning.

3.3.1. Journal entries

The participants were asked to write weekly journal entries for four weeks, about digital resources and technologies they utilized, learning opportunities and activities they engaged with, and linguistic knowledge they gained. The journal entries were used as written narrative data and a tool to stimulate recall during follow-up interviews. These data drew out specific accounts of learning that they experienced in different digital spaces, illustrating in particular how they leveraged non-educational, digital content and features for educational purposes.

3.3.2. Stimulated recall interviews

A 1-h weekly interview was conducted by the first author, one day following the completion of each journal entry. This was to gain nuanced insights into the value that each participant attached to the learning experiences, recorded in their journal entries. The interviews were audio-recorded and transcribed verbatim. While broad interview prompts were prepared beforehand, the interview structure was flexible in order that the line of questioning could follow up specifically on issues raised by the participants. The individual narratives were extracted and used as narrative data in a sequential form of stories. The interview data elicited participants' experiences and perceptions of how digital media and technologies helped them cultivate their learning pathways across digital spaces, especially in the formation of a shared space in which they created opportunities for interactional and intercultural learning with online users.

3.3.3. Social media posts

The participants actively uploaded TikTok and Instagram posts every week and shared screenshots (or links) with the first author. These posts were used as supplementary data for journal and interview data to confirm the intended meanings of stories. These data were useful to envision the learning process of navigating digital spaces that especially support multimodal linguistic practices. With the participants' approval, some screenshots of their social media posts are presented as examples in this paper. Due to the nature of the data, they were given the choice to either remove or keep their username and face in screenshots. Both participants wanted to be identified as the owners of their work and gave consent to have these details retained. Because their usernames are similar to or the same as their real names, they also gave consent to be identified in the accompanying text.

3.4. Data analysis

This study adopted a narrative approach to the data analysis to address the research questions in two main stages in NVivo.

3.4.1. Narrative analysis of individual cases


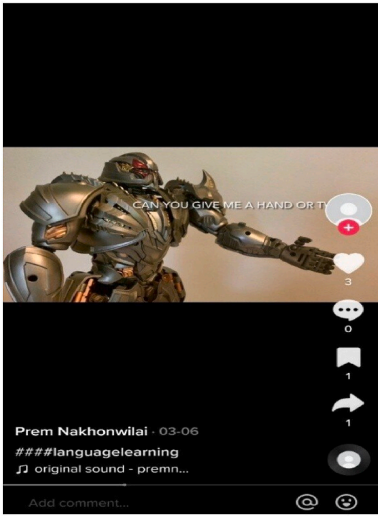
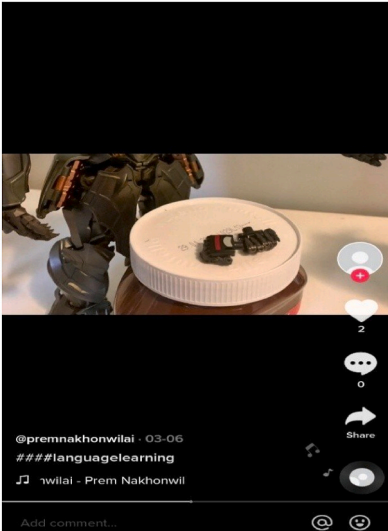
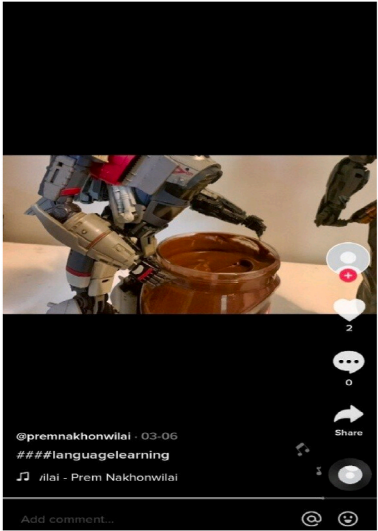
Narratives gathered from journal entries and interviews were analyzed as the main source of data, supplemented with the participants' accounts of engagement with and creation of digital content. Using 'case nodes' in NVivo as "definable units of analysis" (Bazeley, 2013, p. 123), numerous small stories or fragmentary narratives that involve particular learning instances, episodes, or events were extracted and arranged in sequential order (Benson, 2014). The small narratives were analyzed collectively and treated as aspects of a single case, which allowed us to "chain" or synthesize the stories together and construct one continuous story from participants' perspectives, from which we inferred variations in individual learning experiences (Barkhuizen et al., 2013, p. 79).

3.4.2. Thematic analysis of individual narratives

The synthesized narratives were analyzed thematically using a coding procedure of repeatedly refining themes in NVivo to address the research questions (Barkhuizen et al., 2013; Clarke & Braun, 2017). The analysis proceeded with repeated reading of the data, assigning codes to data extracts, aggregation of codes into categories, and their reorganization under thematic headings. The main themes were identified in the process of linking particular instances of learning (e.g., chatting with online users and creating/sharing digital content) into more general concepts derived from the data (e.g., digital spaces, technological features, linguistic resources, and

Table 1

Prem's TikTok post example.

Discourses and modes with sample screenshots	
(1) (0:00–0:04) The title appears in text: "what is it mean by the phrase, give me a hand?".	(2) (0:05–0:14) A robot struggles to open a Nutella lid and asks another robot to give a hand, with the caption popped up in text.
	
(3) (0:15–0:20) The robot gives a piece of its actual hand, instead of offering help.	(4) (0:21–0:33) With the caption "what it actually means" appearing on the screen, the robot opens the lid, thus offering help.
	

learning interactions). Sub-themes were added to capture individual learners' articulation of technology use (e.g., acted-upon affordances of features) and their conceptions of learning experiences (e.g., personal interest in the digital content genre, need for learning specific language skills, learning strategies, and linguistic improvements). These themes were classified into two main categories relevant to the research questions: (1) the orchestration of diverse digital spaces, and (2) the creation of a shared space for learning interaction.

4. Findings

To address the research questions, the findings section reveals precisely how individual learners utilized diverse digital spaces to create a shared space of interaction for their learning. Section 4.1 presents the outcomes of the narrative analysis of each case, while Section 4.2 elaborates on findings that emerged from the thematic analysis of narratives.

4.1. Individual cases' stories of cross-platform English learning experiences

Reporting the outcome of the narrative analysis, this section illustrates Amir and Prem's unique stories of cross-platform English learning experiences, in which they organized a variety of digital resources and learning opportunities available in a range of digital spaces.

4.1.1. Prem

Prem explored a variety of informal digital spaces including online gaming, searching, public discussion fora, and media-sharing social networking platforms for both leisure and learning purposes. He was particularly interested in developing digital skills including social networking and media content production, spending most of his free time in the digital world. He often used his desktop for gaming and related activities, while using his mobile phone to access media-sharing social networking applications.

As a fan of multiplayer online games such as Elden Ring and Urban Reign, Prem enjoyed using and learning English while playing games with other players. He benefited from narratives and mechanics of games for learning new gaming-related words such as "graft", "tarnish", and "craft", which he identified as "difficult and high level of language use". He often used search tools such as Google, Wikipedia, dictionary, and translating applications to seek definitions, pronunciations, and sentence examples of these words. He recounted a specific example of how he benefited from gaming and searching spaces for learning new words:

I became familiar with 'Thou art dead' which the game displayed each time I lost. That repetition drilled the use of thou, thee, thy, and thine into my mind. To understand these words deeply, I used search tools as supporting resources. After that, I tried to practice them during the play by saying to my team players, 'I trust thee'.



Fig. 1. Prem's Instagram meme post examples.

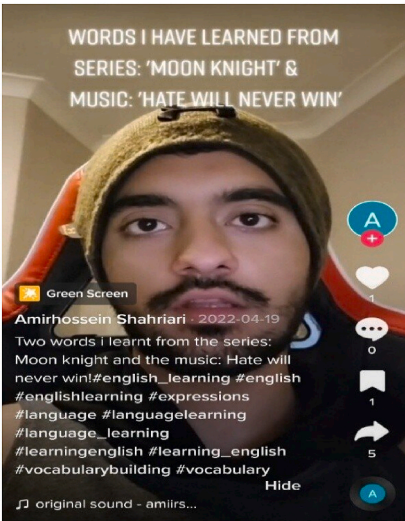
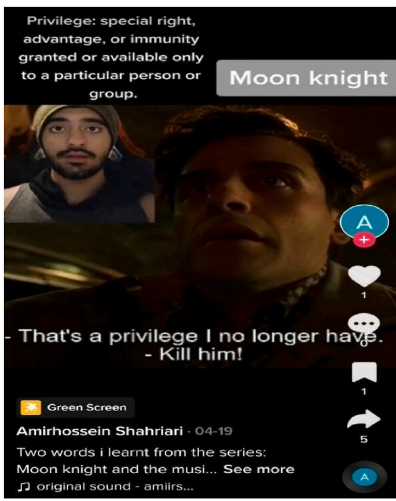
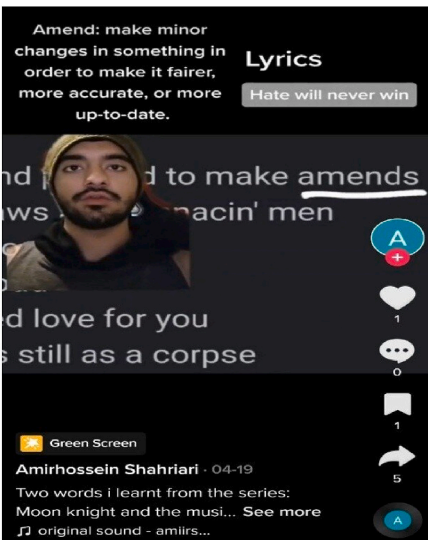
His account here demonstrates how he created the learning opportunity to bring what he learned from the gaming space back to that same space in order to practice it by incorporating words into his interactions with other players. He also engaged in the public discussion forum, Reddit, from which he learned “symbolic meanings and metaphors” that explain situations in games through commenting on other users’ discussion posts.

In relation to such creation of opportunities for language practice, Prem often produced his own digital content in multimodal social media posts as a reflection on linguistic knowledge he had acquired during the game play. He reported that he could review his online learning and remember it longer by sharing it with other online users. For instance, he learned the conversational expression, ‘Can you give me a hand?’, through text- and voice-based chats with game players. Although he had an idea of what the expression could mean, he did not know the exact meaning. He first searched Google and found its literal and actual meanings. Based on this search, he created a 33-s TikTok video using Transformers figures in four short segments illustrated in Table 1.

In another instance, Prem encountered idioms from game chats, such as “it is just a piece of cake” and “stop horsing around”. Based on a Google search of their meanings, he created memes introducing the idioms in a photo or drawing image with texts. He shared a series of these memes in Instagram posts with the meanings of the idioms written in a caption (Fig. 1).

Table 2

Amir’s TikTok post example.

Discourses and modes with sample screenshots	
<p>(1) (0:00–0:05) With the title inserted, he says, “There are one word that I learned from the movie and one word that I learned from the music”.</p>	<p>(2) (0:06–0:15) With the meaning appearing in text, he explains the word ‘privilege’. The screenshot of the movie scene with subtitles is used as the background.</p>
	
<p>(3) (0:16–0:29) With the meaning appearing in text, he explains the word ‘amend’. The screenshot of the song lyrics is used as the background and the word is underlined.</p>	
	

As seen, Prem’s cross-platform English learning experience from gaming to searching, discussion forum, and multimodal media-sharing spaces shows how he not only observed new language use but also followed this up with research and practice through engagement in digital interactions with online users in different digital spaces.

4.1.2. Amir

Amir aimed to improve his English skills, especially speaking and communication skills, in order to adjust to life in Australia. However, he struggled to initiate conversations with local residents or other international students due to “a lack of confidence” as he identified as an introvert. He instead explored numerous digital spaces, including multimodal media-sharing social networking and language learning applications through his mobile phone, to create and increase chances for exposure to conversational and practical language use. He also engaged in diverse digital activities, such as watching TV shows or movies and listening to pop music in English.

Amir frequently utilized TikTok for social networking and learning conversational and practical language use. Through multimodal digital content that is often filmed in “real-life interactions”, he learned new words, expressions, and idioms such as “I am under the weather” and “I feel drained”. He emphasized that he received “similar feelings of face-to-face interactions” from such real-life interactive content, which he found to be lacking in his everyday life. He further paid attention to content that demonstrated *where* and *how* the language is used by “real people”. He articulated: “I am into learning English words, expressions, or phrases in real-life interactions. I always try to see in which contexts they are used by people and practice them with other users in similar contexts”. Here, he stressed the words, “real-life interactions” and “real people”, which he considered to be important for interactive learning.

To create opportunities for interactive learning, Amir explored several language learning and messenger applications for conversing with English speaker-or users. As he explained: “It is quite hard to take what I learned from TikTok and apply it to real-life conversations. Alternatively, I’ve installed several applications, named Minichat, Clubhouse, Busuu, and Telegram, to talk more with people”. He noted that Clubhouse was suitable for his learning as it allows users to select or create chat rooms of diverse genres or interests, such as movies, sports, and language learning. Furthermore, he created and shared his own digital content in weekly social media posts, using the linguistic knowledge he gained from these spaces. Amir recounted a specific example of how he orchestrated different digital spaces to create opportunities for interactive language practice. When watching a movie and listening to music, he

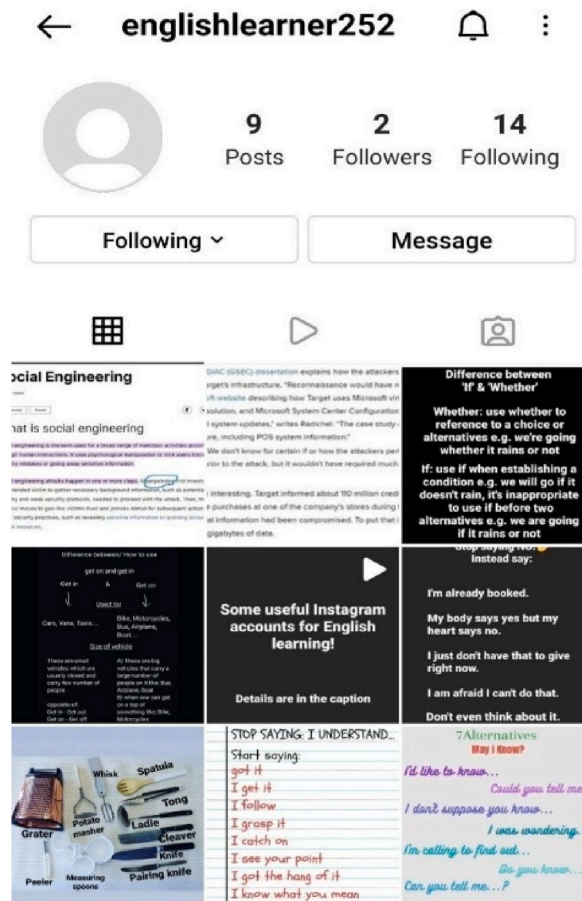


Fig. 2. Amir’s Instagram profile page.

encountered the words, “privilege” and “amend”. After searching the meanings in the dictionary application, he created a 29-s TikTok video explaining his experience of vocabulary learning from the movie and music to introduce these words in three short segments, illustrated in Table 2. He then tried to use the words in conversations with online users on Clubhouse by sharing his study abroad experience, for example: “I had to amend forms many times to apply student visa” and “studying abroad is a privilege”.

Amir also engaged in language practice on his Instagram account, posting new words, synonyms, and grammatical insights, for example, “difference between whether and if” (Fig. 2). He utilized Instagram as a space to record and practice what he learned with people online.

In short, Amir’s cross-platform experience across multimodal media-sharing social networking and language learning spaces enabled him to observe and practice language used in genuine and interactive ways. In other words, the language use was imbricated within a range of digital spaces that he arranged to create opportunities for interactional learning.

4.2. Cross-platform English learning experiences

Building on these narratives, the following sections explore two key aspects of the participants’ cross-platform English learning experiences, which correspond with broad themes to emerge from the thematic analysis: (1) the orchestration of diverse digital spaces, and (2) the creation of a shared space of learning interaction. The sections focus on, first, how they made strategic connections across a variety of digital spaces in alignment with personal interest and need, and second, how they created and navigated a shared space of learning interaction in accordance with the technological affordances of these digital spaces.

4.2.1. Orchestration of an array of digital spaces: strategic connections in alignment with personal interest and need

Individual differences in choices of digital resources and learning opportunities are reflected not only in the interrelated language use across different platforms but also in the participants’ creation of their own learning space involving an array of these platforms that they orchestrated in alignment with personal interest and need.

In the case of Prem, he made strategic connections across informal digital spaces for both learning and leisure purposes. He explored highly recreational, informal digital spaces such as multiplayer gaming worlds to arrange his learning in “[his] personally interesting gaming topics” and to take advantage of “learning while enjoying”. He commented: “I like learning English while playing games and engaging in activities like discussion or creating materials related to games. It does not feel like I am ‘studying’, but I am still learning while enjoying”. His comment here represents how his view of learning while pursuing entertainment has influenced his navigation of the digital wilds to design a bespoke learning space aligned with his interests.

Importantly, Prem’s initiative in exploring recreational, informal digital spaces highlights the role of agency in articulating and ‘repurposing’ non-linguistic, non-educational resources for language learning purposes. He further orchestrated searching and discussion forum spaces not merely for observing language use but also for researching and practicing it. He emphasized that commenting on Reddit allowed him to create opportunities to learn and practice the language in ways that aligned with his interests. Furthermore, the activity of sharing his digital content highlights the exercise of strong volitional agency and creativity to not only connect language use across different contexts, but also bring his learning from gaming spaces to multimodal media-sharing digital spaces. Consequently, he was able to craft his own personalized online learning space that connected digital spaces, within which his learning occurred through digital interactions. Therefore, Prem’s case exemplifies how learning can happen when the learner strategically orchestrates digital spaces for interaction and learning in alignment with personal interests. This orchestration of digital spaces reveals how the learner *manages* online ‘learning’, rather than merely ‘consuming’ information in the digital spaces.

In the case of Amir, such orchestration was driven by his specific need to learn practical speaking and conversation skills that he had found to be lacking in his daily life. His initial struggles to engage in in-person interactions in English motivated him to seek opportunities for interactive learning online.

While navigating the digital world, Amir specifically searched multimodal digital content on TikTok filmed in “real-life interactions” that elicited not only practical and conversational but also context-rich language use. His comments indicate that he paid attention to the contexts *where* the language was used and *how* it was received by people: “I pay attention to the language use in contexts. TikTok videos are usually filmed in real-life interactions and spaces. I intentionally learn how people use words, expressions, or idioms in specific contexts. I try hard using them with other online users in similar contexts, for example, by using language learning applications like Clubhouse”. His use of ‘active’ and deliberate forms of expression – ‘pay attention’, ‘intentionally’, and ‘try hard’ – indicates his agency to act upon his specific learning needs.

Amir’s efforts to access practical and context-rich language from the media-sharing and social networking space and to bring it to the language learning, social networking space highlights how he compensated for what he felt was lacking in his life. Similar to the case of Prem, Amir’s activity of producing his own digital content shows how he made connections between different platforms to create opportunities for language practice. His Instagram account, on which all of his posts are drawn from his online learning, further indicates how he turned the media-sharing digital platform into a space where he practiced using the language in personally meaningful and, at the same time, socially engaging ways. Consequently, he was able to craft his own learning space interwoven within a range of digital spaces he explored based on his need for interactive online learning. He also commented that he gained confidence and overcame struggles: “many social media and online resources helped me become more confident. English was my barrier in communications but now I can be more talkative”.

These findings show that the orchestration across digital spaces depended critically on the learners’ agency and creativity to make strategic connections in alignment with personal interest and need. This alignment resulted in the creation of their own cross-platform assisted learning space – interconnecting a range of digital spaces – which mediated language use and learning through digital

interactions. The next section elucidates how this creation of a learning space was technologically supported in different digital spaces.

4.2.2. Creation of a shared space for learning interaction: navigation of digital spaces in accordance with technological affordances

Both Prem and Amir created and navigated a shared digital space of learning interaction, in accordance with the technological affordances of digital platforms accessed through different devices. Acted-upon affordances of these features and devices supported them to organize interactional and intercultural learning among geographically remote, networked individuals through multimodal linguistic practices on the screen.

Both participants utilized the 'chat' features of digital platforms to practice language knowledge through conversing with online users. Prem, who often accessed gaming spaces from his laptop, benefited from the 'text-or voice chat' feature that enables players to type messages on the screen or transmit their voices through the game to communicate with other players. He commented on its benefits for interactive language learning: "I talk and write at the same time, which helps me improve both speaking and writing skills. I also learn polite ways of communicating with online users". He also used the 'comment' feature on Reddit to engage in discussions about games. He reported that participation in commenting provided him with opportunities to develop "argumentative skills" involving "critical thinking and reasoning skills". Amir utilized the voice-based 'chat room' feature on the Clubhouse mobile application, enabling users to select or create chat rooms and talk with people with matching interests. He specifically articulated its affordance: "this feature gave me the chance to meet like-minded people who were into English learning and teaching. This helped me develop an entertaining environment for English learning and encouraged me to work more on practicing English". Therefore, acted-upon affordances of the 'chat' and 'comment' features supported not only the social experience of language learning but also the creation of a personalized shared digital space of learning interaction. These features enabled engagement between people across dispersed global locations, thus supporting the formation of virtual networks.

Moreover, both participants utilized digital content 'editing' features on TikTok and Instagram, mainly available on mobile devices, to design posts that demonstrated the language that they learned online and to share their learning experiences multimodally. Both Prem and Amir's TikTok posts were produced with in-application video-editing features such as sound alteration, arrangement of video clips, and text, emoji, and/or image insertion. Their posts acknowledge the rich multimodality of TikTok videos, involving diverse modes that highlight both visual and auditory effects. As illustrated in screenshots in Table 1, Prem used technology that enabled 'pop up' text on the screen for emphasis. As illustrated in screenshots in Table 2, Amir employed the feature to insert an image or photo as the background of the video. These features were appropriated by the participants to produce video materials that enabled engagement in virtual teaching of other users who viewed the videos.

The participants' Instagram posts were crafted through external image editing programmes as the application does not offer a direct option to insert text, emojis, or images. In Fig. 1, Prem utilized photo-editing features to alter images with text and emojis for the creation of language-related meme content. This post indicates that Instagram's affordance, which enables the hosting of external image files, encouraged Prem to repurpose resources beyond the application, not designed for language learning, for sharing as language-related content within the application. This affordance highlights how multimodal content can be created with text and emojis inserted into an image file and how linguistic knowledge can be conveyed simultaneously within a single image. In Fig. 2, Amir transformed his Instagram account into a multimodal space modeling a complex relationship between text and image. Consequently, acted-upon affordances of these 'editing' features enabled linguistic knowledge to be conveyed multimodally through the screen.

These findings highlight how globalized social networking spaces can support the construction of 'transnational' spaces of communication online at a personal level. The participants' online networks show that learning can be far-reaching among users of different locations. The participatory media-sharing spaces like TikTok and Instagram created a link across borders among places and nations, allowing these language learners to use and learn language use in ways that were creative at the same time socially engaging. The screenspace mediated the visual arrangement of multimodal elements such as video or image, texts, and emojis. Yet the screen was not just a surface on which images are projected, but a *space* within which the participants' learning was interactively experienced. This indicates the affordance of screen devices that enhances the visibility of individuals' networks and engagement in visual language practices. In addition, their use of different devices suggests that spatial connectedness is an aspect of themselves and other users, mediated through the screens of these devices. In short, the construction of a shared digital learning space was highly adaptive to the use of technological affordances in diverse digital platforms often accessed on different devices, through which learning interactions manifested multimodally through the screen across geographical and physical spaces.

5. Discussion

Addressing the research questions, this study has presented the ways in which individual participants orchestrated digital spaces in alignment with personal interest and need (RQ1) and created a shared space of learning interaction in accordance with the affordances of particular technological features (RQ2). The findings show evidence of strategic connections that the participants made across digital spaces to create personally meaningful and socially engaging learning opportunities, in the formation of a shared space of interaction in which their learning occurred across geographically remote, networked individuals through multimodal language practices. Consequently, they could craft their own cross-platform assisted language learning space. Given these findings, this section provides insight into the analytical power of a narrative approach to understand: (1) complex and highly intertwined ways of cross-platform learning, in which individual learners organized digital resources and learning opportunities in the course of navigating digital spaces for their own learning; and (2) the issue of *space*, drawing on the key aspects of digital space – integrated geography, global networks, screenspace, and circulation of multimodal digital information – to understand how these aspects operate to create affordances for language learning.

This study adds to previous explorations of spaces and resources for language learning in the digital wilds (Han & Reinhardt, 2022; Jensen, 2019; Sauro & Zourou, 2019). Specifically, it advances our understanding of language learning in the wilds by revealing the participants' active engagement with personally significant online language information, materials, and interaction. Prem's language use and practice were 'thematized' with his interest in games and entertainment, while Amir's learning was focused on his self-identified need to learn practical and conversational language use. These alignments with personal interests and needs highlight individual variations in choices of digital resources, the use of technology, and learning strategies, contributing to the body of case studies and narrative studies that help us understand self-directed and autonomous learning (Chik & Ho, 2017; Kao & Oxford, 2014; Lee & Patkin, 2017). Different from these studies, this present study examines the participants' informal uses of both educational, language learning and non-educational, social and recreational media spaces in creative ways. The findings show evidence of agency exercised to make interrelated language use across digital spaces, which indicates not only action but also creativity. The participants' digital content production on TikTok and Instagram signifies their creativity to use digital spaces and technologies to organize opportunities for language practices with online users. Moreover, Amir's choice of specific digital content involving context-rich language use on TikTok and his strategy to practice it with other users on Clubhouse highlight how digital learning can be linked to the learner's personal needs in everyday life situations. This observation indicates how the narrative approach used in this study enables us to bring to light not only individual aspects of learning – personal interest and need – but also the profound effect of the learning context. Specifically, it demonstrates how participants made strategic decisions within the selection of digital spaces in response to personal dynamics and everyday life situations, supporting dynamics of informal digital learning observed by Sockett and Toffoli (2012). In short, the narrative approach employed in this study provides insight into both individual and contextual characteristics of the informal learning experience. It advances our understanding of the complex and intertwined cross-platform experience, in which language use and learning are imbricated *across* digital spaces, arranged by individual learners in alignment with personal interests, needs, and lives.

Furthermore, by adopting a spatial perspective, this study deepens the analytical power of the narrative approach to exploring cross-platform language learning experiences. Building on Benson's (2021b) idea of using narrative inquiry across space, we expand our focus to link the geospatial environment and an array of global digital spaces in which a language circulates and is learned through digital interactions. Regarding the first aspect of digital space – *integrated geography* – Prem and Amir's acted-upon affordances of the 'chat' and 'comment' features are of interest as these features enabled them to be virtually connected with users in distant locations within a shared digital space, reflecting Ciolfi's (2013) articulation of the fundamental capability of digital technology. The second aspect of digital space – *global networks* – is exemplified by the participants' networks, which were accessed through language practices and interactions with online users. The participants' narratives demonstrate that globalized digital platforms function as networking spaces for intercultural and interactional language learning. This finding posits that the circulation of information occurs relative to the technological affordances of digital media that support the formation of global networks, supporting Castells' view (2010, 2016). The notion of information circulation implied in our finding is distinct from Benson (2021a), who identifies it through a learner's physical mobility as they carry digital resources and devices in terrestrial areas and settings, although we still align with Benson's focus on the interrelation between physical and digital spaces. In this sense, this present study examines digital networks within the context of a broader global scale across culturally and linguistically diverse digital users. It thus takes a further step from earlier ways of viewing transnational networks through connections between two nations (Lam, 2014) or between formal, national and informal, global spaces (Dong & Blommaert, 2016).

Regarding the third aspect of digital space – *circulation of multimodal digital information* – the participants' engagement in multimodal digital platforms, especially image-sharing social networking spaces such as TikTok and Instagram, accentuated the formation of networks to be mediated visually and multimodally. This finding strengthens Hand's (2017) approach to visual circulation of content, and adds to studies that found image-sharing platforms as new spaces for informal intercultural and interactional language learning (Benson, 2016; Gomes Junior, 2020; Lee, 2022). However, the present study further highlights how multimodal language practices are technologically mediated through the screen. Finally, our findings speak to the fourth aspect of digital space – *screenspace* – in that the screen became a space where the participants' multimodal learning was experienced interactively, contributing to Saether and Bull's (2020) spatial configuration of a screen. The findings also identify the affordances of screen devices that enhance the visibility of individuals' networks and their participation in visual language practices. In addition, the participants' uses of different devices are related to a spatial connectedness that they could feel between themselves and other users through screens of these devices over distances, enhancing Jacquemet's (2013) conceptualization of a sense of space from one screen to another.

In summary, this study contributes to the understanding of how individual learners crafted their own cross-platform assisted language learning space through the orchestration of digital platforms and the creation of a shared space of learning interactions. It has demonstrated how such a space intertwines the geographical spaces of globally networked users and mediates multimodal language learning through the screen.

6. Conclusion

The use of a diverse array of digital media and technologies for learning is embedded in the contemporary lives of many people. The cross-platform language learning experience is not only complex but is also adaptable to specific technological features and language resources available across different digital platforms, as well as personal dynamics and everyday life situations. The current study set out to use a narrative approach to delve deeply into this cross-platform learning that matches the current reality of digital activity. Through the conceptual lens of *space* – specifically, the different aspects of digital space – the narrative approach used in this study advances our understanding of psychological and social dimensions of language learning across digital spaces in which a language is

used globally and is learned multimodally through the screen.

Our findings have clear implications for future research and pedagogical practice. As language learners often need to navigate interactions in both physical and digital spheres, future research is needed to expand the conceptualization of space to the integration of digital and physical worlds. This study was limited to the identification of digital spaces and their affordances, rather than the frequency with which they were used. Future research could measure the relative importance of these affordances quantitatively.

Finally, our findings provide insights into the language learning implications of rapidly evolving social media trends in terms of technological affordances that support language learning and use across multimodal digital platforms. One way in which individual teachers can incorporate these insights into language classrooms is by using an awareness of multimodal affordances to design language teaching content and create cross-platform assisted environments where students can build networks for learning. For learners who are yet to explore the language learning affordances of digital spaces, teachers can scaffold their out-of-class learning by, for instance, setting learners the task of exploring a number of digital platforms for the purpose of creating language learning opportunities. Teachers can then encourage these students to share in class their experiences of cross-platform language learning; specifically, learners can be challenged to articulate *how* they orchestrate multiple digital platforms and create a shared space of learning interaction, according to technological affordances and personal dynamics. We trust that such applications of our findings will help teachers engage with learners who are interested in, or already familiar with, the uses of multiple platforms. Ultimately, it will enable teachers and learners to create new synergies between in-class and out-of-class learning by bringing the uses of digital spaces into physical classroom spaces.

Declarations of interest

None.

CRedit authorship contribution statement

Yeong-Ju Lee: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft, Writing – review & editing. Peter Roger: Supervision, Conceptualization, Validation, Writing – review & editing.

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References

- Barkhuizen, G., Benson, P., & Chik, A. (2013). *Narrative inquiry in language teaching and learning research*. Routledge.
- Bazeley, P. (2013). *Qualitative data analysis with NVivo*. SAGE Publishing.
- Benson, P. (2014). Narrative inquiry in applied linguistics research. *Annual Review of Applied Linguistics*, 34, 154–170.
- Benson, P. (2016). *The discourse of YouTube: Multimodal text in a global context*. Routledge.
- Benson, P. (2021a). *Language learning environments: Spatial perspectives on SLA*. Multilingual Matters.
- Benson, P. (2021b). Space in narrative inquiry on second language learning. *System*, 102, 1–8.
- Black, R. W. (2009). Online fan fiction, global identities, and imagination. *Research in the Teaching of English*, 43, 397–425.
- Castells, M. (2010). Globalization, networking, urbanisation: Reflections on the spatial dynamics of the information age. *Urban Studies*, 47(13), 2737–2745.
- Castells, M. (2016). Space of flows, space of places: Materials for a theory of urbanism in the information age. In T. R. LeGates, & F. Stout (Eds.), *The city reader* (pp. 229–240). Routledge.
- Chik, A., & Ho, J. (2017). Learn a language for free: Recreational learning among adults. *System*, 69, 162–171.
- Ciolfi, L. (2013). Space and place in digital technology research: A theoretical overview. In S. Price, C. Jewitt, & B. Brown (Eds.), *The SAGE handbook of digital technology research* (pp. 159–173). SAGE Publishing.
- Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology*, 12(3), 297–298.
- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. SAGE Publishing.
- Dong, J., & Blommaert, J. (2016). Global informal learning environments and the making of Chinese middle class. *Linguistics and Education*, 34, 33–46.
- Dressman, M., & Sadler, R. (2020). *The handbook of informal language learning*. Wiley-Blackwell.
- Fallahkhalil, S., Pemberton, L., & Griffiths, R. (2007). Development of a cross-platform ubiquitous language learning service via mobile phone and interactive television. *Journal of Computer Assisted Learning*, 23(4), 312–325.
- Gee, J. P. (2007). *Good video games and good learning: Collected essays on video games*. Peter Lang: learning and literacy.
- Gibson, J. J. (1979). *The ecological approach to perception*. Lawrence Erlbaum Associates.
- Gomes Junior, R. C. (2020). Instanarratives: Stories of foreign language learning on Instagram. *System*, 94, 1–18.
- Hand, M. (2017). Visuality in social media: Researching images, circulations and practices. In L. Sloan, & A. Quan-Haase (Eds.), *The SAGE handbook of social media research methods* (pp. 215–231). SAGE Publishing.
- Han, Y., & Reinhardt, J. (2022). Autonomy in the digital wilds: Agency, competence, and self-efficacy in the development of L2 digital identities. *Tesol Quarterly*, 56(3), 985–1015.
- Jacquemet, M. (2013). Language, media, and digital landscapes. In P. Auer, M. Hilpert, A. Stukenbrock, & B. Szmrecsanyi (Eds.), *Space in language and linguistics* (pp. 473–493). Walter de Gruyter.
- Jensen, S. H. (2019). Language learning in the wild: A young user perspective. *Language, Learning and Technology*, 23(1), 72–86, 10125/44673.
- Kao, T., & Oxford, R. L. (2014). Learning language through music: A strategy for building inspiration and motivation. *System*, 43, 114–120.
- Karasimos, A. (2022). The battle of language learning apps: A cross-platform overview. *Research Papers in Language Teaching and Learning*, 12(1), 150–166. <https://rplt.eap.gr/>.
- Lam, W. S. E. (2014). Literacy and capital in immigrant youths' online networks across countries. *Learning, Media and Technology*, 39(4), 488–506.
- Lee, Y.-J. (2022). Language learning affordances of Instagram and TikTok. *Innovation in Language Learning and Teaching*, 17(2), 408–423.
- Lee, K. H. Y., & Patkin, J. G. (2017). Building the digital archive of Hong Kong English learning: Methodology, challenges and reflection. *System*, 65, 61–68.

- Reinhardt, J. (2019). Social media in second and foreign language teaching and learning: Blogs, wikis, and social networking. *Language Teaching*, 52(1), 1–39.
- Reinhardt, J., & Thorne, S. L. (2020). Digital games as language-learning environment. In J. Plass, R. Mayer, & B. Homer (Eds.), *Handbook of game-based learning* (pp. 409–435). MIT Press.
- Richardson, I., & Wilken, R. (2012). Parerga of the third screen: Mobile media, place, and presence. In R. Wilken, & G. Goggin (Eds.), *Mobile technology and place* (pp. 193–209). Routledge.
- Saether, S., & Bull, S. T. (2020). *Screen space reconfigured*. Amsterdam University Press.
- Sauro, S., & Zourou, K. (2019). What are the digital wilds? *Language, Learning and Technology*, 23(1), 1–7.
- Sockett, G. (2013). Understanding the online informal learning of English as a complex dynamic system: An emic approach. *ReCALL*, 25(1), 48–62.
- Sockett, G. (2014). *The online informal learning of English*. Palgrave Macmillan.
- Sockett, G., & Toffoli, D. (2012). Beyond learner autonomy: A dynamic systems view of the informal learning of English in virtual online communities. *ReCALL*, 24(2), 138–151.
- Soyouf, A., Reynolds, B. L., Vazquez-Calvo, B., & McLay, K. (2021). Informal digital learning of English (IDLE): A scoping review of what has been done and a look towards what is to come. *Computer Assisted Language Learning*, 1–27.
- Sundqvist, P., & Sylvén, L. K. (2014). Language-related computer use: Focus on young L2 English learners in Sweden. *ReCALL*, 26(1), 3–20.
- Sundqvist, P., & Sylvén, L. K. (2016). *Extramural English in teaching and learning: From theory and research to practice*. Palgrave Macmillan.
- Sylvén, L. K., & Sundqvist, P. (2012). Gaming as extramural English L2 learning and L2 proficiency among young learners. *ReCALL*, 24(3), 302–321.

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