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Article

Cross-Linguistic Influence and the Negotiation of Self in Multilingual Acquisition

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Abstract:

In an increasingly globalized world, multilingualism has become common, yet the psychological complexities of learning an additional language beyond the second (L3/Ln) remain underexplored. This study examines the interconnected psychological challenges of language interference, cognitive overload, emotional stress, and identity struggles among Arabic–English multilingual learners studying a third language in higher education. The research focuses on 20 female undergraduates from the university who speak Arabic as L1, English as L2, and are formally learning an L3 (e.g., Italian, German, French, Turkish). Using a sequential mixed-methods design, quantitative survey data first identified the main challenges, followed by semi-structured interviews with a purposive subsample (n = 5) for in-depth qualitative insights. Descriptive statistics showed high levels of multidirectional language interference, frequent mental fatigue indicating cognitive overload, and increased speaking anxiety and frustration. Thematic analysis revealed that managing multiple active language systems is a cognitively exhausting task that limits deep processing, while ongoing anxiety and error sensitivity weaken confidence and disrupt learners' sense of a coherent multilingual identity. The findings are interpreted through Cognitive Load Theory, research on cross-linguistic influence, and socio-psychological and identity frameworks, all within a Dynamic Systems perspective. The study argues that these cognitive and emotional challenges form an interconnected psychological ecosystem rather than separate problems, and it suggests pedagogical, institutional, and policy changes for more cognitively and emotionally responsive multilingual SLA practices.

Keywords: Multilingualism, Third Language Acquisition (L3), Cross-Linguistic Influence, Language Interference, Cognitive Load, Foreign Language Anxiety, Identity And Self-Perception, Mixed-Methods, Higher Education

1. INTRODUCTION

In an era shaped by globalization and increased cross-cultural interaction, multilingualism has shifted from being a rare exception to a common reality for large parts of the world's population. The ability to manage multiple languages is increasingly seen not just as a practical skill but as a key aspect of social, cognitive, and professional life (Bialystok, 2009; Grosjean, 2010). This linguistic diversity is praised for its many benefits, with extensive research highlighting the cognitive advantages of bilingual and multilingual brains, such as improved executive function, heightened metalinguistic awareness, and better problem-solving skills (Bialystok & Craik, 2010; Kroll & Bialystok, 2013). Additionally, on socio-economic and cultural levels, multilingual ability opens doors to more educational resources, career options, and greater intercultural understanding (Cook, 2016; Wei, 2000). As a result, pursuing additional language learning is a widespread and often required goal within educational systems and personal growth plans worldwide.

However, beneath this story of cognitive and practical benefit lies a more complex and less explored psychological landscape. The process of Second Language Acquisition

(SLA) for individuals who are already bilingual or multilingual is not just a simple additive process but a dynamic and often challenging psychological negotiation (De Bot et al., 2007). While learning a first additional language (L2) brings its own set of difficulties, acquiring a third or subsequent language (L3/Ln) by a multilingual person introduces unique psychological complexities that go beyond grammatical and vocabulary learning. These complexities originate from the existing, active linguistic structure in the learner's mind, which can both help and hinder new learning in ways that are different from those experienced by monolingual L2 learners (Jessner, 2006; Odlin, 1989). It is at this point that critical psychological challenges—such as language interference, cognitive overload, emotional stress, and identity issues—come together to shape the multilingual learner's experience, often in ways that traditional, monolingual-focused SLA teaching and theories tend to overlook.

The phenomenon of language interference, or cross-linguistic influence, is a fundamental aspect of SLA research, usually studied through a structural or error-analysis approach (Odlin, 1989). For multilingual learners, however, interference is not just a simple interaction between L1 and L2 but a potential multidirectional conflict involving all languages in the learner's repertoire. This can appear as phonological, syntactic, or lexical intrusions, where the structures of a previously mastered language hinder or alter the production or understanding of the target language. While such interference is often seen as a flaw, it also reflects an active, interconnected linguistic system. However, its psychological effects—the frustration, confusion, and perceived setbacks it can cause—are less often discussed. Learners might view interference not as a natural cognitive process but as a personal failure, which can diminish confidence and motivation.

Closely linked to interference is the challenge of cognitive overload. Based on John Sweller's Cognitive Load Theory (1988), this idea describes the strain placed on an individual's working memory when instructional demands surpass its capacity. For the multilingual learner, this cognitive load is naturally increased. The task involves not only decoding new input and forming new rules but also actively suppressing competing linguistic systems to prevent interference (Green, 1998). Managing multiple codes constantly, along with the metacognitive task of monitoring language choice and appropriateness, can cause significant mental fatigue, lower processing efficiency, and ultimately, hinder learning and retention. The feeling of being "mentally exhausted" after a language session, reported by many multilingual learners, is a direct sign of this cognitive burden, implying their learning process may follow a different, more demanding path compared to that of their monolingual L2 peers.

Beyond the cognitive scope, the emotional and affective aspects of multilingual SLA are deeply important but often overlooked in favor of cognitive models. Language learning is naturally an emotional process, closely tied to self-identity, vulnerability, and social perception (Dörnyei, 2005; Pavlenko, 2006). Multilingual learners frequently report higher levels of anxiety, stress, and frustration, especially in speaking situations where performance is public and instant. This anxiety can be made worse by the very multilingual ability that is usually an advantage; learners might set higher expectations for themselves, believing their proficiency in other languages should come more easily, which leads to increased frustration when it doesn't (Dewaele, 2010). Additionally, the fear of "contamination" or "mixing" languages in high-pressure situations can cause intense self-consciousness, turning communication into a stressor rather than a means for connection.

Perhaps the most profound yet least visible psychological challenge lies in the realm of identity and self-perception. Language is not just a tool for communication but a fundamental part of identity, a medium through which the self is built, expressed, and viewed by others (Norton, 2000; Pavlenko, 2006). For multilingual people, identity is often multiple, flexible, and influenced by context. The process of learning a new language involves negotiating this multiple identity. Learners may face what Pavlenko (2006) calls "identity struggles," where their self-view as a skilled communicator in one language conflicts with their inexperienced, often inadequate-feeling self in the new language. This can lead to feelings of linguistic schizophrenia or inauthenticity, where a person's emotional and mental selves feel split across languages. The question "Who am I when I speak this language?" becomes central, and trying to reconcile these different linguistic selves can affect motivation, engagement, and success.

Despite the clear interaction of these psychological factors, research has often studied them separately. Cognitive theories of interference and overload have developed independently from socio-psychological research on motivation and identity, leading to a fragmented view of the multilingual learner's experience (Ellis, 2008; Swain, 2013). There is an urgent need for a more integrated approach that recognizes how cognitive strain increases emotional stress, how emotional reactions influence identity perceptions, and how identity conflicts, in turn, impact cognitive engagement and resilience. This study argues that only by examining these challenges as a connected system can we gain a complete understanding of the multilingual SLA process.

Therefore, this research article aims to fill this critical gap by conducting an empirical study on the psychological challenges faced by bilingual and multilingual learners during additional language acquisition. Set within the specific context of higher education—a country where multilingualism is increasingly common due to globalization and educational policies—the study focuses on a group of female university students. It seeks to go beyond theoretical assumptions to provide learner-centered, real-world evidence, examining how these challenges appear in actual learning environments.

The study is guided by the following research questions:

1. How does language interference, both as a cognitive phenomenon and a perceived experience, influence

the SLA process for multilingual learners?

2. What are the nature and extent of cognitive overload experienced by multilingual learners, and how does this overload interact with emotional states such as anxiety and frustration?
3. In what ways do identity struggles and self-perception conflicts emerge and impact motivation and engagement in multilingual SLA?

To frame this investigation, the study draws on an interdisciplinary theoretical framework. It employs Cognitive Load Theory (Sweller, 1988) to analyze processing limitations, theories of cross-linguistic influence (Odlin, 1989; Jessner, 2006) to understand interference, and socio-psychological and identity-oriented frameworks (Dörnyei, 2005; Norton, 2000; Pavlenko, 2006) to clarify motivational and identity-related dynamics. By integrating these perspectives, the research seeks to provide a nuanced, evidence-based account of the multilingual SLA experience.

The significance of this study is threefold. First, it advances theory in SLA by combining cognitive and socio-affective aspects within a multilingual framework. Second, it offers empirically based insights that can guide teaching methods, curriculum development, and learner support, all of which are attentive to the psychological realities of multilingual students. Lastly, it presents policy implications, promoting educational approaches that view multilingualism not just as an objective but as a complex initial condition influencing the entire learning process.

2. LITERATURE REVIEW

The academic study of Second Language Acquisition (SLA) is a broad and complex field, drawing from linguistics, psychology, cognitive science, and education. For multilingual learners—those navigating the process of acquiring a language beyond their second—this experience is not simply an extension of bilingual learning but a distinctly different process shaped by a complex interaction of cognitive structures and socio-emotional factors. This review combines key theoretical models and empirical research to establish a foundational understanding of the main psychological challenges: language interference, cognitive overload, and identity issues. It argues that, although these areas have been extensively studied, they are often considered separately, resulting in a fragmented view that overlooks their combined effects on the multilingual learner.

2.1. Theoretical Frameworks in SLA

Theoretical models provide the foundation for understanding how languages are learned. Traditional behaviorist perspectives, most notably associated with Skinner (1957), viewed language acquisition as a process of habit formation through stimulus, response, and reinforcement. In this framework, errors in a new language were seen as the continuation of old L1 habits, an early form of interference. Although its focus on environmental input remains relevant, behaviorism's neglect of internal mental processes limits its usefulness in explaining the complex cognitive management and identity negotiation involved in multilingual acquisition (Lightbown & Spada, 2013).

A major change happened with Chomsky's (1965) theory of Universal Grammar (UG), which proposed an innate, biological language ability. UG suggests that all humans share a set of grammatical principles, allowing quick language learning even with limited input. From a multilingual view, UG indicates a common mental foundation for learning all languages. However, the theory's focus on an idealized, monolingual skill has faced criticism for ignoring the dynamic and connected systems of a multilingual mind, where languages coexist and influence each other instead of functioning as isolated, innate modules (Cook, 2016). The question of how this innate ability handles multiple, competing language systems at the same time remains less explored within pure UG approaches.

To understand the realities of managing multiple information flows, Cognitive Load Theory (CLT), developed by Sweller (1988), provides an important perspective. CLT differentiates between intrinsic load (the difficulty of the material), extraneous load (how information is presented), and germane load (the mental effort used for schema building). For multilingual learners, the intrinsic load of SLA is naturally high; the task involves not only creating new schemata but also blocking active, competing schemata from other languages to prevent interference (Kroll & Bialystok, 2013). This ongoing management and suppression use up limited working memory resources, leading to cognitive overload—a mental exhaustion that hampers learning. CLT offers a detailed explanation for the fatigue often reported by multilingual learners, viewing it not as a lack of ability but as a normal result of surpassing cognitive capacity.

Beyond cognitive models, socio-psychological and identity-oriented frameworks are vital for understanding the emotional aspects of SLA. Gardner's (1985) socio-educational model identified motivation as a key factor for success, distinguishing between integrative and instrumental orientations. Dörnyei (2005; 2009) expanded this idea with the L2 Motivational Self System, which connects motivation to the learner's vision of their ideal self (who they want to become as a language user) and the ought-to self (perceived obligations). For multilinguals, these self-systems can be complex and sometimes conflicting across languages, affecting investment and persistence.

Complementing this, post-structuralist theories of identity, like those proposed by Norton (2000) and Pavlenko (2006), argue that language learning is an act of identity (re) construction. They claim that learners don't just acquire a linguistic code but also negotiate new subject positions and memberships within target language communities. This negotiation can involve identity struggles, where learners feel fragmented or inauthentic, especially if the new language is seen as conflicting with parts of their existing linguistic or cultural identity (Pavlenko, 2006). This framework is essential for understanding the emotional distress and motivational changes multilingual learners might go through.

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Finally, Dynamic Systems Theory (DST), as applied to SLA by De Bot, Lowie, and Verspoor (2007), offers a meta-theory that combines cognitive and affective domains. DST sees language learning as a nonlinear, adaptive process where many factors—cognitive, emotional, social—constantly interact in complex ways. The learner's language system is always changing, with times of progress, plateau, and even regression. This view is especially useful for multilingualism, seeing it as an interconnected system where a change in one language (like increased use) can unsettle or adjust others. DST goes beyond simple cause-and-effect models, providing a complete picture that captures the unpredictability and uniqueness of the multilingual experience.

2.2. Empirical Investigations into Key Challenges

Empirical research has confirmed and expanded upon these theoretical concerns. The phenomenon of language interference, or cross-linguistic influence, is well-documented. Odlin's (1989) groundbreaking work showed that prior language knowledge always affects additional language learning, influencing all levels of language, from phonology to pragmatics. For multilinguals, this influence is multidirectional (L1→L3, L2→L3, L3→L2), not just from the native language (Cenoz, 2003; Jessner, 2006). Research by Ringbom (2007) also demonstrates that typological similarities between languages can either help learning (positive transfer) or worsen interference errors (negative transfer). Cook's (2016) idea of multi-competence—the unique mental state of a multilingual speaker—views interference not as errors but as evidence of an integrated linguistic system. However, learners often see it as a failure, associating it with frustration and anxiety, a link that is further explored in affective studies.

The cognitive effects of managing this integrated system are reflected in research on cognitive overload and executive control. Bialystok's extensive research (e.g., Bialystok, 2009; Bialystok & Craik, 2010) shows that while bilingualism improves general executive functions (such as inhibitory control and task switching), these functions are heavily strained during language processing. For the L3 learner, this cognitive demand increases, requiring ongoing inhibition of both L1 and L2 to access L3 (Festman, 2021). Studies using neuroimaging and behavioral tests confirm that managing multiple languages places a heavy burden on the prefrontal and anterior cingulate cortex areas linked to executive function (Abutalebi & Green, 2016). This neural evidence supports the subjective feelings of mental fatigue, indicating it is a real physiological consequence of the multilingual cognitive workload.

The affective domain, especially anxiety and motivation, has been extensively studied. Horwitz, Horwitz, and Cope's (1986) concept of Foreign Language Anxiety (FLA) is common among learners and appears as worry, fear of negative evaluation, and communication apprehension. For skilled multilinguals, anxiety can be unexpectedly high; they may have increased awareness of their errors or feel pressure to perform at the level of their other languages (Dewaele, 2010). Dörnyei's (2005, 2009) research confirms that motivation is not fixed but changes over time, influenced by self-view, perceived progress, and classroom environment. His L2 Motivational Self System has been supported in various settings, indicating that a clear, realistic ideal L3 self is a strong motivating factor, though its development is complicated by existing linguistic identities.

Finally, research on identity sheds light on the deep personal stakes involved in SLA. Norton's (2000) longitudinal studies demonstrate how learners' investment in a language is connected to their imagined community memberships and identity goals. Pavlenko's (2006) work on bilingual memoirs powerfully shows the emotional significance of "language loss" and "gain," as well as the struggles of balancing multiple linguistic selves. In multilingual settings, learners might experience what Kramsch (2009) refers to as "symbolic competence"—the ability to navigate different identities and linguistic codes. However, developing this skill can involve periods of conflict, during which the new language may feel foreign or threaten a valued part of one's self-image, potentially causing resistance or disengagement (Pavlenko & Lantolf, 2000).

2.3. Synthesis and Identified Gap

The literature reliably confirms that multilingual learners face unique psychological challenges. Cognitive theories (CLT, DST) explain the mechanisms of interference and overload, while socio-psychological theories (Motivational Self System, Identity Theory) describe the emotional and motivational effects. However, a significant gap remains. Studies on cognitive load often assess performance on controlled tasks, which may overlook the real, subjective experience of exhaustion. Conversely, qualitative studies on identity and anxiety may lack the theoretical framework to link these feelings to underlying cognitive limitations.

Few studies explicitly and simultaneously examine the relationship between these areas within a single multilingual group. Does increased cognitive overload directly increase feelings of anxiety? How do identity conflicts impact a learner's mental resources, possibly raising the risk of interference? The dynamic, systemic perspective promoted by De Bot et al. (2007) and the holistic view of multi-competence (Cook, 2016) call for an integrated research approach that has yet to be fully realized in empirical studies. This research aims to fill that gap by using a mixed-methods design to investigate how language interference, cognitive overload, and identity issues occur together and influence the real-life experiences of multilingual university students, thereby connecting the theoretical gap between cognitive and socio-affective models in SLA research.

3. METHODOLOGY

This study used an explanatory sequential mixed-methods design (Creswell & Plano Clark, 2018) to explore the psychological challenges of multilingual second language acquisition (SLA). This two-phase approach was chosen to provide a thorough understanding of the research problem: quantitative data from a survey first identified and measured the prevalence of key challenges (language interference, cognitive overload, emotional stress), while later qualitative

data from semi-structured interviews helped explain, contextualize, and expand on these statistical findings. This design allowed for both breadth and depth, enabling the measurement of common experiences while maintaining the detailed, personal voices of the learners.

3.1. Research Design and Rationale

The core research questions required an approach that could capture both the measurable frequency of psychological challenges and their personal, lived significance. A solely quantitative design risked oversimplifying complex affective and identity-related phenomena, while a purely qualitative design with a small sample could not indicate how widespread such experiences were within the broader student population. The mixed-methods approach addressed these weaknesses. The initial quantitative phase offered a generalizable snapshot of the cohort's experiences, highlighting which challenges were most common. The following qualitative phase explored the meaning behind the numbers, examining the cognitive processes, emotional stories, and identity negotiations that the survey couldn't access. The integration of findings occurred during interpretation, where statistical trends were clearly explained and supported by the thematic analysis of interview transcripts.

3.2. Participants and Context

Participants were chosen from undergraduate students at the university in India through purposive sampling to ensure they met specific criteria essential to the study (Patton, 2015). The sample consisted of 20 female multilingual students aged 19 to 23 years (M = 20.8). The inclusion criteria required participants to: (1) be enrolled full-time in an undergraduate program, (2) speak Arabic as their first language (L1), (3) speak English as a second language (L2) with at least intermediate proficiency (based on self-assessment and confirmed by their enrollment in English-medium courses), and (4) be actively studying a third language (L3) at the time of the study, such as Italian, German, French, or Turkish.

This homogeneous sample was selected intentionally. Focusing on students with a single linguistic background (Arabic L1) controlled for the variable of first language typology, enabling a clearer analysis of interference patterns. Concentrating on a university setting ensured participants were in a formal learning environment where SLA was a consistent academic requirement. The gender uniformity reflected the single-gender educational structure at the university. Although this limits the applicability of the findings across genders, it provided a focused perspective on experiences within this specific, culturally relevant educational context.

3.3. Data Collection Instruments

Data were collected using two primary instruments, one for each phase of the study.

3.3.1 Quantitative Survey Questionnaire:

A self-administered, anonymous questionnaire was developed based on constructs identified in the literature review. It included 10 closed-ended items using Likert-scale and multiple-choice formats to ensure efficient data collection. The questionnaire was designed to measure:

- Demographic and Linguistic Background: Academic level and number of languages spoken fluently.
- Language Interference: Frequency of difficulty switching between languages and perceived interference from the L1 (Items 4 & 5).
- Cognitive Load: Frequency of mental fatigue during language study (Item 6).
- Emotional/Affective Factors: Levels of confidence, anxiety, and frustration related to L3 use (Items 3, 7, & 8).
- Motivation: Primary drivers for continued language learning (Item 9).
- Perceived Challenges: Self-identification of the biggest obstacle in SLA (Item 10).

The survey was piloted with five students not included in the study to check for clarity and face validity, leading to minor phrasing adjustments.

3.3.2 Qualitative Semi-Structured Interview Protocol:

After analyzing the survey data, a semi-structured interview protocol was created to explore emerging themes in greater depth. Interviews were conducted in Arabic to ensure participant comfort and expressive richness. The protocol included open-ended questions and probes designed to gather detailed narratives, such as:

- "Can you describe a specific moment when you felt your Arabic or English interfering with your [L3]? What was that experience like for you?"
- "How does learning a new language make you feel, mentally and emotionally? Can you give an example?"
- "Some people feel like a slightly different person when speaking different languages. Have you ever experienced anything like this?"
- "What keeps you going when the learning process feels overwhelming?"

Each interview lasted 30-45 minutes, was audio-recorded with permission, and later transcribed verbatim for analysis.

3.4. Procedures

The study proceeded in two sequential phases after obtaining ethical approval from the relevant departmental committee at the University.

Phase 1 (Quantitative): Potential participants were approached through language department instructors. Those who expressed interest and met the inclusion criteria received a digital link to the questionnaire, along with a detailed information sheet and consent form. A total of 20 completed surveys were collected. Descriptive statistical analysis (frequencies, percentages) was performed using basic spreadsheet software to identify central trends and

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common challenges.

Phase 2 (Qualitative): Based on the survey results, a subset of five participants was selected for in-depth interviews. The selection aimed for maximum variation (Patton, 2015) to capture a range of experiences: participants were chosen to represent different academic levels (first to fourth year), various L3s being studied, and differing self-reported levels of anxiety and confidence from the survey. Individual interviews were scheduled and conducted in a private campus office. The interviewer followed the protocol but remained flexible, allowing participants to guide the conversation toward what they found most salient.

3.5. Data Analysis

Data analysis mirrored the sequential design.

Quantitative Data Analysis: Responses from the 20 surveys were examined using descriptive statistics. Frequencies and percentages were calculated for all items to develop a profile of the cohort's experiences. This analysis directly guided the focus of the qualitative phase by identifying the most frequently reported issues (e.g., high occurrence of anxiety, common language interference).

Qualitative Data Analysis: Interview transcripts were analyzed using Braun and Clarke's (2006) six-phase method of thematic analysis. This involved:

1. Familiarization with the data through repeated reading of transcripts.
2. Generating initial codes to identify features of the data.
3. Searching for themes by collating codes into potential overarching patterns.
4. Reviewing themes, checking them against the coded data and the entire dataset.
5. Defining and naming themes to capture their essence.
6. Producing the report. The coding process was conducted primarily in Arabic to preserve meaning, with key excerpts later translated into English for reporting. Themes were developed inductively from the data but were also informed by the theoretical frameworks guiding the study (e.g., codes relating to "mental exhaustion" were grouped under the theme of Cognitive Overload).

3.6. Ethical Considerations

The study followed strict ethical guidelines. Before participating, all individuals received a detailed information sheet explaining the study's purpose, procedures, risks, benefits, and their right to withdraw at any time without penalty. Written informed consent was obtained for both the survey and the interviews. For the interviews, additional verbal consent was secured for audio recording. Anonymity was assured; all survey responses were collected anonymously, and interview participants were given pseudonyms (e.g., Participant A, B). All digital files were stored on a password-protected computer, and transcripts were anonymized by removing any identifying information.

3.7. Trustworthiness and Validity

Several strategies were used to ensure the credibility, dependability, and confirmability of the qualitative findings (Lincoln & Guba, 1985). Credibility was improved through member checking: interview transcripts and initial thematic summaries were shared with the respective participants to verify accuracy and alignment with their experiences. Peer debriefing was conducted with two colleagues familiar with SLA research, who reviewed the coding framework and thematic analysis to challenge assumptions and minimize researcher bias. Dependability was addressed by maintaining an audit trail, including raw data, coding notes, and analytical memos, making the research process transparent and traceable. For the quantitative phase, relying on a purpose-built survey presents a limitation, although efforts were made to establish face validity through piloting and alignment with established constructs in the literature.

3.8. Limitations

The findings of this study should be considered alongside its limitations. First, the sample size (N = 20 for the survey; n = 5 for interviews) and its homogeneity (female, Arabic L1, university students) restrict the statistical generalizability and transferability of the results. The experiences documented might not represent those of multilingual learners in different cultural, institutional, or linguistic settings. Second, the cross-sectional design offers only a snapshot in time; it cannot show how these psychological challenges develop or change over the course of language learning. Third, although the mixed-methods approach is a strength, the quantitative tool was not a previously validated scale, which could impact measurement accuracy. Lastly, reliance on self-reported data makes the results vulnerable to perception biases and social desirability effects, although the confidentiality of the survey and in-depth interviews aimed to reduce these biases.

4. RESULTS

This section presents the findings from the explanatory sequential mixed-methods study exploring the psychological challenges faced by multilingual learners at the university. The results are organized to first describe the demographic and linguistic profile of the participants, followed by the quantitative survey outcomes that illustrate the prevalence and severity of key challenges. Next, the qualitative thematic analysis of interview data is provided to add depth, nuance, and personal context to the statistical trends. Finally, an integrated analysis combines the two data strands to demonstrate how they converge to answer the research questions.

4.1. Participant Demographic and Linguistic Profile

The study group included 20 multilingual female undergraduates. In terms of academic standing, half of the participants (50%, n = 10) were in their final year, making this the largest subgroup. First-year students made up 23.1% (n = 3), second-year students 15.4% (n = 2), and third-year students 11.5% (n = 2) of the sample. This distribution shows that most respondents were engaged in advanced

undergraduate coursework, probably with significant prior experience in formal language learning settings.

Regarding linguistic repertoire, the data confirmed the sample's multilingual composition. A large majority, 65.4% (n = 13), reported fluency in two languages, mainly Arabic (L1) and English (L2). A significant minority of 26.9% (n = 5) were fluent in three languages, while a small group of 7.7% (n = 2) reported fluency in four or more languages. All participants were simultaneously studying an additional language (L3), with Italian and German being the most commonly mentioned targets in subsequent interviews.

4.2. Quantitative Survey Findings

The survey data revealed clear patterns concerning language interference, cognitive load, affective states, motivation, and perceived challenges.

4.2.1 Language Interference and Switching Difficulties

A key finding was the high prevalence of language interference. Half of the participants (50%, n = 10) reported that their native language "frequently" interfered with learning their L3. An additional 26.9% (n = 5) experienced this interference "sometimes." Only 23.1% (n = 5) felt it was a minimal ("not really," 15.4%) or non-existent ("never," 7.7%) issue.

Closely related was the challenge of switching between linguistic codes. When asked how often they experienced difficulty switching between their L1 and their L3, 26.9% (n = 5) reported "always" facing this challenge, with an equal proportion (26.9%, n = 5) facing it "often." Another 26.9% (n = 5) experienced it "sometimes." Overall, 80.7% of participants reported encountering this difficulty at least sometimes, showing it is a common challenge in multilingual processing.

4.2.2 Cognitive Load and Mental Fatigue

The cognitive load of managing multiple languages was clearly evident. Over one-third of participants (34.6%, n = 7) reported "always" feeling mentally exhausted when learning their L3. An additional 19.2% (n = 4) felt this way "often.' In total, 53.8% of learners regularly experienced mental fatigue related to language learning. While 23.1% (n = 3) felt this tiredness "rarely" and 15.4% (n = 2) "sometimes," only 7.7% (n = 2) said they "never" felt mentally tired, highlighting that cognitive strain is a common experience for this group.

4.2.3 Affective States: Confidence, Anxiety, and Frustration

The emotional landscape of L3 learning was characterized by significant anxiety and fragile confidence. Only 19.2% (n = 4) reported feeling "very confident" when speaking their L3. The most common response was "somewhat confident" (38.5%, n = 8), while 34.6% (n = 7) reported negative states: "somewhat unconfident" (19.2%) or "very unconfident" (7.7%). A neutral stance was held by 15.4% (n = 3).

Anxiety levels were remarkably high. The largest group, 38.5% (n = 8), reported "always" feeling anxious or stressed when speaking their L3, and 30.8% (n = 6) felt this way "often." Therefore, a total of 69.3% of participants frequently experienced anxiety related to speaking. Only 11.5% (n = 2) reported "never" feeling anxious.

This anxiety was worsened by frustration when facing errors. Overall, 61.6% of participants showed frustration when making mistakes: 23.1% (n = 3) felt "very frustrated" and 38.5% (n = 5) "somewhat frustrated." A significant 19.2% (n = 3) took a "neutral" stance, while another 19.2% (n = 3) reported not feeling frustrated or not caring about mistakes, indicating a group of learners who might use more resilient error-appraisal strategies.

4.2.4 Motivational Drivers

Motivation to continue learning L3 was mainly driven by instrumental, future-focused goals. The two top motivators were the same: "Academic success" and "Career opportunities" each chosen by 57.7% (n = 15) of participants. The wish to "Travel" was also a strong motivator (53.8%, n = 14). In comparison, "Personal interest in the language or culture" and "Social reasons" were each selected by 30.8% (n = 8), showing that although present, intrinsic and social motivations were secondary for this group.

4.2.5 Perceived Primary Challenges

When asked to identify the biggest challenge in learning their L3, participants most frequently cited production fluency. Over a third (38.5%, n = 8) chose "Pronunciation and speaking fluently." Language interference was the next most common main challenge (26.9%, n = 5). Issues with "Grammar and writing skills" (15.4%, n = 3) and "Memory and vocabulary retention" (11.5%, n = 2) were less often mentioned. Interestingly, only 7.7% (n = 2) pointed to "Motivation and emotional factors" as the main obstacle, indicating that while these factors are common (as shown in anxiety data), learners may mentally separate them from core linguistic challenges.

Table 1: *Summary of Key Quantitative Survey Findings*

Construct	Key Metric	Percentage	Cumulative % (if applicable)
Language Interference	Frequent Interference (L1→L3)	50.0%	-
Code-Switching Difficulty	Experience difficulty 'Always'/'Often'	53.8%	80.7% (inc. 'Sometimes')
Cognitive Load	Feel mentally tired 'Always'/'Often'	53.8%	-
Confidence	'Very' or 'Somewhat' Confident	57.7%	-

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Construct	Key Metric	Percentage	Cumulative % (if applicable)
Anxiety	Feel anxious 'Always'/'Often'	69.3%	-
Frustration	'Very' or 'Somewhat' Frustrated by errors	61.6%	-
Primary Motivation	Academic Success / Career Opportunities	57.7% each	-
Biggest Challenge	Pronunciation & Fluency	38.5%	-

4.3. Qualitative Thematic Analysis Findings

Thematic analysis of the five in-depth interviews revealed four main themes that expand on the quantitative data: (1) The Multidirectional Nature of Interference, (2) Cognitive Exhaustion as a Barrier to Deep Processing, (3) The Emotional Toll of Performance Anxiety and Identity Conflict, and (4) Instrumental Motivation as a Resilient but Fragile Driver.

4.3.1 Theme 1: The Multidirectional Nature of Interference

Interview data confirmed interference as a daily reality but revealed it to be more complex than a simple L1-to-L3 transfer. Participants described a multidirectional "clutter" or "competition" in their minds. For L3 Italian and German learners, interference from their stronger L2 (English) was often more noticeable than from their L1 (Arabic), especially in lexical retrieval. Participant D (L3 Italian) said, "I often grab an English word when searching for the Italian one... My brain defaults to English, not Arabic, for this new European language." Moreover, interference was not just lexical but also syntactic and phonological. Participant E (L3 German) explained, "The word order in German feels alien. My mind tries to impose either Arabic sentence structure or the simpler English one, and it creates a mess." This shows how the entire prior linguistic system, not just the L1, can be a source of potential intrusion, making the learning process more complicated than what monolingual SLA models predict.

4.3.2 Theme 2: Cognitive Exhaustion as a Barrier to Deep Processing

The survey's mental fatigue metric was clearly explained through descriptions of cognitive saturation. Learners viewed it not just as simple tiredness but as a depletion of the mental resources needed for higher-level learning. Participant C described the feeling: "After an hour of Italian class, it's not just that I'm tired. It's that my brain feels 'full.' I can memorize a new word, but I cannot understand a new grammar rule. The capacity is gone." This matches the idea in Cognitive Load Theory about exhausted working memory, where the mental effort for forming schemas becomes limited. Participants connected this exhaustion directly to their multilingual experience. Participant B said, "Learning my first English word was exciting. Learning a German word now feels like fitting it into a crowded box while making sure the English and Arabic ones don't fall out. It's tiring." This metaphor shows the ongoing effort and self-control involved in speaking multiple languages.

4.3.3 Theme 3: The Emotional Toll of Performance Anxiety and Identity Conflict

The high anxiety levels reported in the survey were linked to a fear of public performance failure and a threat to the learner's self-concept as a competent communicator. Anxiety was rarely about understanding the material but about speaking. "I understand everything the teacher says," shared Participant A, "but the moment I have to speak, my heart races. I know the words, but I fear they will come out wrong, or mixed with English, and I will look foolish."

This intersected with emerging identity struggles. For learners proficient in Arabic and English, being a beginner in an L3 created a conflicting self-view. Participant D explained this dilemma: "In English, I am a confident student. In Italian, I feel like a child. It's uncomfortable. Which one is the real me? It makes me hesitant to even try." Participant E expressed frustration that her multilingual identity did not prevent struggle: "I speak two languages, so people, and even I myself, expect learning a third to be easy. When it's not, it's frustrating. It feels like a personal failure, not a natural difficulty." This shows how existing language skills can paradoxically heighten emotional vulnerability.

4.3.4 Theme 4: Instrumental Motivation as a Resilient but Fragile Driver

The dominance of instrumental motivation was evident in the interviews, where goals were clearly defined and focused on the future. Participant B was typical: "I need English for my degree and German for my planned Master's in engineering. There is no choice; I must succeed." However, the qualitative data showed the fragility of this motivation amid persistent psychological challenges. The same participant added, "But some days, when I am too tired or I fail another test, I think 'why am I doing this?' The goal feels very far away." Motivation was thus not a fixed trait but a dynamic resource that could be depleted by cognitive overload and negative emotions, needing constant reactivation through visualizing future rewards.

4.4. Integrated Analysis: Synthesizing Quantitative and Qualitative Data

The sequential integration of data provides a robust, multi-layered understanding of the research questions.

For RQ1 (Language Interference), the data indicate that interference is a nearly universal, multidirectional challenge. Quantitatively, 80% of learners face switching difficulties, with 50% reporting frequent L1 interference. Qualitatively, this appears as an active, cognitively demanding process of competition and suppression among all known languages, rather than a passive habit of L1, affecting confidence and leading to frustration.

For RQ2 (Cognitive & Emotional Challenges), the integration is compelling. The 53.8% who frequently experience mental fatigue (quantitative) describe it as a limit on learning capacity, not just tiredness (qualitative). Likewise, the 69.3% with high speaking anxiety (quantitative) describe it as a fear of public failure that threatens their multilingual identity (qualitative). Importantly, the qualitative data demonstrate how these domains interact: cognitive exhaustion reduces emotional resilience, and anxiety depletes cognitive resources needed for language processing, creating a harmful cycle.

For RQ3 (Identity Struggles), although the survey did not directly measure identity, the quantitative data showing low confidence (42.3% less than confident) and high error frustration (61.6%) offer indirect evidence of a threatened self-concept. The qualitative data clearly connect these feelings to identity conflicts, where the learner's proficient self conflicts with their novice L3 self. This struggle is not considered a primary challenge by the learners themselves (only 7.7% cited emotional factors as the biggest hurdle), but the interviews reveal it to be a deep underlying consequence that worsens other challenges.

5. DISCUSSION

The present study aimed to explore the psychological challenges involved in second language acquisition (SLA) for multilingual learners, focusing specifically on language interference, cognitive overload, and identity issues. Using a mixed-methods approach with a group of Arabic-English multilingual university students, the results reveal a complex web of cognitive and emotional challenges that support and build on existing theories and research. This discussion interprets these findings in relation to the broader literature, showing how they confirm, complicate, and add to our understanding of the process of multilingual acquisition.

5.1. Language Interference as a Multidirectional Cognitive Management Task

The finding that language interference is a widespread and primary challenge strongly supports the foundational work on cross-linguistic influence (Odlin, 1989). However, this study goes beyond the traditional L1-to-L2 transfer model, offering empirical evidence for the more complex idea of multidirectional influence in multilingualism (Cenoz, 2003; Jessner, 2006). Quantitative data revealed that half of the participants often experienced interference, while qualitative narratives clearly described competition from both L1 (Arabic) and L2 (English) during L3 (e.g., Italian, German) retrieval. This supports Cook's (2016) concept of multi-competence, where the mind functions as a single linguistic system rather than containing separate language modules. The reported difficulty in switching between codes (80.7% experienced this at least sometimes) is not just a performance mistake but evidence that the executive control mechanisms of this integrated system are being taxed (Green, 1998).

Participants' descriptions of syntactic and phonological interference from English, their stronger L2, into their L3 are especially noteworthy. This indicates that psychotypology (perceived linguistic similarity) and L2 status, as discussed by Falk and Bardel (2011), may be more influential factors than just L1 dominance in certain multilingual settings. The emotional reaction to this interference—such as frustration and a sense of failure—underscores a crucial gap in teaching methods. While interference is a natural cognitive process, learners often lack the metacognitive tools to see it that way, instead feeling it as a personal failure. This mirrors Dewaele's (2010) insights on the emotional impact of linguistic "errors" among skilled multilinguals.

5.2. Cognitive Overload: The Central Bottleneck in Multilingual Processing

The high rate of self-reported mental fatigue (53.8% often/always) provides clear, subjective evidence supporting the cognitive load theory (Sweller, 1988) as it applies to multilingual learning. The qualitative data strongly illustrated this statistic through lived experiences, with learners describing a feeling of mental overload that hindered deeper schema development. This finding creates an important connection between experimental research on bilingual executive control and actual classroom experiences. Although studies by Bialystok and Craik (2010) show that bilinguals have enhanced executive functions, they also recognize the performance costs involved in tasks that require language switching and inhibition—costs that are clearly reflected in our participants' reports of exhaustion.

The participants' metaphor of the mind as a "crowded box" perfectly captures the inherent cognitive load of multilingual SLA. Learning an L3 is not about adding a new, separate module; it involves reorganizing and expanding an already complex system, requiring constant inhibition and monitoring (Festman, 2021). This ongoing load likely contributes to the plateau effects often seen in advanced language learning. Our findings suggest that teaching practices frequently underestimate this intrinsic load. When instruction introduces extraneous load through complex materials or stressful performance settings, it can easily exceed working memory capacity, causing mental exhaustion and hindering the germane load needed for acquisition. This supports studies emphasizing cognitive-load-aware instructional design in SLA (Sweller et al., 2011).

5.3. The Affective-Identity Nexus: Anxiety, Fragile Selves, and Instrumental Drive

The affective profile revealed—marked by high anxiety (69.3% often/always), fragile confidence, and frustration with errors—strongly aligns with the extensive research on Foreign Language Anxiety (Horwitz et al., 1986) and the emotional aspects of SLA (Dewaele, 2010; Swain, 2013). However, this study places these feelings within the specific psychological context of multilingual learners. The anxiety was not just about communication but was also deeply connected to identity performance. As Participant D mentioned, the gap between a "confident" English-speaking self and a "childlike" Italian-speaking self caused discomfort and hesitation. This finding powerfully supports Pavlenko's

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(2006) and Norton's (2000) work on language and identity, demonstrating how learning a new language involves negotiating one's self-concept. For these learners, the "Ideal L3 Self" (Dörnyei, 2009)—a skilled multilingual—clashed with the current "feared self"—someone who seems foolish or regresses linguistically.

The dominance of instrumental motivation (such as academic and career goals) aligns with findings in many EFL contexts and Dörnyei's (2005) acknowledgment of the power of the "ought-to self." However, the qualitative data showed that this motivation is conditional; it is resilient but vulnerable, easily weakened by repeated experiences of cognitive overload and negative emotions. This dynamic interaction supports the Dynamic Systems Theory (DST) perspective (De Bot et al., 2007), which views motivation as not a fixed trait but a constantly changing state that interacts with cognitive and emotional systems. A poor test grade or an exhausting study session can temporarily unsettle the motivational system, requiring a conscious effort to realign with long-term goals.

5.4. Synthesis and Theoretical Implications: An Interconnected System

The most important contribution of this study is its empirical demonstration of how these psychological challenges are interconnected. The data do not show separate problems of interference, load, and anxiety; instead, they reveal a combined, synergistic system.

- Cognitive-Affective Loop: Cognitive overload (managing multiple languages) depletes the emotional resources needed to cope with anxiety, while high anxiety itself consumes working memory resources (Eysenck et al., 2007), thereby exacerbating cognitive load and increasing susceptibility to interference.
- Identity-Performance Link: Identity conflicts arising from perceived incompetence in the L3 increase performance anxiety, which in turn leads to avoidance behaviors that hinder the practice necessary to reduce that very incompetence and solidify a new linguistic identity.
- Motivation as a Mediator: Strong instrumental motivation can buffer against these cycles, but it is itself mediated by them. Successful management of load and anxiety reinforces motivation, while failure depletes it.

This interconnected perspective strongly supports adopting holistic theoretical models like DST (De Bot et al., 2007) in understanding multilingual SLA. It shifts the field away from linear, cause-and-effect models toward recognizing the learner's psychological ecosystem.

6. PRACTICAL IMPLICATIONS AND FUTURE RESEARCH DIRECTIONS

The findings have direct implications for teaching and support. First, instructors should explicitly teach metacognitive strategies about language interference and cognitive load, normalizing these experiences as part of the multilingual learning process. This can help reduce the negative emotional responses associated with them. Second, instructional design needs to intentionally manage intrinsic and extraneous cognitive load through scaffolding, pacing, and the careful use of L1/L2 for clarification—a practice supported by the multilingual turn in SLA (Cook, 2016). Third, establishing a classroom environment that lowers anxiety and encourages identity exploration is essential. This involves error-tolerant practices, reflective activities linking language learning to personal and professional identity goals, and cultivating a community that values multilingual complexity over monolingual perfection.

Future research should address the limitations of this study. Longitudinal designs are necessary to track how these psychological challenges develop over different stages of L3 proficiency. Expanding the sample to include diverse L1 backgrounds, ages, and learning environments (including male learners) would help determine if these findings are generalizable. Additionally, intervention studies are essential: research should experimentally evaluate the effectiveness of teaching strategies (such as cognitive load-reduction techniques and identity-based motivational interventions) specifically tailored for multilingual learners. Finally, combining physiological or neuroscientific measures of cognitive load (like EEG or pupillometry) with self-report data could offer a more objective view of the cognitive exhaustion reported by participants.

7. CONCLUSION

This study highlights the complex psychological experience of learning an additional language as a multilingual person. It confirms that language interference is a dynamic, multidirectional challenge, that cognitive overload is a key and overwhelming obstacle, and that emotional and identity-related issues are closely connected to cognitive processes. The learners in this study are not just acquiring a new linguistic system; they are involved in a demanding psychological task of managing cognition, regulating emotions, and negotiating identity. By empirically illustrating this interconnected system, the research emphasizes the need for theories, teaching approaches, and institutional policies that recognize and support the entire multilingual learner, not just their grammatical skills.

8. RECOMMENDATIONS

1. For Educators: Integrate strategies to minimize language interference and cognitive overload, such as structured input and paced instruction.
2. For Institutions: Provide emotional support resources, including counseling and stress-management workshops.
3. For Policy Makers: Develop language curricula that acknowledge the psychological needs of multilingual learners.

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Author(s) Contribution

All the Author(s) work equally to prepare the manuscript.

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