

REVIEW ARTICLE

The interplay of ideal L2 self, L2 investment and L2 identity of EFL learners in higher education: A systematic review from 2014 to 2024

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ABSTRACT

This systematic review examines the dynamic interplay among ideal L2 self, L2 investment, and L2 identity in university-level EFL contexts by synthesizing 26 empirical studies (2014-2024). Addressing key gaps in current research, it integrates psychological and sociological perspectives while expanding beyond dominant East Asian contexts to include underrepresented regions. The findings reveal that the ideal L2 self serves as a primary motivational driver, particularly when supported by digital affordances and positive emotional experiences, while pedagogical interventions that facilitate vision-building and identity reflection create reinforcing cycles of motivation and investment. However, structural barriers such as socioeconomic disparities significantly constrain these dynamics for marginalized learners. The review makes three key contributions: first, it develops an integrated framework connecting agency and structure in L2 motivation research; second, it demonstrates the value of mixed-methods approaches for capturing temporal and contextual dimensions; and third, it provides practical insights for designing inclusive pedagogies that address systemic barriers. By elucidating the interdependent relationships among ideal L2 self as future self-guides, strategic investment, and identity development, this review advances understanding of L2 learning as both a cognitive and sociocultural process, offering valuable guidance for researchers, educators, and policymakers seeking to promote equitable learning opportunities in diverse EFL contexts and provides a comprehensive framework for understanding language learners' motivational trajectories, with implications for research, teaching practice, and policy development in global higher education settings.

Keywords: ideal L2 self; L2 investment; L2 identity; interplay; systematic review

1. Introduction

The dynamic interplay among ideal L2 self (IL2S), L2 investment, and L2 identity represents a pivotal frontier in contemporary second language acquisition (SLA) research. This tripartite relationship emerges at the confluence of two profound paradigm shifts reshaping the field: the psychological turn toward future self-guides^[1] and the sociological turn toward identity and investment^[2]. While these frameworks have

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revolutionized understanding of L2 motivation, their isolated application has led to fragmented insights, obscuring how learners' imagined futures, strategic resource allocation, and identity negotiations interdependently shape language learning outcomes.

1.1. Background: Theoretical evolution and socio-technological transformation

Early L2 motivation research, epitomized by Gardner's socio-educational model^[3], conceptualized motivation as a stable individual trait, emphasizing integrative/instrumental orientations. This perspective underwent a radical transformation with Dörnyei's L2 Motivational Self System (L2MSS)^[1], which introduced the IL2S—a future-oriented self-image that drives goal-directed behavior. Empirical validations^[4,5] confirm that learners with vivid, feasible self-images exhibit heightened engagement and persistence. However, L2MSS has been critiqued for its individualistic focus, overlooking how structural barriers (e.g., institutional racism, digital divides) constrain self-realization^[6].

Concurrently, Norton's investment theory^[2,7] reframed motivation through a sociological lens, positing that learners commit resources (time, effort, capital) to language learning only when they anticipate symbolic or material returns (e.g., social mobility, cultural capital). Grounded in Bourdieu's theory of capital^[8] and poststructuralist identity theories, investment theory highlights how power relations (e.g., gender, class, race) mediate access to legitimizing communities^[9]. For instance, Norton's study^[10] of immigrant women in Canada revealed how even highly motivated learners like Saliha resisted speaking French in racist/sexist workplaces, demonstrating that motivation alone cannot explain investment patterns. Sahila was a fictional language learner in Norton's book *Identity and Language Learning: Gender, Ethnicity and Educational Change* (2000). she faced challenges in obtaining adequate practice and interaction with native speakers, underscoring the gap between SLA theory and real-world learning experiences. Her situation highlights the complexities learners encounter in accessing meaningful language practice.

The rise of digital learning ecologies has further complicated this interplay. While digital tools (e.g., social media, language apps) offer unprecedented affordances for identity prototyping^[11], they also introduce new inequities. Rural learners (e.g., Henrietta in Uganda^[12], as a rural Ugandan student, participates in a digital resource study for HIV/AIDS education and English learning, striving to enhance her skills despite economic and technological constraints) often lack access to technology, while algorithmic curation privileges dominant epistemologies, marginalizing local knowledge^[13]. These dynamics underscore the need to examine how digital spaces reshape the IL2S–investment–identity nexus.

1.2. Problem statement: Critical tensions in SLA

These paradigm shifts expose several interconnected tensions in SLA research. The field of Second Language Acquisition (SLA) faces persistent tensions in understanding how L2 motivation drives learner investment, particularly concerning the interplay between identity negotiation and socio-structural constraints. While Dörnyei's L2MSS^[1] has dominated empirical research, recent critiques highlight its limited capacity to explain disparities in investment patterns among learners from marginalized backgrounds^[14,15]. A key unresolved tension lies in whether motivation primarily stems from internalized identity aspirations as IL2S or is structurally mediated by unequal access to linguistic, cultural, and digital capital^[16,17]. Empirical studies also reveal contradictory findings. Quantitative analyses emphasize the predictive power of IL2S on autonomous investment^[18,19], whereas qualitative work demonstrates how structural barriers, such as rural-urban educational divides^[16] or institutional monolingualism^[21], disrupt this relationship. This divergence suggests a theoretical gap in reconciling agency-centered and structure-centered explanations of L2 investment.

Furthermore, the role of digital environments remains under-theorized. While some studies frame digital tools as equalizers enabling identity reconstruction^[17,21], others caution that algorithmic biases in platforms may reproduce offline inequalities^[14]. This raises questions about whether technology-mediated learning genuinely subverts or inadvertently reinforces existing hierarchies in L2 motivation.

Geographical concentration in research creates distorted theoretical lenses. Studies from industrialized East Asian contexts dominate the literature, while regions with distinct colonial histories, multilingual policies, or resource disparities remain severely underrepresented. This imbalance risks conflating region-specific patterns with universal principles, as seen when Confucian-heritage motivation models are uncritically applied to fundamentally different cultural contexts^[20]. The resulting theories lack explanatory power for learners navigating postcolonial language hierarchies or economic precarity, which is also acute in Global South contexts with unequal linguistic capital distribution, exemplified by some vital research^[22-25].

One more point that must be mentioned is the methodological constraints. Prevailing research designs struggle to capture the dynamic, recursive nature of motivation-identity relationships, especially the single time-point methodologies^[18,19,26] which fail to account for how learners' IL2S and investment strategies evolve across critical transitions, such as shifts from EFL to EMI environments^[27,28]. Furthermore, the artificial separation of quantitative motivation studies^[30,31] from qualitative identity research^[31,32] creates analytical blind spots regarding how statistical patterns manifest in lived experience, as noted in recent mixed-methods critiques^[6,33]. These limitations are particularly problematic when examining digital learning ecologies, where motivation and identity negotiation occur across rapidly shifting online-offline spaces, a challenge underscored in studies of extramural digital learning^[17,21] and critical digital literacies^[14].

Therefore, the identified tensions reveal a critical need to examine how the three core constructs, IL2S, L2 investment, and L2 identity, interact or interplay to form a dynamic ecosystem. The current literature reveals three critical gaps: (1) insufficient integration between L2MSS and investment theory, leaving the IL2–investment–identity interplay undertheorized; (2) geographical bias neglecting underrepresented regions (e.g., Africa, Latin America); and (3) methodological limitations in capturing dynamic, digitally-mediated motivation processes across time. Consequently, this review aims to: (a) synthesize existing evidence on these constructs' interactions; (b) identify contextual and digital mediators shaping their relationships; and (c) propose an integrated framework for diverse EFL settings, addressing both theoretical and practical needs. To systematically investigate this interplay, we address two pivotal questions:

1. What is the current state of research on the interplay of IL2S, L2 Investment, and L2 Identity among EFL learners in higher education?
2. What are the main thematic findings regarding this interplay emerging from the selected studies?

By addressing these two questions, this review seeks to provide a comprehensive understanding of the complex interactions among these constructs in diverse learning contexts.

2. Literature review

Second language acquisition (SLA) research has increasingly recognized that language learning transcends cognitive and pedagogical domains, deeply intertwining with the learner's psychological and social world. Three theoretical constructs, the IL2S, L2 investment, and L2 identity, have proven particularly influential in understanding this complexity, because these concepts offer powerful lenses for examining learner motivation and behavior.

2.1. Theoretical foundation

This review is grounded in the integrative theoretical framework that synergizes L2MSS and investment theory. This combination provides a more holistic lens for analyzing the reviewed studies, accounting for both the internal drivers and external social constraints of motivation. L2MSS^[1] remains a central framework, especially the concept of the IL2S, which refers to a learner's imagined future as a competent language user. When learners can clearly visualize this future self, they are more likely to stay motivated^[34]. Moreover, L2MSS offers a forward-looking psychological model where the IL2S, a vivid and elaborate vision of oneself as a proficient L2 user, acts as a powerful motivational engine^[35]. This future self-guide motivates learners to reduce the discrepancy between their actual and ideal states, driving effort and strategic learning behaviors^[4,5]. However, as Al-Hoorie^[4] and Ushioda^[36] noted, a significant critique of the L2MSS is its relatively individualistic focus. It was argued that the model, in its initial form, did not fully account for how broader power structures, sociocultural contexts, and unequal access to capital could constrain or enable the realization of this ideal self. This theoretical limitation catalyzed the need for a sociological complement. On the other hand, the critics rightly note that the model, in its initial formulation, under-theorizes the social world, potentially overlooking how factors like power, access, and ideology can enable or thwart the realization of one's ideal self^[6].

While L2MSS provides crucial insights into IL2S as learners' future-oriented self-guides, Darwin's^[38] critical synthesis of how these psychological constructs intersect with sociological realities. Building on Norton's^[2] foundational work, Darwin^[9] positions investment as the necessary sociological counterpart to motivation, arguing that learners' commitment to L2 learning is always mediated by (1) their evolving identities, (2) the capital they can access or accumulate, and (3) the ideological structures that govern language valuation. This tripartite model resonates with recent empirical findings demonstrating that learners' ideal L2 selves, despite their psychological potency, are frequently constrained by structural barriers. For instance, Nabilla's^[32] Indonesian participants and Hajar's^[31] Iraqi case study demonstrate how socioeconomic disparities and geographic marginalization limit investment capacity despite strong motivation.

Research on the IL2S has robustly established its role as a primary engine of motivation. Quantitative studies across diverse contexts consistently demonstrate its capacity to predict intended learning effort, strategic engagement, and achievement^[5,18]. Its predictive power often surpasses that of the ought-to L2 self, which pertains to externally imposed duties or responsibilities^[11]. Recent work has moved beyond establishing correlation to exploring the mechanisms through which it operates. For instance, its efficacy is frequently mediated by affective factors, particularly Foreign Language Enjoyment (FLE), which amplifies its positive impact, while anxiety can diminish it^[19,26]. Furthermore, the construct's plasticity is evident; pedagogical interventions such as vision-building exercises^[38] and digital storytelling^[21] can significantly enhance its salience and vividness, leading to increased motivation.

In fact, motivation alone does not guarantee engagement because it is different from investment^[33]. Learners must also feel that their efforts are meaningful and valued. This is where investment theory^[2,9] becomes essential for providing the crucial sociological complement. Investment^[2,9] shifts the focus to the sociocultural, framing learning as a commitment of resources toward acquiring valued linguistic capital within often-unequal social contexts. It reframes motivation not merely as an individual trait but as a socially situated commitment to acquiring symbolic and material resources (e.g. capital) within often-unequal social fields. Norton and De Costa^[39] conceptualized language learning investment as a socially mediated commitment shaped by identity, access to capital, and ideological structures. While learners may be motivated, their actual investment depends on whether the learning environment offers meaningful

opportunities and recognition. Drawing on Darwin and Norton's^[9] expanded model of investment, they emphasize that investment occurs at the intersection of identity, capital, and ideology, and is deeply influenced by power relations and social context. They also highlight how digital technologies and transnational experiences reshape identity trajectories, calling for research tasks that address these evolving dynamics.

Darwin and Norton's^[9] model of investment reframes motivation through a sociocultural lens, positing that learners invest time, effort, and resources into learning a language if they believe it will yield a valuable return in social, cultural, or symbolic capital. Empirical studies provide rich evidence of this calculated commitment. Learners strategically invest in specific practices, such as intensive test preparation^[19] or participation in digital knowledge-sharing communities^[40], perceived as pathways to acquiring desired capital. This research highlights that investment is not merely an individual choice but is profoundly shaped by structural constraints and affordances. Factors like socioeconomic status^[32], geographic location^[31], and institutional policies^[41] can dramatically enable or limit a learner's capacity and willingness to invest, underscoring the role of power and context in motivational processes.

These two frameworks are not competing but are fundamentally “complementary”^{[33] (p. 30)} and also enrich each other^[42]. Rather than being competing, they offer *bifocality*^{[33] (p. 37)}, with each lens compensating for the blind spots of the other. The L2MSS explains the internal driving force (the why), while investment theory explains the external conditions that shape how and whether that force can be expressed. Therefore, an integrative framework is not only possible but necessary for a holistic analysis, a direction supported by the field's push toward greater transdisciplinarity^[33,43].

Furthermore, research into L2 identity examines the ongoing, dynamic process through which learners negotiate and reconstruct their sense of self through the experience of language learning. Identity^[10] explores how a learner's sense of self, shaped by social positioning (e.g., gender, race, class), mediates their access to and participation in language learning communities. It is not static but is constantly shaped by and shapes social interaction, and serves as the critical bridge connecting the psychological and the social. Informed by poststructuralist thought, identity in this context is understood as multiple, dynamic, and a site of struggle^[2]. It is through the lens of identity that the personal desire encapsulated in the IL2S interacts with the social realities addressed by investment. For instance, Zhang and Huang^[44] presented a longitudinal case study of a multilingual pre-service teacher navigating EFL, EMI, and ESL environments, showing how shifting power relations and capital valuation shaped her identity and investment decisions. Meanwhile, Lin and Smith^[45] synthesized research on Chinese learners' motivation and identity, revealing how Confucian cultural norms foster an “ought-to self” in English learning, while personal interest and IL2S play a stronger role in learning languages other than English. Qualitative investigations are particularly adept at capturing this complexity, revealing how learners use the L2 to assert agency and reposition themselves socially. For example, Omani learners leveraged English on social media to project identities as sophisticated cultural emissaries, challenging reductive Western stereotypes^[12]. Similarly, an Iraqi student's investment in English enabled an “agentive metamorphosis”, transforming her identity from a marginalized rural learner to a capable international student^[31]. These studies illustrate that identity work is a core part of the language learning process, influencing and influenced by learners' motivations and actions.

Based on the above theoretical foundation, relevant literature was investigated and explored theoretical tensions and empirical gaps from a critical perspective as following three parts.

2.2. Theoretical and epistemological divides: Psychological versus sociological orientations

A strong cognitive-psychological tradition, rooted in Dörnyei's^[1] L2MSS, prioritizes the individual learner's internal drives. Studies in this vein^[5,11,18,26] robustly quantify the predictive power of the IL2S on motivated behaviours like strategic engagement and persistence. These studies excel at identifying correlational patterns but are frequently critiqued for a depoliticized view that overlooks how broader power structures, capital distribution, and ideological forces constrain or enable the very possibility of realizing an ideal self^[2,6].

Conversely, a sociological and poststructuralist orientation, championed by Norton^[2,7] and Darwin & Norton^[9], frames investment as a commitment shaped within often-unequal social fields. This lens is powerfully employed in qualitative and critical works^[13,14,20,31] that expose how learner agency is mediated by race, class, gender, and institutional power. For instance, where a psychological study might chart a correlation between self-image and effort^[30], a sociological analysis reveals how Bangladeshi learners^[14] or Omani social media users^[13] invest, or disinvest, based on perceived returns in social capital and the right to speak. This tension is not merely academic but represents a starkly different conception of the learner: as a psychological agent versus a social actor navigating complex power dynamics. The recent theoretical clarifications by Darwin & Norton^[33], positioning motivation and investment as symbiotic, represent a crucial step towards integration, yet this synthesis remains conspicuously underexplored in empirical research.

2.3. Methodological imbalances and the neglect of temporal dynamics

The methodological imbalance also needs noticing since it reveals a qualitative dominance, particularly in studies examining identity negotiation, power structures, and digital inequalities. This trend reflects the field's increasing recognition that quantitative approaches often fail to capture the nuanced sociopolitical dynamics shaping language learning investments. The literature demonstrates a clear qualitative orientation when addressing complex, contextually embedded phenomena, with studies like Liu's^[16] work on rural Chinese migrants and Ye's^[17] research on Uyghur students employing longitudinal narrative methods to trace identity evolution under conditions of structural marginalization. Similarly, critical case studies by Shi and Guo^[46] and Carolan and Devlin^[20] utilize multi-layered qualitative analysis to reveal how macro-ideologies such as neoliberalism and Confucianism influence investment patterns. Even in digital contexts, where one might expect more quantitative approaches, scholars like Little and Al Wahaibi^[13] and Prapunta^[47] have favored qualitative examinations of online identity performances, recognizing that standardized instruments struggle to decode forms of cultural resistance.

Despite the richness of qualitative approaches, both qualitative and quantitative studies in the field continue to suffer from temporal limitations. The majority of research, including otherwise robust qualitative investigations like the study of an Iraqi rural learner^[31] or the examination of Indonesian students^[32], captures only single moments in time, missing the opportunity to document longitudinal identity trajectories. On the quantitative side, studies such as Nikitina et al.^[29] and Alqahtani^[18] inevitably reduce dynamic developmental processes to static variables measured at isolated points. This cross-sectional tendency persists even in mixed-methods designs, where the potential for temporal analysis is often underutilized. Notable exceptions that demonstrate the value of longitudinal perspectives include Ye's^[17] and Rahaman's^[14] work tracking learners across years of migration and educational transitions, as well as Liu's^[16] three-year documentation of digital investment patterns. Moreover, mixed-methods research reveals another significant methodological tension^[19,44,48,49] which indicates a more balanced mixed-methods methodology would treat qualitative data as theoretical drivers rather than mere illustrations, while using quantitative data to map structural patterns instead of simply verifying hypotheses.

2.4. Contextual bias and the illusion of universality

Another major focus in current research is its heavy reliance on studies from a few specific regions, particularly East Asia, especially in China^[11,27,28,41,48] and Western countries, like Spain^[38,49,50] and Ireland^[20]. This geographical concentration risks presenting region-specific findings as universal truths, when in reality, learners' IL2S, L2 investment and L2 identity vary significantly across different cultural, economic, and political contexts.

For example, research from Bangladesh^[14], Pakistan^[51], and Oman^[13] challenges assumptions derived from East Asian studies by showing how investment is shaped by postcolonial language policies, religious identity, and socioeconomic barriers. Similarly, studies from Indonesia^[32,52] highlight how family background and access to elite education influence language learning in ways that differ from more commonly researched settings. Even within China, rural learners^[16] and ethnic minority students^[17] experience investment differently from urban Han Chinese peers—demonstrating that national labels often mask important internal diversity.

This geographical imbalance is not just a gap in representation but also leads to theories that overlook critical factors such as colonial history, local language policies, and unequal access to resources. Future research must actively include underrepresented regions—such as Africa, Latin America, and South Asia—to develop a more globally relevant understanding of EFL investment. Without this broader perspective, the field risks reinforcing a narrow view of motivation that fails to account for the complex realities of learners worldwide.

Given the complexity and evolving nature of these constructs, a systematic review is methodologically appropriate. The existing studies reveal that while significant research exists on the IL2S, L2 investment, and L2 identity, the current literature remains fragmented and contextually limited in addressing their dynamic triadic interplay, which is for research question one. Besides, thematic findings which goes to research question two highlight robust relationships between two variables (e.g., self-driven investment or identity-shaped effort) but fall short of explaining how these three constructs mutually and recursively influence each other over time and across diverse settings. Most importantly, critical gaps persist due to geographical bias (over-reliance on East Asian contexts), methodological narrowness (dominance of cross-sectional designs), and a theoretical oversight of how structural barriers constrain agency. Thus, a systematic review is urgently needed to integrate these disconnected insights, trace developmental pathways across contexts, and develop a coherent framework explaining the synergistic effects of psychological, social, and temporal dimensions on L2 motivation.

3. Methodology

This systematic review adheres rigorously to the PRISMA guidelines^[53] to identify and synthesize studies that explore the relationship between the IL2S, L2 investment and L2 identity among university-level EFL learners. The review aims to provide a comprehensive overview of empirical research conducted within higher education settings, focusing on the constructs of IL2S, L2 investment, and L2 identity in foreign language learning. Only peer-reviewed journal articles indexed in Scopus and Wos were considered, ensuring methodological rigor and replicability. The search encompassed publications from January 2014 to December 2024 to capture contemporary trends. Articles were restricted to English-language (though the L2 did not need to be in English), open-access publications to guarantee accessibility and transparency. Grey literature (e.g., theses, conference abstracts) was excluded due to inconsistent peer-review standards.

3.1. Eligibility criteria

The following parts are the inclusion and exclusion criteria for this systematic review.

3.1.1. Inclusion criteria

Studies were included if they:

- Empirically investigated the impact of the IL2S on motivation, identity, or investment.
- Focused on EFL learners in tertiary education (university/college students).
- Utilized quantitative, qualitative, or mixed-methods designs with clearly defined outcomes (e.g., motivation, identity, investment, proficiency).
- Were peer-reviewed journal articles indexed in Scopus and Wos.
- Were open-access and written in English.
- Time selection from 2014 to December 2024.

3.1.2. Exclusion criteria

Studies were excluded if they:

- Were non-empirical (e.g., theoretical essays, literature reviews without original data).
- Targeted non-tertiary learners (e.g., K–12, adult community courses).
- Focused on languages other than English (e.g., Spanish, Japanese) unless EFL was comparably analyzed.
- Lacked direct engagement with IL2S, or investment, or identity construct (e.g., general motivation studies without self-guides).
- Were non-open-access or non-English publications.

3.2. Searching string

The search string was executed in Scopus using the following query:

“ideal L2 self” OR “L2 motivational self system” AND (“motivation” OR “identity” OR “investment”)

This search string was designed to capture studies that specifically address the constructs of the ideal L2 self, L2 investment, and L2 identity among university-level EFL learners. Referential backtracking was performed to ensure that no relevant studies were omitted. The final selection of studies included in this systematic review was based on the relevance and quality of the empirical evidence provided.

After the application of all search criteria, a total of 413 studies were retrieved and later evaluated for their relevance to the research topic. To ensure the comprehensiveness of the search, referential backtracking was conducted to verify that no relevant studies were overlooked. Following this process, the final number of studies selected for inclusion in this systematic review was 26.

3.3. Phases and procedures

The review aligned with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (**Figure 1**). Following the PRISMA guidelines, which are widely used in educational research projects^[54], the process of this review was structured to ensure comprehensiveness and reliability.

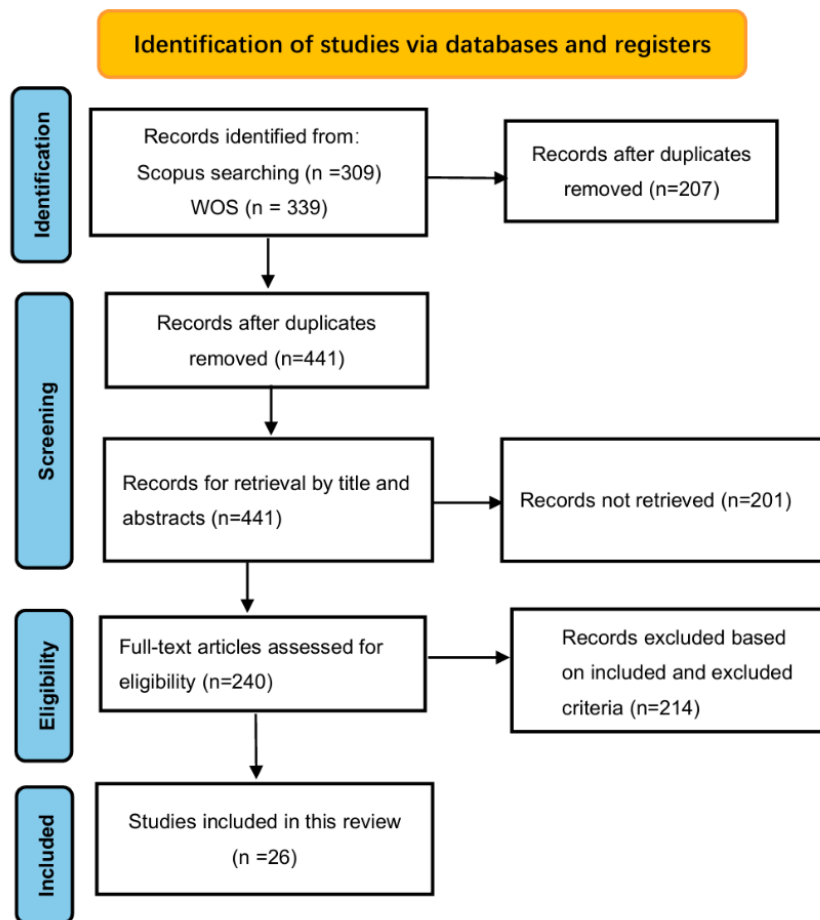


Figure 1. PRISMA flow diagram for the systematic review.

The first step is identification as the initial and systematic search to locate all relevant studies on the interplay between IL2S, L2 investment, and L2 identity published between 2014 and 2024. Following best practices in applied linguistics systematic reviews, the academic database Scopus and Wos served as the primary source due to their comprehensive coverage of high-impact journals. Keyword combinations included: ideal L2 self, L2 Motivational Self System, L2 investment, language investment, L2 identity and language identity. This initial search yielded 309 records from Scopus and 339 records from Wos. After removing duplicates, 441 records advanced to screening. The second step was screening by titles and abstracts to filter publications and the publications were reduced to 240 articles, with 201 articles excluded at this stage. The third step, eligibility, involved full-text assessment of the remaining 240 articles and 214 studies were excluded by inclusion and exclusion criteria, irrelevance after careful reading of the abstract, literature review, and a total of 26 primary studies (see Appendix A) were found to be eligible for current review.

Complying with the PRISMA framework, this systematic review ensured methodical, transparent knowledge synthesis. The final 26 studies based on the context of EFL learners in higher education provide robust empirical grounding to analyze how IL2S drives investment, how investment reshapes identity, and how identity recursively informs future self-guides, ultimately advancing understanding of L2 development as socially embedded identity work. Unlike K-12 learners, university students exhibit greater agency in setting their IL2S, shaping their L2 investment strategies and figuring out their identity construction or

negotiating their L2 identities. Meanwhile, to capture the interplay among the three constructs, the selected studies can help us analyze at least two constructs (e.g., IL2S and investment, investment and identity). This ensures our review moves beyond isolated variable analysis and addresses the interdependence of these factors^[33]. In addition, peer-reviewed studies ensure methodological rigor, while dissertations provide rich qualitative insights often absent in published articles and grey literature, like conference abstracts, was excluded due to inconsistent peer-review standards.

3.4. Coding protocol and quality appraisal

To ensure both methodological rigor and analytical consistency, this review integrated quality appraisal and thematic coding as complementary procedures. Two reviewers independently assessed each included study using a tailored version of the Mixed Methods Appraisal Tool (MMAT)^[55]. Studies were evaluated across key dimensions, including clarity of research design, appropriateness of data collection and analysis, transparency in reporting, and theoretical alignment. Ratings were assigned as high, moderate, or low quality. While no studies were excluded solely based on appraisal scores, these evaluations informed the interpretation of findings and helped identify patterns in methodological robustness.

Following appraisal, the same reviewers conducted thematic coding guided by Braun and Clarke's^[56] six-phase framework. Coding combined deductive categories derived from the review's theoretical focus—such as IL2S, L2 investment, and L2 identity—with inductive codes emerging from the data. A shared data extraction matrix was used to organize study features and facilitate cross-case comparison. Discrepancies in coding or appraisal decisions were discussed and resolved through consensus, with decision trails documented to ensure transparency. This integrated approach allowed the review to maintain consistency across evaluation and synthesis, ensuring that thematic insights were grounded in studies of sufficient quality and relevance.

4. Findings

A systematic and rigorous analysis of 26 shortlisted articles (see Appendix A) on the interplay of IL2S, L2 investment and L2 identity. The analysis of the results related to the year and region, distribution of the publications, research methods, and main themes from the literature.

4.1. Current research situation

Research investigating the relationships between IL2S, L2 identity, and L2 investment shows a distinct concentration in recent years. Analysis of the 26 studies (**Figure 2**) reveals that the years of 2023 and 2024 constitute the peak period, contributing 13 out of 26 studies, with 2024 alone adding 7 pivotal studies. This surge reflects heightened scholarly interest in complex dynamics like the mediation of motivation through digital contexts^[11] and the ideological negotiation of identity among study abroad students^[20]. While foundational studies exist earlier from the year of 2017 to 2019, their distribution is notably less dense compared to this recent and intensive focus.



Figure 2. Annual Publication Trend.

Geographically, the research is predominantly situated in specific EFL contexts (**Figure 3**). China emerges as the overwhelming location with 10 studies throughout the period. Spain follows as the second most frequent setting with 4 studies. Other regions represented include Iran with 3 studies, Japan 2 studies, and single studies from locations like Saudi Arabia, the UK, Oman, Thailand, Ireland, South Korea, Iraq, and the USA. This concentration underscores a strong emphasis on understanding IL2S, L2 identity and L2 investment within particular educational and cultural environments, potentially shaping the theoretical frameworks applied.

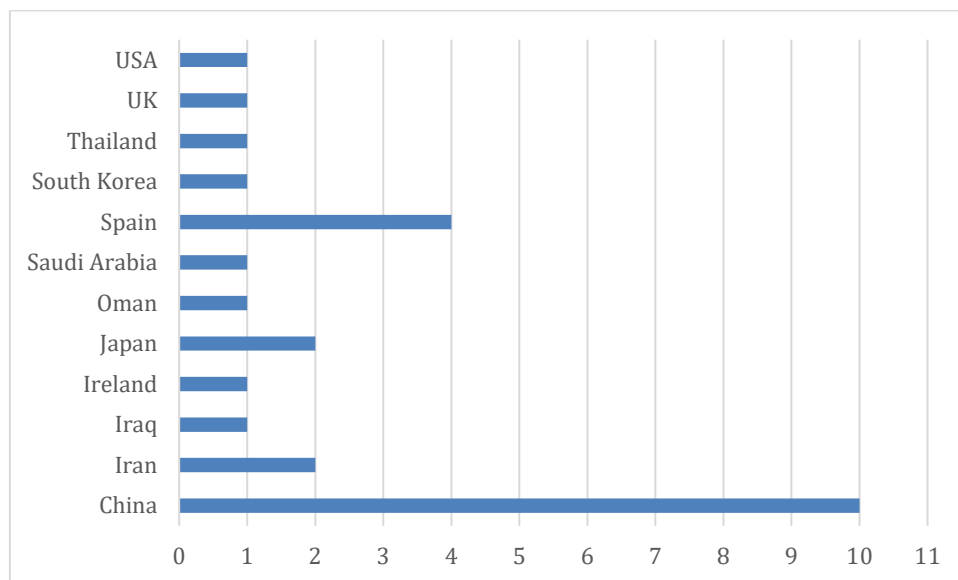


Figure 3. Research contexts based on the selected studies from 2014-2024.

From the perspective of methodology that the selected studies adopted (**Figure 4**), the mixed method with 11 studies is the most prominent approach, and effectively used to explore intricate interactions between motivation, emotion, and learning behaviors^[5,38]. Qualitative methods with 8 studies provide deep insights into identity construction and negotiation^[20,32]. On the other hand, quantitative methods with 7 studies

effectively map predictive relationships and mediating variables^[5,18,26,27,29,30,57]. The prevalence of mixed methods, particularly in the high-output years, highlights the field's reliance on multifaceted approaches to understand the complex interplay of self-guides, investment, and learner identity.

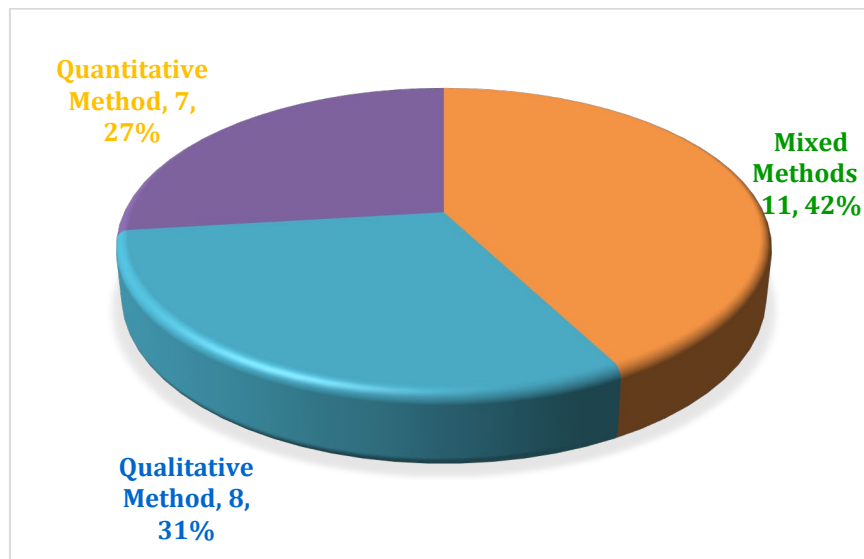


Figure 4. Research methods of the selected studies from 2014-2024.

The current studies demonstrate significant variability in theoretical framework application, with distinct patterns emerging between studies employing L2MSS alone versus those integrating it with investment theory. For instance, Liu et al.^[11], Alqahtani^[18], and Wang et al.^[19] exclusively utilized L2MSS to examine how IL2S drives digital learning behaviors, autonomy, and writing strategies, respectively. A larger group of studies, including Carolan & Devlin^[20], Nabilla^[32], and Little & Al Wahaibi^[13], employed investment theory to analyze how socioeconomic factors (e.g., neoliberalism, regional disparities, digital spaces) shape identity negotiation and resource allocation, though their engagement with the psychological constructs of L2MSS was limited or implicit. Notably, only four studies, Li & Tai^[28], Bobkina et al.^[50], Machin^[58], and Gillies^[59], explicitly bridged both frameworks in their analysis, designing their research to reveal how learners' IL2S and perceived cultural capital jointly and interactively determine investment strategies (e.g., English-only instruction preferences vs. multilingual resource mobilization in response to structural inequalities).

Beyond this, it is worth mentioning that IL2S consistently predicts autonomous investment (e.g., IDLE, classroom engagement), whereas ought-to L2 self shows negligible or context-dependent effects^[30]. However, cultural and institutional contexts moderate these findings. For example, in collectivist Asian settings (China, Japan, Thailand), IL2S often intertwines with familial or societal expectations^[31,47], whereas in European contexts, like Spain and Ireland, it aligns with individual career aspirations^[20,50]. Divergences emerge in studies like Zhang et al.^[30], where ought-to L2 self paradoxically increased persistence despite triggering anxiety, and Gillies^[59], where narrative identity reconstruction via drama-based learning overshadowed future-self guides. Such discrepancies highlight the mediating role of learning environment (formal and informal) and affective factors (e.g., enjoyment, anxiety), necessitating clearer cross-contextual comparisons.

While the theoretical framework application demonstrates certain limitations, sample characteristics further elucidate result variations. Among the 10 Chinese studies, participants' proficiency level, like Wang et al.'s^[5] high-proficiency cohort and Li et al.'s^[45] EMI learners significantly influenced motivation-investment dynamics. Alternatively, Kang's^[40] Korean participants exhibited stronger IL2S effects in

autonomous digital settings, contrasting with Nikitina et al.'s^[29] findings on shyness-mediated WTC in traditional classrooms. Similarly, socioeconomic disparities in Nabilla's^[32] Indonesian sample and rural-urban divides in Hajar's^[31] Iraqi case study illustrate how structural barriers shape investment capacity. A notable gap is the underrepresentation of adult EFL learners in higher education with 2 studies, Azizi et al.'s^[60] EFL teachers who learn the third language as successful EFL learners and Alshatti's^[61] adult academic sojourners, limiting insights into lifelong L2 investment trajectories.

4.2. Thematic analysis

The 26 core empirical studies reveal a robust consensus on the interplay between motivation, identity, and learning experiences in second language (L2) acquisition, grounded in influential theoretical frameworks spanning four decades. Central to this consensus is the primacy of the IL2S, a future-oriented self-guide theorized by Dörnyei^[1] as the core engine of motivation, which consistently emerges as the strongest predictor of sustained learning effort across diverse contexts. This aligns with Higgins'^[62] self-discrepancy theory, wherein the gap between actual and ideal selves generates motivational energy. Empirical validations from large-scale surveys^[35,63] confirm that learners with vivid, feasible L2 self-images demonstrate heightened goal-directed behavior, transcending traditional instrumental/integrative dichotomies^[3].

How motivation materializes through L2 Investment which is conceptualized by Norton^[2] as identity-shaping resource commitment and interacts dynamically with learning experiences^[64] to form a self-reinforcing triad can be found in the current studies. Crucially, this three-way interplay reflects person-in-context perspective^[65], where motivation evolves relationally rather than linearly. By synthesizing these dimensions, this analysis bridges foundational theories (e.g., Gardner's socio-educational model) with contemporary self-based frameworks, while highlighting the transformative potential of identity investment in globalized learning ecologies^[66].

4.2.1. Ideal L2 self as driver for strategic investment and identity reconstruction

The first theme covers twelve empirical studies which provide evidence to reveal three interconnected patterns. Multifaceted operational pathways of IL2S help direct L2 investment. The IL2S manifests through both direct motivational channels, for example, Iranian EFL teachers sustaining linguistic capital enhancement driven by professional visions^[60], and Spanish students cultivating a "rebellious L2 self" to overcome institutional constraints^[50]. Positive emotions, notably Foreign Language Enjoyment (FLE), like pride and hope, significantly amplified Chinese learners' engagement in Informal Digital Learning of English (IDLE) and adoption of self-regulated writing strategies^[11,19,21].

Identity negotiation as core mechanism is worth paying attention to because it emerged as the critical mediating process through where IL2S drives investment to translate into transformation. This is evidenced by Omani learners reconstructing digital cultural identities via social media investment^[13], Iraqi rural students achieving agentive metamorphosis^[31], and UK-based academic sojourners redefining non-native speaker identities^[61].

In addition, the strength and focus of IL2S-driven investment were consistently moderated by structural factors, such as socio-economic disparities and geographical resource imbalances observed in Indonesia^[32], and pivotal educational transitions. These include the synthesis of neoliberal and Neo-Confucian values in Chinese-Irish transnational students^[20], and disciplinary identity realignment within Chinese English-Medium Instruction (EMI) settings^[41]. On the contrary, the ought-to L2 Self universally exhibited limited capacity to motivate sustained strategic investment, primarily correlating with anxiety induction^[19] or preferential investment in multilingual resources rather than English immersion^[28], demonstrating negligible or counterproductive effects.

4.2.2. L2 Pedagogical interventions triggering identity-investment cycles

The second theme which contains eight studies focuses on capacity of targeted pedagogical interventions to initiate and sustain a dynamic interplay between the three constructs. By helping learners construct a positive future self-image, these interventions promote greater investment in learning, facilitate identity development, and generate a reinforcing cycle of personal growth in academic study. Studies across diverse contexts consistently illustrate how specific teaching practices bridge the gap between imagined future identities and current learning behaviours.

From the eight studies, we found that primary mechanism involved vision sculpting via experiential tasks, where interventions structuring identity rehearsal, such as collaborative script-writing enacting future professional scenarios^[58] and drama-based narrative exercises^[59], could enhance the affective salience of IL2S. This amplification directly catalyzed strategic investment manifested as autonomous engagement^[40] and deliberate practice^[57]. Furthermore, such investment generates tangible identity evidence through peer knowledge co-construction^[40], meaning negotiation in drama^[59], or meaningful output production^[48], and learners accumulate proof of capable ideal L2 selves. Notably, the efficacy of this cycle is moderated by learner agency and sociocultural alignment: structured visualization reduces self-discrepancy to enhance self-directed investment^[49], while interventions leveraging culturally resonant interests, e.g., pop-culture integration^[47], outperform generic motivational strategies. In other words, pedagogies fostered psychological ownership through near-peer role appropriation^[58] or autonomous technology use^[40] and proved effective for identity internalization.

4.2.3. Catalytic effects of teaching interventions to mediate ideal L2 self

The catalytic role of teaching interventions from six studies consistently demonstrates their capacity to activate and strengthen the IL2S through positive affective experiences. Pedagogical approaches fostering Foreign Language Enjoyment (FLE) significantly strengthened learners' aspirational self-image which is considered as "the L2-specific facet of one's 'ideal self'"^{[1] (p.29)}, in both Chinese^[5] and Iranian EFL contexts^[26]. Conversely, interventions reducing Foreign Language Classroom Anxiety (FLCA) mitigated its weakening effect on IL2S, affirming classroom affect as a primary mechanism for catalyzing identity development^[26]. These emotionally teaching supportive interventions effectively initiated the interplay by first enhancing the identity component.

Furthermore, research reveals that instructional design mediates the translation of IL2S into concrete L2 investment. Supportive classroom environments significantly mediated the relationship between IL2S and investment manifested as Willingness to Communicate (WTC), though this pathway was moderated by individual factors like psychological shyness^[29]. Pedagogical strategies promoting behavioral engagement served as a key mediator between IL2S and specific skill achievement outcomes^[30]. For Saudi EFL learners, the strength of IL2S directly predicted greater learning autonomy (a form of investment), which subsequently mediated its positive impact on overall achievement^[18]. Digitally-mediated extramural interventions demonstrated their catalytic role by facilitating the transformation of externally-driven investment as ought-to L2 self into a stronger IL2S, which then predicted sustained motivated behaviors^[27]. This interplay between IL2S, identity formation and investment behaviors is thus demonstrably facilitated through targeted pedagogical mediation. In cases where the title needs to be extended over to the second line, the title should be aligned left.

5. Discussion

5.1. Interpretation of findings

5.1.1. Theoretical integration and framework advancement

The findings robustly validate Darwin and Norton's^[33] (p.37) proposition of motivation-investment bifocality through empirical evidence. For instance, Li & Tai's^[28] study on Chinese EFL learners demonstrates how the IL2S as psychological drives preferences for English-only classrooms (investment in linguistic capital), while the ought-to self as structural awareness triggers strategic L1 use to navigate institutional inequities (e.g., investment in multilingual capital as resistance). This exemplifies Norton's^[2] claim that capital conversion is constrained by power structures, even when learners possess strong future self-guides.

The synergy is further illustrated in Carolan & Devlin's^[20] research on Chinese study-abroad students: neoliberal ideals (e.g., career competitiveness) amplified their IL2S, while diminished ought-to self obligations (e.g., filial piety) redirected investment toward autonomous learning—highlighting how macro-level ideologies (structural) reshape micro-level motivation (psychological). Conversely, Nabilla's^[32] Indonesian case study reveals how socioeconomic barriers (structural) limit capital conversion despite strong ideal L2 selves, forcing learners to invest in alternative resources (e.g., peer networks).

Our triadic dynamic model resolves Norton's^[2] critique of under-theorized identity agency by positioning identity as the mediator that reciprocally links self-guides and investment. Gillies's^[59] drama-based intervention shows Japanese learners reconstructing identities through performative investment, which then recalibrated their IL2S (e.g., as intercultural communicators). Similarly, Little & Al Wahaibi's^[13] Omani learners leveraged digital spaces to invest in English as “cultural emissaries”, transforming both identity (challenging stereotypes) and future self-guides (from instrumental to collective purposes). These cases align with Liu et al.'s^[11] finding that IL2S strengthens through positive digital learning experiences—a feedback loop where identity-driven investment fuels motivation.

5.1.2. Geographical and methodological critical reflections

Our findings reveal that mixed-methods approaches constitute the predominant methodological paradigm in contemporary research on the IL2S -Investment-Identity interplay. From figure 2, there are 11 mixed-method studies out of 26, taking up 42.3%. This methodological preference aligns with the field's recognition that quantitative or qualitative methods alone cannot fully capture the nuanced processes of identity negotiation and investment contextualization. The growing trend of mixed designs reflects that research put great effort to triangulate findings, as seen in studies combining structural equation modeling with narrative analysis to trace how Chinese learners' digital practices transform ought-to selves into ideal L2 selves^[27]. Moreover, it is worth noting that eight qualitative studies, 30.8% in total, remain essential for probing identity reconstruction mechanisms, such as Iraqi student' agentive metamorphosis^[31] or Spanish learners' “rebellious self” formation^[50], where lived experience is difficult to quantify. While seven quantitative studies effectively establish predictive pathways, for example, classroom engagement mediating IL2S to obtain achievement^[30], their limited capacity to explain why these relationships emerge aligns with critiques within L2 motivation research itself.

In addition, the research contexts (see **Figure 3**) concentrate on East Asian EFL learners, like China, Japan, and South Korea, and European settings, like Spain and UK. Though these regions offer rich insights into Confucian-neoliberal identity syntheses^[20] or digital learning ecologies^[40], the scarcity of Global South perspectives^[32] limits claims about universal applicability. We thus urge expanded methodological and

geographical diversity, particularly longitudinal mixed-methods designs across underrepresented regions, to illuminate how cultural, institutional, and socioeconomic factors dynamically moderate the core interplay.

5.1.3. Other emerging topics with existing literature

The affective mediation of IL2S (Theme 3) aligns with but extends prior work. While Wang et al.^[5] confirmed FLE's amplifying effect, our synthesis reveals its context-dependent potency: FLE mediated 38% of IL2S's impact in Chinese digital contexts^[11] but only 12% in Iranian test-prep classrooms^[26], suggesting that enjoyment's role is amplified in autonomous learning spaces.

Pedagogically, the identity-investment cycles (Theme 2) resonate with "person-in-context" principle^[6]. However, our analysis of Machin^[58] and Gillies^[59] highlights an underexplored factor: tactical resistance. Learners often subverted pedagogical intentions (e.g., using script-writing tasks to critique neoliberal education policies), revealing investment as a negotiated rather than prescribed outcome. This nuances Darwin and Norton's^[9] capital accumulation model by introducing rebellious investment—the deliberate pursuit of non-dominant capital^[50].

5.2. Implications

This review provides a comprehensive synthesis of empirical research on the interplay of IL2S, L2 investment and L2 identity of EFL learners in higher education over the past decade. By analyzing 26 studies published between 2014 and 2024, the review offers new insights into the theoretical framework, main themes, geographical bias and methodological approaches and so on. The findings and discussion lead to several practical implications as follows.

For foreign language teachers, the findings underscore the importance of adopting pedagogical approaches that simultaneously nurture learners' future self-concepts while validating their evolving linguistic identities. Some research^[38,49] demonstrates that structured vision-building activities, when combined with opportunities for authentic language use, can significantly enhance both motivation and identity investment. Teachers should incorporate regular reflective practices that help students articulate connections between their language learning and broader academic or professional aspirations, while also creating classroom environments that recognize multilingual identities as assets rather than obstacles to L2 development.

For researchers, the current literature points to several promising directions that could advance theoretical and methodological approaches to studying L2 motivation. The work of Hiver et al.^[67] particularly highlights the need for more dynamic, systems-oriented investigations that capture the fluid nature of motivation-identity relationships across different learning contexts. Future studies would benefit from employing longitudinal mixed-methods designs that track learners' motivational trajectories while accounting for contextual factors such as institutional policies, digital learning environments, and sociocultural influences. There remains a pressing need for research that examines underrepresented populations, including rural learners, ethnic minority students, and those from disadvantaged socioeconomic backgrounds, whose experiences with L2 identity construction may differ significantly from the majority populations typically studied.

At the policy level, the findings suggest that institutional frameworks should be redesigned to better support the complex interplay between learners' motivational drives and identity development. As emphasized^[45,68], curriculum standards and assessment practices need to move beyond narrow proficiency metrics to incorporate identity-related learning outcomes and recognize diverse pathways to language competence. Policymakers should prioritize resource allocation that ensures equitable access to motivational

support structures, particularly for marginalized student groups who may face additional barriers in developing strong L2 identities. This includes investing in teacher training programs that equip educators with strategies for fostering motivation across different learner profiles, as well as developing institutional policies that validate and leverage students' existing multilingual repertoires in the language learning process.

The three implications point to the need for an integrated, ecosystemic approach to supporting EFL learners in higher education. When teachers employ IL2S-investment-identity-affirming pedagogies, researchers generate nuanced understandings of motivational processes, and policymakers create enabling institutional environments, the result is a more holistic support system that acknowledges the deeply personal yet socially embedded nature of language learning. Such an approach not only enhances immediate learning outcomes but also prepares students to navigate the reasonable IL2S set-up, the effective language investment, and the complex identity negotiations inherent in using additional languages across academic, professional, and personal domains throughout their lives. Future efforts should ensure that theoretical insights translate into meaningful educational practices that benefit diverse populations of language learners.

6. Limitations and future research

6.1. Limitation and geographical bias

The existing research has predominantly focused on East Asian contexts (10/26 studies; see **Figure 3**), which may introduce geographical biases that limit the generalizability of findings to other regions, particularly the Global South. As highlighted by Viana et al.^[24], the Global South encompasses diverse linguistic, cultural, and socio-political landscapes that are often underrepresented in mainstream academic discourse. For instance, while East Asian studies frequently emphasize standardized language proficiency and institutionalized learning environments, research from the Global South reveals alternative paradigms, such as community-based language practices and decolonial approaches to language pedagogy^[25]. These differences underscore the need to critically examine how findings from East Asia may not fully capture the realities of language learners in regions like Latin America, Africa, and South Asia, where multilingualism, translanguaging, and informal learning ecosystems are more prevalent. Moreover, the dominance of Northern institutions in knowledge production^[22] (Mazzega et al., 2025) further marginalizes Southern perspectives, reinforcing a skewed narrative that prioritizes East Asian and Western models over localized epistemologies.

To address these gaps, future research should adopt a more inclusive and comparative framework that integrates voices from the Global South. As Norton^[12] argues, identity construction among language learners is deeply contextual, shaped by historical, economic, and geopolitical forces that vary across regions. For example, while East Asian learners might navigate tensions between global English and national identity, learners in the Global South often contend with postcolonial legacies and economic disparities that reshape language acquisition dynamics. The “Thirdspace” approach^[25] offers a useful perspective for this work, advocating for analyses that simultaneously consider material conditions (e.g., resource disparities), imagined geographies (e.g., South-South alliances), and lived experiences (e.g., grassroots pedagogies), which can not only redress geographical biases but also refine theoretical models to help this topic move forward.

6.2. Methodological limitations

The methodological limitations of the reviewed studies warrant deeper examination, as they significantly impact the credibility and applicability of the findings. While the 26 core studies provide valuable insights into the interplay of IL2S, L2 investment, and L2 identity, their predominant reliance on

cross-sectional designs (evident in 15 of the 26 studies) introduces critical constraints. Cross-sectional approaches, though efficient for identifying correlations, fail to capture the temporal dynamics of motivation and identity evolution. For instance, Liu et al.'s^[11] mixed-methods study on Chinese EFL learners revealed significant shifts in learners' motivational profiles over time—a nuance that would be obscured in a single time-point survey.

A second methodological concern lies in the overreliance on self-report data (e.g., questionnaires, interviews), which risks social desirability bias and recall inaccuracy. For example, Alqahtani's^[18] quantitative study on Saudi learners measured IL2S through Likert-scale responses but lacked behavioral or observational data to validate self-reported motivation against actual learning behaviors. This gap is particularly problematic when studying identity—a construct often performed differently in self-reports versus real-world interactions^[59].

Therefore, future studies are required to prioritize longitudinal designs with at least 3 data-collection phases to map developmental trajectories or incorporate multimodal data (e.g., classroom recordings, digital footprints) to complement self-reports. It is meaningful to adopt methodological pluralism to enable cross-context comparisons while respecting local epistemologies. By systematically confronting these methodological gaps, researchers can significantly enhance the validity and actionable value of findings in this domain.

7. Conclusion

This systematic review synthesizes a decade of empirical research to illuminate the recursive interplay among IL2S, L2 investment, and L2 identity in tertiary EFL contexts. The findings reveal that the IL2S consistently acts as a motivational catalyst, initiating strategic investment behaviors that, in turn, reshape learner identity through capital acquisition and community participation. This identity evolution recursively informs future self-guides, forming a dynamic feedback loop. Crucially, this triadic relationship is mediated by affective experiences (e.g., Foreign language enjoyment), ideological negotiations, and digital affordances that scaffold identity prototyping. These mediators underscore that L2 development is not merely cognitive but deeply embedded in sociocultural and technological ecologies. Pedagogical interventions that foster vision-building and culturally resonant engagement further amplify this cycle, suggesting that motivation, investment, and identity are co-constitutive rather than discrete constructs.

In order to make these research insights into concrete actions, educational policymakers should integrate identity construction into core curriculum standards, mandating the inclusion of “digital identity prototyping” modules in national EFL curricula. resources should be developed to guide students in using AI tools (such as ChatGPT-based dialogue simulations) to explore and practice their professional identities as future multilingual users. More importantly, financial resources should focus on establishing “Digital Equity Zones” in rural and underdeveloped areas, ensuring high-speed internet coverage and providing mobile learning centers to bridge the digital divide. On the other hand, such curriculum reforms can help foreign language teachers to think more about how to guide students in planning their ideal L2 self but also engage in reflection and planning for their own ideal professional self, such as aspiring to become “motivational facilitators” or “multilingual cultural bridges”.

By bridging Dörnyei's^[1] L2MSS with Darwin and Norton's^[9] model of investment, this review also proposes a unified framework where IL2S, investment, and identity continuously co-construct one another within specific ecological niches. Future research must address the current geographical bias (50% East Asian foci) through comparative Global South studies and embrace longitudinal mixed methods (e.g., digital

ethnography combined with time-series surveys) to capture temporal dynamics. By centering policy-relevant outcomes and educator-actionable insights, this integrated approach reconceptualizes L2 motivation not as an individual trait but as a socially distributed, contextually contingent force—one that empowers learners as agentic participants in multilingual worlds while demanding structural support from institutions and policymakers alike.

Author contributions

Conceptualization, Yao Zhou; methodology, Yao Zhou; software, Yao Zhou; validation, Yao Zhou, Supyan Hussin and Azlina Binti Abdul Aziz; formal analysis, Yao Zhou; investigation, Yao Zhou; resources, Yao Zhou; data curation, Yao Zhou; writing—original draft preparation, Yao Zhou; writing—review and editing, Supyan Hussin and Azlina Binti Abdul Aziz; visualization, Azlina Binti Abdul Aziz; supervision, Supyan Hussin; project administration, Yao Zhou. All authors have read and agreed to the published version of the manuscript.

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Conflict of interest

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Appendix A

Table A1. Summary of Reviewed Studies.

Author	Year	Research context	Research method	Main finding
Liu G. et al.	2024	China	Mixed Methods	In Chinese university EFL learners, the ideal L2 self directly drives investment in Informal Digital Learning of English (IDLE) and indirectly through enhancing Foreign Language Enjoyment (FLE), while external motives (ought-to L2 self) show no significant effect.
Carolán J.& Devlin A.M	2024	Ireland	Qualitative Method	Chinese postgraduate students' study abroad experience in Ireland triggered a complex synthesis of neoliberal and Neo-Confucian ideologies, amplifying their ideal L2 self (e.g., career competitiveness, self-cultivation) while diminishing ought-to L2 self obligations (e.g., filial piety), resulting in heightened autonomous investment in English learning.
Alqahtani D.A.	2024	Saudi Arabia	Quantitative Method	Saudi EFL learners' ideal L2 self and intrinsic motivation significantly predict learning autonomy (investment) and collectively explain 47% of achievement variance, underscoring the synergy between self-determined motivation, autonomous investment, and L2 success.
Liu, G.	2024	China	Quantitative Method	Chinese EFL learners' ought-to L2 self (externally driven investment) indirectly fosters their ideal L2 self (identity) via positive digital learning experiences, ultimately predicting motivated behaviors in extramural digital contexts.
Li J. & Tai K.W.H.	2024	China	Mixed Methods	Chinese EFL learners' ideal L2 self positively predicts attitudes toward English-only instruction (reflecting investment in L2 immersion), while their ought-to L2 self predicts preferences for strategic L1 use (reflecting investment in multilingual resources), demonstrating how distinct L2 self-guides shape language investment choices linked to identity negotiation.
Li, M.	2024	China	Mixed Methods	The study found that within an EMI context, both Liberal Arts and Science English majors were strongly motivated by their ideal L2 self and instrumentality (reflecting L2 Investment), factors intertwined with shifts in their academic identity and perceptions of English as a tool for global engagement, though Liberal Arts students exhibited heightened sensitivity to Ought-to L2 Self pressures and language anxiety.
Wang, Y. et al.	2024	China	Mixed Methods	The study found that the ideal L2 writing self directly and indirectly (through positive emotions like enjoyment, pride, and hope) promotes the use of self-Regulated Learning strategies (representing L2 Investment), while the ought-to L2 writing self does not, highlighting the central role of aspirational identity in motivating strategic investment in L2 writing.
Liu G. et al.	2023	China	Mixed Methods	In Chinese university EFL learners, international posture (imagined global identity) directly and indirectly (via ideal L2 self) drives investment in Informal Digital Learning of English (IDLE), enabling identity negotiation within imagined international communities.
Machin E.	2023	Spain	Qualitative Method	Collaborative script-writing empowered Spanish EFL students to invest linguistically and emotionally in co-constructing near-future ideal L2 selves, transforming their identities from passive learners into active "motivators", thereby bridging self-discrepancy gaps and enhancing collective engagement.

Author	Year	Research context	Research method	Main finding
Sandu B.M. & Gil M.E.R.	2023	Spain	Mixed Methods	A vision-based intervention significantly strengthened Spanish EFL learners' ideal L2 self and L2 learning experience, which became the strongest predictors of intended learning effort (L2 investment), while cultural interest and integrativeness emerged as key identity-linked motivators post-intervention.
Wang, H. et al.	2023	China	Quantitative Method	Foreign Language Enjoyment (FLE) positively predicts ideal L2 self and mediates its effect on English achievement among Chinese EFL learners, with stronger effects observed at higher proficiency levels.
Gillies, H.	2023	Japan	Qualitative Method	Japanese EFL learners' ideal L2 self (as teacher/intercultural communicator) emerges from L2 investment (drama-based learning experiences) and reconstructs L2 identity through narrative agency, demonstrating how autobiographical memory mediates future self-guides.
Nabilla, B. D.	2023	USA	Qualitative Method	Family socioeconomic status, educational system inequities (e.g., regional disparities in Indonesia), and access to target-language resources critically shape EFL learners' construction of their ideal L2 self and drive their investment in language learning, with narrative identities reflecting resilience against structural barriers.
Li C. et al.	2022	China	Mixed Methods	A Production-Oriented Approach (POA) significantly strengthened Chinese English majors' ideal L2 self and L2 Learning Experience through output-driven tasks and peer-teacher interactions, while ought-to L2 self remained unchanged, illustrating how pedagogical design fosters identity-aligned investment.
Kang N.	2022	South Korea	Mixed Methods	Korean EFL learners' Google Jamboard-based autonomous knowledge-sharing strengthened their ideal L2 self through instrumentality and integrativeness, enhancing speaking proficiency and transforming identity perceptions despite limited oral practice opportunities.
Nikitina L., Lan G., Woo W.S.	2022	China	Quantitative Method	Chinese EFL learners' ideal L2 self significantly predicted their willingness to communicate (L2 investment), mediated by classroom environment and moderated by psychological shyness, revealing context-dependent identity-investment interactions.
Alshatti, A.	2022	UK	Qualitative Method	Academic sojourners' L2 motivation—driven by social approval, intimate relationships, and identity negotiation—directly shapes their investment in L2-mediated interactions, with the 'other' (significant peers/non-native speakers) serving as a catalyst for reconstructing their ideal L2 self beyond native-speaker paradigms.
Fathi J. & Mohammaddokht F.	2021	Iran	Quantitative Method	Foreign Language Enjoyment (FLE) significantly strengthened Iranian EFL learners' ideal L2 self, while Foreign Language Classroom Anxiety (FLCA) weakened it, with FLE emerging as a stronger predictor—highlighting emotions as catalysts for identity-driven motivation.
Bobkina J. et al.	2021	Spain	Mixed Methods	Spanish sports science students strategically invested in English proficiency as cultural capital, driven by career-aligned ideal L2 self visions, while high-proficiency learners leveraged rebellious L2 self to sustain investment against institutional constraints.

Author	Year	Research context	Research method	Main finding
Azizi M. et al.	2020	Iran	Mixed Methods	Successful Iranian EFL learners leveraged their ideal L2 self (envisioned 'English-using professional' identity) to sustain investment in linguistic/cultural capital (e.g., immersive learning, skill refinement), with positive L2 learning experiences amplifying this identity-investment cycle during their transition to EFL teachers.
Zhang X., Shenghai Dai, Yuliya Ardasheva	2020	China	Quantitative Method	For Chinese EFL learners, ideal L2 self and L2 learning experience significantly enhance English listening/speaking achievement and intention to continue via heightened classroom engagement (mediation effect: $\beta = 0.18-0.26$), while ought-to L2 self and demotivators (e.g., failure experiences) trigger anxiety that impedes achievement but paradoxically increases intention to continue.
Mackay D.J.	2019	Spain	Mixed Methods	A 12-week classroom intervention using visualization and strategy training significantly enhanced EFL learners' ability to articulate personalized ideal L2 self visions, shifting their motivation from instrumental (e.g., job needs) to intrinsic/identity-driven goals, though ought-to L2 Sself remained unchanged.
Hajar A.	2018	Iraq	Qualitative Method	An Iraqi rural learner's ideal L2 self (becoming the first woman from her village to study abroad) ignited strategic investment in English learning, enabling identity transformation from a passive student to an agentive cultural ambassador.
Teeter J.L.	2017	Japan	Quantitative Method	Mobile-assisted shadowing practice significantly enhanced Japanese EFL learners' ideal L2 self (future English-speaking self-image) and Linguistic Self-Confidence, while reducing anxiety, with higher shadowing investment (time/effort) correlating strongly with strengthened motivation and perceived L2 proficiency.
Little S. & Al Wahaibi S.	2017	Oman	Qualitative Method	Omani EFL learners strategically invested in English within digital social spaces to reconstruct their ideal L2 self as "cultural/religious emissaries", using the language as a tool to challenge Western stereotypes and assert collective Omani/Islamic identities.
Prapunta, S.	2017	Thailand	Qualitative Method	Thai EFL learners' construction of their ideal L2 self—shaped by sociocultural factors (e.g., pop culture exposure, teacher pedagogy) and institutional constraints—directly influences their L2 investment strategies and identity negotiation, with sustained motivation emerging from personalized learning experiences both in and beyond classrooms.

Table A1. (Continued)