

# Research on Foreign Language Acquisition within the New Media Linguistic and Cultural Ecology

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**Abstract:** *The deep mediatization brought about by mobile internet technology is reshaping the ecology of foreign language acquisition, shifting learning practices from the one-way transmission of traditional classrooms towards distributed cognitive fields. Grounded in sociocultural theory, ecological language learning perspectives, and multimodal discourse analysis, this study systematically unpacks the mechanisms by which the new media linguistic and cultural ecology reconstructs foreign language acquisition pathways: (1) Algorithmically-driven personalized content flows and decentralized platforms construct dynamic language immersion environments, facilitating multi-dimensional social interaction and cognitive internalization; (2) The synergistic interplay of multimodal semiotic resources engenders transmedia communicative competence, propelling foreign language proficiency beyond the boundaries of traditional skills; (3) Learners are transformed into proactive ecological constructors, accelerating language internalization and cultural capital accumulation through creative practices and community collaboration; (4) Algorithmic mediation, while optimizing learning efficiency, simultaneously harbors the risk of diminishing cultural cognition. The research elucidates the profound transformations wrought by the new media ecology on the development of foreign language competence, providing theoretical pathways and practical frameworks for innovating language education paradigms in the digital age.*

**Keywords**—new media context; linguistic and cultural ecology; second language acquisition; multimodal resources; cultural capital

## 1. INTRODUCTION

The leapfrog development of mobile internet technology has fostered a new ecology for language and cultural exchange practices. Research indicates that approximately 80.3% of “Generation Z” learners utilize at least one online platform as a supplementary pathway for foreign language acquisition outside formal education. This data signifies a fundamental transformation wherein new media have evolved from serving as instrumental support to constituting the bedrock of the linguistic and cultural ecosystem. Within this deeply mediatized milieu, the cognitive mechanisms underlying language acquisition are being redefined.

Traditional research into foreign language acquisition has often been confined to teacher-centered knowledge transmission within classroom settings, paying insufficient attention to the scarcity of authentic contexts and the thinness of cultural experience. The role of sociocultural mediation, emphasized by Vygotsky (1978)—a foundational figure in sociocultural theory—is frequently reduced to a unilinear process of instruction in conventional classrooms. Conversely, the diverse platforms empowered by new media create a language practice field characterized by “distributed cognition”. In this framework, learners’ cognitive activities disperse across distinct media nodes, interconnected to form a holistic learning ecosystem (Liu, 2024).

Consequently, it is imperative in our contemporary era to re-examine the profound impact of this environment on the development of foreign language competence, particularly contextualized communicative competence and cultural empathy. Building upon core theoretical foundations, this study focuses on the mechanisms through which the new media language-culture ecology reconstructs pathways for foreign language acquisition. This research represents both a deeply contextualized extension of existing second language acquisition (SLA) theories and offers theoretical insights and practical solutions for cultivating globally competent language professionals within complex digital-cultural contexts.

## 2. THEORETICAL FOUNDATIONS

Research on foreign language acquisition within the new media language and cultural ecology necessitates integrating interdisciplinary theoretical perspectives to construct a three-dimensional “language-culture-cognition” explanatory framework. Its core theoretical foundations encompass the following three levels.

### 2.1 Sociocultural Theory

Sociocultural Theory (SCT), pioneered by Soviet psychologist L. S. Vygotsky (1978), posits as a core proposition that the development of higher psychological functions stems from the internalization of sociocultural

activities. Within the new media linguistic ecology, this theory manifests three innovative interpretations: (1) The digital extension of technological tools as cognitive mediators; (2) The reconstruction of the Zone of Proximal Development (ZPD) through distributed cognitive networks; and (3) New pathways for language internalization driven by multi-agent interaction (Lantolf & Thorne, 2006). The traditional “triangular mediation system” of teacher-textbook-classroom is supplanted by a “digital mediation matrix” (Thorne, 2003) comprising elements such as User-Generated Content (UGC) and intelligent conversational agents. For instance, interactions via bullet-screen comments on short video platforms not only achieve multimodal synergy between visual symbols (text), auditory symbols (speech), and dynamic images, but also function as a form of real-time social scaffolding to reduce cognitive load, rendering the negotiation of linguistic form and function explicit rather than implicit (Swain et al., 2015).

Sociocultural practices within new media contexts exhibit two key characteristics: temporal-spatial decoupling and agentic dispersion (Blake, 2013). According to Vygotsky (1987)’s Mediation Theory, learners utilize digital praxis (such as liking, commenting, and sharing) to transfer linguistic knowledge from the social plane to the psychological plane, thereby completing the internalization cycle. Particularly noteworthy is how machine learning algorithm-driven content recommendation mechanisms create a Dynamic Zone of Proximal Development (Dynamic ZPD). By continuously optimizing the complexity and relevance of input content based on user behavioral data, these mechanisms achieve personalized cognitive adaptation (Van Lier, 2004). For example, the intelligent error-correction systems in language learning apps provide real-time, form-focused feedback through error analysis, constructing precise cognitive scaffolding for learners. This represents a paradigmatic innovation of SCT’s view of mediating tools in the digital era.

## 2.2 Ecological Perspective on Language Learning

The Ecological Perspective on Language Learning originates from the confluence of Ecolinguistics and Applied Linguistics. Its core premise conceptualizes language acquisition as a dynamic, multi-dimensional, and symbiotically interconnected systemic process. This perspective emphasizes the complex co-constructive relationship between the language learner and their specific environment. This theoretical paradigm, systematically developed by scholars like Van Lier (2004) and Kramsch (2002), posits that language is not merely a system of knowledge but, more fundamentally, a medium for socio-cultural practice. Its effectiveness in learning is highly contingent upon the synergistic interactions within its encompassing ecosystem, which is a complex comprising diverse elements such as physical spaces, social networks, cultural symbols, and technological tools.

Critiquing the limitations of traditional cognitivism that abstracts input processing, the ecological perspective proposes

that language acquisition is an ecological process of meaning-making (Van Lier, 2010). It emphasizes the crucial role of environmental “affordances”, the language resources and possibilities for interaction that learners perceive and can act upon within their environment, which shape learners’ cognition, affective engagement, and participation in practice. Bronfenbrenner’s (1979) ecosystem theory is further integrated to deconstruct the nested influences of the environment on language competence development across three levels: the macro-level (cross-cultural policies), the exo-level (institutional interactions), and the micro-level (classroom/community practices). This integration advocates for a “whole-environment” perspective in researching language learning.

Against the backdrop of new media technologies profoundly reshaping language ecologies, the ecological perspective on language learning has acquired new theoretical depth and practical implications. Characterized by multimodality, decentralization, and intense interactivity, the new media ecology which encompasses platforms like social media, virtual communities, and immersive applications constitutes novel “language habitats” (Simungala et al., 2024). These habitats provide foreign language learners with highly personalized, immediate, and diverse resource networks and interactive contexts (Wang et al., 2022). Within this context, language acquisition is no longer confined to linear pathways predetermined by classrooms or textbooks. Instead, learners engage in ongoing dialogue with digital media environments, actively identifying, selecting, and utilizing the technological affordances it offers to achieve the organic internalization of linguistic knowledge and cultural competence.

Simultaneously, the new media’s defining features, such as algorithmic recommendations, user-generated content (UGC) mechanisms, and distributed knowledge networks, foster autonomous, decentralized learning models that move beyond teacher-centric approaches (Metzler & Garcia, 2024). Here, learner agency, motivation strategies, and identity negotiation become the driving forces in the evolution of the language ecology within this environment (Teng, 2017). Consequently, understanding foreign language acquisition in the socio-technological landscape of new media necessitates grounding in an ecological language perspective. This requires analyzing the co-evolutionary logic between individuals and their environments through multi-contextual interactions and deconstructing how “ecological niches” shape learners’ trajectories of language practice.

## 2.3 Multimodal Discourse Analysis Theory

Multimodal Discourse Analysis (MDA) constitutes a significant extension and deepening of the Systemic Functional Linguistics (SFL) theoretical framework, providing a powerful theoretical lens for understanding and analyzing the complex processes of foreign language acquisition within new media environments (O’Halloran et al., 2019). Traditional discourse analysis primarily focuses on a single linguistic (verbal) sign system. In contrast, the theoretical foundation of

MDA originates with scholars like Kress & van Leeuwen (1996), who explicitly broadened the scope of meaning-making to encompass the wide semiotic terrain beyond language. This theory posits that discourse is the product of the interplay of multiple social semiotic modes. These modes include, but are not limited to, dynamic or static images, spatial layout design, colour, sound (speech, music, sound effects), embodied action (gestures, facial expressions), and interface interactions—essentially diverse non-verbal semiotic resources. A crucial insight within the new media context, particularly for language acquisition, is that the creation, comprehension, and negotiation of meaning do not rely solely on linear linguistic text (Zhang et al., 2025). Instead, they are deeply embedded in how these multiple modalities are purposefully “designed” (Kress, 2010) and organized to jointly construct an integrated “semiotic ensemble” for participants to decode and respond to. MDA, drawing upon SFL’s core meta-functions (the ideational, interpersonal, and textual functions), systematically analyzes how modalities work together to convey meaning, construct social identities/relationships, and organize cohesive information flow. The synergy of semiotic resources and principles of design form the cornerstone for understanding the complexity of foreign language communication and expression within new media environments (Yajun et al., 2025).

Integrating MDA into research on foreign language acquisition within the new media linguistic and cultural ecology demonstrates strong relevance and explanatory power (Jiang, 2025). In the highly mediated, visual, interactive, and socialized new environments, foreign language acquisition extends far beyond the mere mastery of vocabulary and grammar or isolated listening/reading skill training. Learners are essentially immersed in a dense field of multimodal discursive practices constituted by algorithmically recommended short videos, interactive language learning applications, transnational social media dialogues, language use within digital gaming scenarios, and similar contexts. The theory provides a dual perspective for analyzing meaning circulation within these “foreign language contact fields”: (1) Multimodal Integration, Decoding, and Acquisition: This focuses on how learners integrate and decode various modalities to infer meaning and acquire pragmatic strategies, investigating the unique contributions and integration mechanisms of different modalities in strategies such as guessing word meanings or understanding context. (2) Multimodal Expression Practices and Identity Negotiation: This examines how learners, during foreign language output (e.g., creating short videos, participating in transnational live-streamed discussions), actively select and organize multiple semiotic resources, such as speech, text, facial expressions and gestures, and background music, engaging in semiotic design (Kress, 2010) to express meaning effectively, construct intercultural identities, and achieve interpersonal negotiation with target language community members.

Consequently, MDA not only deepens understanding of the multidimensional nature of foreign language input in new

media environments (where input is inherently multimodal co-meaning-making), but more importantly, it reveals that the substantive essence of foreign language proficiency in contemporary contexts has expanded to encompass “multimodal communicative competence” (Lotherington & Jenson, 2011). This competence involves the active planning and utilization of diverse semiotic resources for effective intercultural expression and communication. This conceptualization profoundly transcends the boundaries of the conventional “four skills” (listening, speaking, reading, writing), establishing itself as an indispensable and crucial dimension in constructing foreign language literacy within the linguistic and cultural ecology of new media.

### 3. RECONSTRUCTING FOREIGN LANGUAGE ACQUISITION PATHWAYS IN NEW MEDIA CONTEXTS

The new media linguistic-cultural ecosystem, characterized by decentralization, instant interactivity, immersive experiences, and massive personalized content, has profoundly dissolved the boundaries of traditional linguistic knowledge and skills. It has fundamentally restructured foreign language acquisition pathways. Unlike the linear knowledge transmission previously dominated by classroom instruction, the core empowerment of new media lies in creating highly autonomous immersive linguistic environments. Learners can transcend spatial-temporal constraints, freely accessing authentic life scenarios, professional contexts, and sociocultural hotspots in the target language. For instance, a student in China can view “daily vlogs” from other countries on websites, or join English-language gaming communities in online forums to discuss strategies. This sustained, high-density, interest-driven language input reconstitutes the starting point of acquisition—language evolves from isolated knowledge points into vivid cultural practices and tools for social participation, thereby activating natural acquisition mechanisms widely within digital spaces (Ellis, 2015).

The pivotal reconstructive power of this ecosystem manifests in its radical transformation of knowledge representation and cognitive processing models. Highly structured “grammar-vocabulary” units found in traditional textbooks are deeply deconstructed and reconstituted within the informal, fragmented linguistic flows of new media. Learners actively engage with linguistic variation (e.g., internet slang), multimodal symbols (e.g., memes/short videos), and cultural memes prevalent on social media. When encountering elements like literary micro-reviews in English-language communities or satirical political cartoons on French Twitter, learners must mobilize multiliteracies—competencies in deciphering diverse symbolic systems. This complexity compels the brain to move beyond syntactic analysis towards multi-dimensional pragmatic inference based on context and communicative intent (Halliday, 1978), unconsciously absorbing grammatical patterns and lexical expressions in the process. Crucially, the instant interaction inherent in User-Generated Content (UGC) shifts learners from passive

recipients to active meaning negotiators, enabling them to test and refine language hypotheses and pragmatic strategies through authentic communication (Long, 1996).

The personalized recommendation logic embedded in new media algorithmic systems profoundly reshapes learners' cognitive channels and content pathways at a structural level. Algorithmic mediation continuously pushes language content aligned with individual preferences—based on data profiling—constructing unique personalized content streams. This mechanism offers significant advantages: reducing search costs, sustaining engagement, and enabling continuous cultural input. However, algorithmic filter bubbles may also confine learners to specific domains or expression styles, potentially leading to fragmented language exposure and superficial cultural understanding. Concurrently, the linguistic diversity presented by new media (non-standard accents, online language variants) holds immense value as authentic language samples. Yet, without critical media literacy, learners' grasp of formal registers or nuanced cultural distinctions may become blurred, necessitating the development of scientific linguistic discernment through rich experiential materials (Kellner & Share, 2007). In this reconstructive process, learners must balance algorithmic personalization's convenience with a conscious effort to expand their linguistic and cultural boundaries.

At its core, the new media ecosystem ultimately reconstructs the learner's role itself—transitioning from passive knowledge recipients to active constructors, participants, and creators (prosumers) within the network. Learners do not merely consume content; they actively produce bilingual vlogs, publish foreign language learning blogs, and participate in transnational collaborative projects. This embodied Learning by doing transforms language output from formulaic exercises into authentic communication with purposeful intent. Deep participation internalizes language skills as essential tools for self-expression. Furthermore, receiving feedback (likes, comments, collaboration) from online communities reinforces motivation and fosters learner identity (Norton, 2013). Through new media's affordances, the learning process evolves from a closed system into an open practice space—where language acquisition, digital literacy forging, and intercultural competence development become inextricably intertwined. This convergence ultimately redefines foreign language proficiency as integrative competence: the ability to exist with agency, participate meaningfully, and innovate within the new media world.

By dissolving traditional boundaries, stimulating complex interactions, mediating cognitive pathways, and reshaping participant identities, the new media linguistic-cultural ecosystem has fundamentally overturned conventional language input-output patterns and competence-development scenarios. This reconstruction is a manifestation of technological empowerment, yet it simultaneously demands upgraded learning strategies and an overhaul of foreign language education paradigms for the digital age.

#### 4. FUTURE RESEARCH DIRECTIONS AND PRACTICAL IMPLICATIONS

##### 4.1 Future Research Directions

The internal cognitive mechanisms of foreign language acquisition within the linguistic-cultural ecology of new media remain a significant area warranting further exploration. Future research necessitates in-depth investigation along the following trajectories (Luk et al., 2020). First, it is imperative to integrate methodologies from neurolinguistics and cognitive psychology. Employing experimental techniques such as eye-tracking and event-related potentials (ERPs), longitudinal investigations are needed to examine learners' real-time cognitive processing pathways and associated neural underpinning changes during interactions with multimodal symbols (e.g., bullet comments, memes, short-form video audio-visual composites). This is essential for constructing dynamic models of linguistic information processing within new media environments (Bonial & Tayyar Madabushi, 2025). Second, there should be an active pursuit of interdisciplinary theoretical integration. Perspectives from communication studies, sociology, and cultural research must be incorporated to transcend the limitations of traditional linguistic frameworks. The goal is to establish a comprehensive theoretical model capable of deeply explicating the operational principles underlying this complex ecosystem. Third, large-scale, longitudinal tracking studies utilizing mixed-methods approaches are urgently required. Such research must unveil the nonlinear long-term impact patterns that variations in the intensity, frequency, and mode of utilizing diverse new media resources exert on foreign language acquisition outcomes.

Significant research gaps persist concerning pedagogical applications. Future efforts should center on systematic pedagogical transformation grounded in principles from the learning sciences (Nair et al., 2025). On one hand, research must focus on designing precisely tailored blended learning pathways. These designs should adeptly integrate the benefits of formal classroom settings (characterized by profound interaction and structured support) with the affordances of new media platforms (offering immersion, learner autonomy, and social presence). Development should meticulously account for individual learner differences (e.g., cognitive styles, language proficiency, cultural motivation) and specific contextual requirements (e.g., emphasizing academic, professional, or social language skills). On the other hand, driving the advancement and rigorous efficacy evaluation of intelligent educational tools constitutes a pressing imperative. Research should explore how to effectively leverage generative artificial intelligence (GenAI) and big data analytics to empower intelligent tutoring systems (ITS). These systems should provide learners with precise learning diagnostics, personalized content delivery, and emotionally attuned interactive motivational support to enhance the quality of autonomous learning. Concurrently, establishing scientifically robust, multi-dimensional language proficiency assessment systems is paramount. This necessitates, in

particular, overcoming the current dependence of existing instruments on static testing of discrete language points. Developing process-oriented and contextualized assessment paradigms is critical to capture higher-order multidimensional competencies, including the capacity for real-time strategic language choices, adaptability in diverse cultural communicative contexts, and cross-platform digital literacy performance.

#### 4.2 Practical Significance

This research holds significant innovative value for contemporary foreign language talent cultivation. Firstly, its primary practical significance lies in accelerating the modernization of teaching paradigms. By providing a deep understanding of the operational dynamics within the new media ecosystem, the study offers a scientific basis for restructuring learner-centered curricula, that is, the teacher's role will fundamentally shift from knowledge transmitter to learning designer and facilitator, with the pedagogical focus moving towards guiding students to develop core competencies in efficient information screening within vast digital resources, critical analysis, and creative knowledge integration. Secondly, the research profoundly reveals the transformative impact and challenges posed by new media on cultural cognition and practice. It reveals the necessity for educators to abandon superficial cultural comparison and instead focus on systematically guiding students to identify the ideological coding and power dynamics embedded within media texts, thereby cultivating advanced intercultural pragmatic competence for flexible and appropriate negotiation across diverse cultural standpoints (Delogu & Greenier, 2025).

The strategic value of the research extends to the level of national foreign language capacity building and social governance in the digital era. In addressing the challenges of the globalized digital environment, the findings can guide the formulation of national digital reform plans for language education and provide foundations for revising curriculum standards. It will support the efficient deployment of foreign language digital educational resource platforms.

Simultaneously, cultivating individuals possessing strong foreign language practice capabilities, critical media literacy, and global citizenship awareness within the new media environment is itself the most crucial bedrock of strategic talent reserves for enhancing the nation's capabilities in information acquisition, cultural influence, and discursive power shaping within the international digital space.

The research further delineates future directions for industry-academia collaboration and technology transfer: It is imperative to promote the establishment of an open collaborative research and development mechanism involving academia (research on pedagogical principles, needs diagnosis), the tech sector (AI algorithm optimization, platform functionality iteration), and industry (product research and design). This aims to ensure effective translation of foundational research, continuously optimizing learner

experience and outcomes. In the process of building this ecosystem, the virtuous cycle formed by academic research, teaching practice, and technological innovation will provide sustainable internal momentum for China's global engagement in the digital age.

Current research still possesses ample potential for deconstructing the complexities of the new media linguistic ecosystem and providing effective practical pathways. Continued deepening in this field will inevitably vigorously propel teaching and learning towards greater intelligence, equity, and efficiency, offering scholarly support and practical solutions for individual empowerment and the harmonious development of society and culture.

#### 5. CONCLUSION

This study systematically elucidates the logic governing the deep-seated restructuring of foreign language acquisition pathways by the new media linguistic-cultural ecosystem. New media technologies, through constructing distributed cognitive fields, have subverted the traditional classroom-centric, unidirectional knowledge transmission model. This has transformed language acquisition into a multimodal semiotic practice process driven by learners' active participation (Escobar-Lluch & Ruiz-Madrid, 2025).

The core findings include: (1) Characterized by algorithmically-mediated content flow, user-generated interaction, and cross-cultural immersive environments, the new media ecosystem significantly enhances the internalization efficiency of learners' communicative competence. It achieves this by deconstructing the boundaries of linguistic knowledge and stimulating engagement within authentic contexts. (2) The synergistic effect of multimodal resources fosters the emergence of novel semiotic literacy capabilities, propelling the evolution of foreign language proficiency from the traditional "four core language skills" (listening, speaking, reading, writing) towards cross-modal communicative competence. Concurrently, this paradigm entails the risk of a digital divide resulting from the uneven distribution of cultural capital. (3) While algorithm-driven recommendations optimize personalized learning trajectories, they may simultaneously narrow cultural cognition due to the "filter bubble" effect. This necessitates mitigation through critical media literacy education.

Future foreign language education urgently requires the construction of a niche collaboration mechanism. Pedagogically, this involves integrating both intelligent technological adaptability and open community interaction into instructional design, positioning learners as active constructors within the ecological network. Theoretically, it demands intensified research into the neurocognitive mechanisms underlying multimodal processing and the tracking of cross-platform learning trajectories.

Only through the dynamic balance of technological empowerment and humanistic values can we cultivate a new generation of language talent equipped with both digital

literacy and global cultural competence. This holistic approach is indispensable for achieving the sustainable restructuring of foreign language education within the new media ecosystem.

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