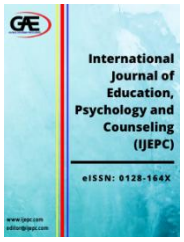
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FROM RULES TO REASONS: LINKING SELF-REGULATED LEARNING AND LANGUAGE INVESTMENT IN UNDERGRADUATE GRAMMAR PEDAGOGY

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Abstract:

This study investigates students' metacognition, self-efficacy, and learning trajectories in undergraduate grammar learning through the lens of Self-Regulated Learning (SRL) theory. Using a qualitative retrospective research design, data were collected from a cohort of language students at the conclusion of an intensive 12-week grammar course. Participants responded to a situational prompt requiring them to formulate academic and personal advice for their Week 1 selves. Using deductive and inductive thematic coding, the resulting narratives were systematically mapped onto the behavioural, affective, and cognitive dimensions of Zimmerman's (2000) Triadic Reciprocal Determinism Model. The findings reveal limited initial metacognitive readiness among students entering the course. In the behavioural domain, students consistently identified procrastination and massed cramming as counterproductive learning habits and retrospectively advocated spaced repetition and regular practice. In the affective domain, students described grammar-related anxiety, social shyness, and physical fatigue as barriers that discouraged active participation and classroom questioning. In the cognitive domain, their reflections indicated a significant shift from surface-level memorisation of prescriptive grammatical rules towards a more functional and communicative understanding of grammar. Synthesising these dimensions through the concept of language investment, the study suggests that changes in learning behaviours may support the reduction of affective barriers and facilitate deeper cognitive engagement with grammatical knowledge. The findings highlight the value of explicitly embedding metacognitive scaffolding, low-stakes formative assessment, regular practice opportunities, and accessible communication channels during the early stages of grammar instruction to support students' learning trajectories from the beginning of the course.

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Introduction

Undergraduate grammar courses have often been described as a nightmare for students in higher education. Although grammar provides a foundation for various disciplines, including descriptive linguistics, creative writing, and foreign language learning, these courses are frequently met by incoming students with a well-documented phenomenon known as "grammar anxiety" (Horwitz et al., 1986). Many students enter the first week of an academic term expecting grammar learning to be a continuation of the prescriptive rules the encountered in secondary school. As a result, they tend to rely heavily on memorization when learning grammar. However, grammar learning at a higher level requires students to move beyond prescriptive rules towards descriptive frameworks, structural syntax and abstract linguistic analysis. This shift can place a considerable cognitive demand on students and may lead to cognitive overload (Sweller, 2011), particularly when the transition takes place within the compressed timeframe of a traditional academic term.

Thus, understanding how students navigate this demanding transition, from what they used to in high school to what realities they faced in higher education, requires educational researchers to look beyond quantitative assessment in the classroom and consider the internal metacognitive processes involved in grammar learning. Metacognition, commonly described as "thinking about thinking", enables learners to critically evaluate their own cognitive processes, identify conceptual gaps, and adapt their self-regulated learning strategies (Panadero, 2017). Without this kind of metacognitive regulation, particularly during the early stages of a semester, students are more likely to adopt passive learning behaviours. These may include procrastination, superficial notetaking, and classroom disengagement. However, Tao et al. (2025) found that learning strategies such as effort regulation, metacognitive monitoring, and time management are associated with lower levels of academic procrastination, which in turn contributes to improved academic performance.

To understand these cognitive shifts, this study employs a qualitative, retrospective reflection instrument conducted to undergraduate language students during the final week of a 12-week grammar course. By asking students to formulate retroactive advice directed at their past, "Week 1" selves, this research gains a unique window into the perceived "threshold concepts" and psychological friction points of grammatical study. This study also observed what a student wishes they had known at the initial week of the course, which reveals precisely where

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traditional learning mechanisms faltered, and where adaptive, self-regulatory frameworks had to be forged. Crucially, this retrospective re-evaluation highlights not just a change in study tactics, but a shifting 'investment' in the language learning, as students re-negotiate the value of grammatical mastery over time.

Additionally, to analyse these qualitative narratives, this study addresses three overarching research questions mapped directly onto the Triadic Reciprocal Determinism Model of Self-Regulated Learning (SRL) (Zimmerman, 2000):

- RQ1 (Behavioural Domain): What behavioural and time-management challenges do students retrospectively identify as the primary barriers to success and mental well-being in a 12-week grammar course?
- RQ2 (Affective Domain): What emotional and psychological barriers (e.g., academic anxiety, classroom fatigue, or social shyness) impact student engagement and communication from the perspective of retrospective reflection?
- RQ3 (Cognitive Domain): How do students' conceptual approaches and structural investment in learning grammar shift, specifically regarding the tension between rote prescriptive memorization and communicative, functional understanding, over a 12-week period?

By exploring these questions, this paper aims to provide a structural framework for language educators to bridge the gap between student anticipations and the cognitive realities of linguistic analysis, thus, optimizing the pedagogical trajectory of the students from day one.

Literature Review

To understand the metacognitive shifts and behavioural adjustments observed in undergraduate English language students, this study anchors its analysis in three interconnected bodies of educational and linguistic literature: cognitive load and threshold concepts in grammar learning, the affective domain in language learning, and the mechanics of behavioural self-regulation. These domains are synthesized through a comprehensive conceptual framework rooted in self-regulated learning theory.

Cognitive Load and Threshold Concepts in Grammar Pedagogy

Undergraduate grammar curricula often require a shift from the prescriptive, rule-based memorization, which is common in secondary education, to the descriptive and analytical frameworks of formal linguistics. This transition frequently induces cognitive overload. Cognitive Load Theory hypothesizes that novel information is initially processed through a working memory with limited capacity and duration before being encoded into the virtually unlimited long-term memory for future retrieval (Sweller et al., 2019). Therefore, when learners are presented with large volumes of unfamiliar grammatical concepts, such as phrase structure rules and morphological parsing, accompanied with undeveloped cognitive schemata, the limited capacity of working memory can become overwhelmed, hindering effective learning of the learners (Sweller, 2011).

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Thus, this obstacle is best understood through the lens of Threshold Concepts (Meyer & Land, 2003). This concept refers to a core aspect of knowledge that is initially considered as counterintuitive or "troublesome" by the students. However, once they understood and acquire the knowledge, it essentially transforms a student's view of the subject. As an example, such transformation in grammatical studies involves moving from viewing language as a rigid collection of rules, to understanding it as a dynamic system of structural relationships. This conceptual shift is particularly significant because structural metaconcepts are regarded as fundamental to both theoretical linguistics and language education (van Rijt & Nygård, 2026), making it one of the central threshold concepts in grammar education.

Additionally, before crossing this conceptual threshold, students often enter a liminal state, a transitional conceptual space or state of being, in which troublesome knowledge challenges their ability to construct meaning and leaves them cognitively "stuck". This state will happen before achieving genuine understanding of the subject. The time and effort required to progress through this stage vary considerably across learners, with some advancing more readily than others (Alyafee, 2023). During this liminal phase, students often choose to 'mimic' by copying lecture slides or memorizing grammatical rules without understanding the underlying linguistic logic.

The Affective Filter and Classroom Anxiety

Academically demanding subjects such as grammar and syntax do not exist in an emotional vacuum, as students' emotional states can be affected throughout the learning process. The Affective Filter Hypothesis proposes that emotional variables, including anxiety, self-confidence, and motivation, can function as psychological barriers that influence the extent to which comprehensible input is processed for language acquisition (Krashen, 1982). When the affective filter is heightened, learners may therefore experience reduced engagement and become less efficient in processing new linguistic knowledge.

In the language classroom, this psychological barrier can manifest as Foreign Language Classroom Anxiety (FCLA), particularly in contexts where learners perceive high levels of linguistic difficulty and evaluation pressure (Horwitz et al., 1986). Since grammar is traditionally associated with rigid rules and expectations of correctness, students may feel more vulnerable. Previous studies suggest that adult learners can experience a form of linguistic fragility in syntax classrooms. This fragility may be reflected in their reluctance to ask questions, social shyness, and gradual withdrawal from classroom discourse. It may also be associated with factors such as speaking anxiety, fear of negative evaluation, reduced self-perceived communicative competence, and instructional approaches that prioritise accuracy over interaction. Together, these factors can hinder learners' oral participation (Fakhrurrazi et al., 2026). Extending this perspective, Alqarni (2021) found that second language speaking anxiety significantly constrains learners' willingness to communicate in both face-to-face and online learning environments, although this negative relationship appears slightly stronger in traditional in-person classrooms.

Beyond anxiety-related factors, learners' emotional readiness for language learning may also be affected by prolonged psychological and physiological strain. Recent studies on student burnout highlight the relationship between physiological exhaustion and emotional depletion. Inadequate sleep duration, poor sleep quality, and physical fatigue may contribute to heightened stress and academic burnout. Allen et al. (2020) found that association between

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stress and exhaustion weakened among students with longer sleep duration and better sleep quality, indicating the protective role of restorative sleep. Similarly, Zakiei et al. (2025) demonstrated that subjective sleep quality and disruptions in daily functioning significantly influence academic burnout and perceived stress. Within a language learning context, these findings suggest that prolonged fatigue may heighten the affective filter, creating emotional barriers that limit learners' willingness to engage with classroom input and participate actively in learning activities.

Self-Regulation and Spaced Repetition

As the cognitive demands of grammar learning are high, student success depends heavily on their capacity for Self-Regulated Learning (SRL). This involves the ability to monitor, regulate and control one's cognition, motivation, and learning behaviours. On the other hand, a common failure of self-regulation in higher education is academic procrastination. This is because students frequently delay challenging academic tasks as a means of escaping immediate cognitive discomfort, resulting in a detrimental cycle of increasing workload, heightened anxiety, and declining academic achievement before a major breakthrough (Schouwenburg, 2024). These behaviours are consistent with the view that procrastination represents a breakdown in behavioural self-regulation, in which learners struggle to control their actions and sustain progress toward academic goals (Limone et al., 2020).

To address this self-regulatory challenge, educational psychology consistently suggested a distributed learning schedules rather than reliance on massed cramming in learning. This demonstrates that spacing principles, which are shorter, repeated learning sessions distributed over time, can strengthen the long-term retention and retrieval of structural knowledge, particularly when mastering complex rule-based systems such as grammar learning (Cepeda et al., 2006). In addition, recent evidence further supports this approach, as distributed practice shown to improve classroom learning outcomes and promote sustained academic engagement (Mawson & Kang, 2025). Likewise, regular low-stakes retrieval activities have been found to enhance academic performance, increase engagement with course materials, and encourage more active participation throughout a course, as well as providing a practical alternative to last minute cramming before high-stakes assessments (Trumble et al, 2023; Wong et al., 2024).

Language Investment and Future Value

Beyond cognitive demands and emotional barriers, students' engagement with an intensive syntax curriculum is also shaped by their sense of identity and their perception of the future value of grammatical knowledge. From that, Norton (2013) conceptualised language learning investment as a sociological construct that examines the relationship between language learners, language practices, and the changing social worlds they seek to access. Drawing on Bourdoeu's conceptualisations of capital, Norton argues that learners invest time and effort in developing linguistic competence when they perceive that such investment may provide meaningful returns in their lives. These returns may include access to educational and employment opportunities, social participation, recognition, and other valued resources. In this sense, greater proficiency in a valued language such as English may expand learners' access to educational and employment opportunities, enhance their economic prospects and social mobility, and enable greater participation in social, cultural, and political exchanges (Lavelle & Protacio, 2025).

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Other than that, within a condensed higher education grammar course, students' investment in grammar can therefore change as their perceptions of its value develop. When the learners perceive grammar primarily through a prescriptive lens, in which a rigid system of rules to be memorised for assessment purposed, the perceived value of grammar learning may be limited and potentially reducing engagement in learning. However, investment may deepen when learner begin to perceive grammatical knowledge not merely as a collection of rules, but as a linguistic resource that can support their academic, professional, and social development. From this perspective, grammar learning may contribute to students' development of analytical competence, professional communication, and confidence in self-expression. This investment can be reflected in students' ability to internalise grammatical structures and make deliberate choices regarding sentence variety, voice and cohesion as well as subsequently enhance the clarity, readability, and overall effectiveness of their writing (Andleed et al., 2025).

Thus, examining changes in students' perceptions of the value of grammatical knowledge provides an important conceptual bridge between their learning behaviours and their developing identities as language users. From that, the concept of investment is particularly useful because it shifts the discussion beyond whether students enjoyed or struggled with grammar learning. Additionally, their reflections can be understood in terms of how they came to perceive grammar learning as worthwhile for their future academic and professional lives. After that, the students increasing recognition of grammar as a valuable communicative resource represents not only a change in learning attitude, but also a changing understanding of what their linguistic knowledge may enable them to become and achieve.

Conceptual Framework: Self-Regulated Learning (SRL) in Classrooms

To understand the relationship between student behaviour, emotional experiences, and cognitive shifts, this study adopts the Triadic Reciprocal Determinism model of Self-Regulated Learning (SRL), adapted from social cognitive theory (Zimmerman, 2000; Panadero, 2017). SRL reckons that academic success is not merely a product of intellectual ability, but a dynamic interaction between three reciprocal domains:

1. **The Behavioural Domain:** Academic actions, including time management, task prioritization, and consistent study rhythms.
2. **The Affective/Environmental Domain:** Emotional climate, classroom anxiety levels, physiological well-being, and social interactions within the lecture space.
3. **The Cognitive/Metacognitive Domain:** Internal strategies used to process information, monitor comprehension, and continuously re-evaluate the long-term communicative and structural investment value of the course material.

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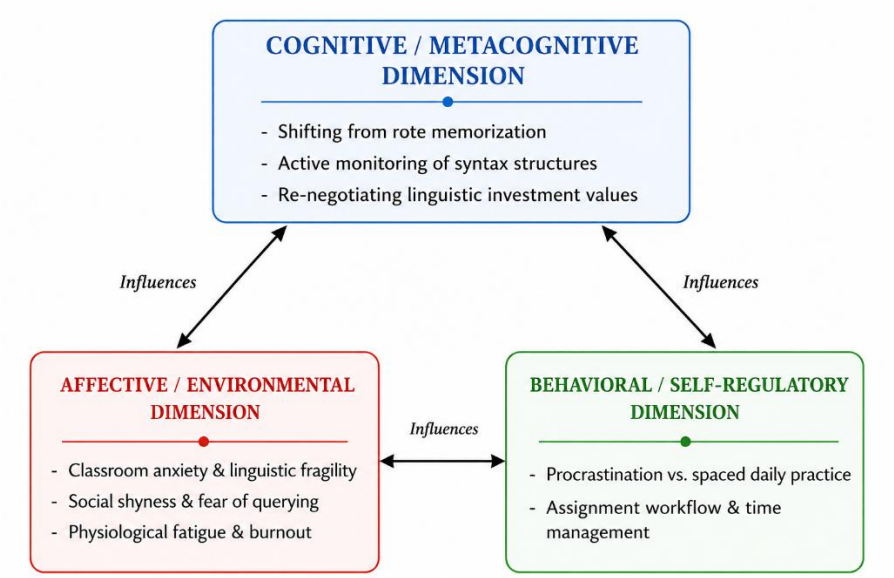


Figure 1: The Triadic Reciprocal Determinism Model of SRL in Intensive Grammar Studies

As illustrated in Figure 1, the three dimensions named, Behavioural, Affective/Environmental, and Cognitive/Metacognitive, do not operate in isolation. For example, a student's fear of making syntactic errors in front of others may lead them to withdraw from classroom discussions and delay completing learning tasks. This, in turn, may limit their opportunity to move beyond surface-level memorisation of grammatical rules towards a deeper understanding of how grammatical structure work. Conversely, when a student adopts small and structured daily tasks, such as micro-quizzes, consistent engagement with these activities may help reduce anxiety and create more favourable conditions for cognitive engagement with complex grammatical concepts. From the perspective of language investment, these changes may also influence how students perceive themselves as grammar learners, shifting their view of grammar from an anxious institutional requirement towards a valuable linguistic resource in which they are willing to invest.

Applying this triadic framework to qualitative data allows researchers to trace how students' retrospective "advice to self" can provide evidence of emerging metacognitive awareness and developing self-regulatory capacities. This is consistent with findings that sustained engagement with reflective journals can support students' metacognitive development, enabling them to move beyond a basic awareness of errors and thought processes towards more complex forms of regulation, including planning strategies, monitoring performances, and conducting, critical self-evaluations (Khaerunnisa et al., 2026).

Methodology

To investigate the metacognitive shifts and psychological burden experienced by undergraduate language students, this study utilizes a qualitative, retrospective research design. Rather than relying solely on cross-sectional or real-time self-reports, which can be heavily influenced by immediate assessment stress, this study implements a retrospective reflection instrument conducted at the conclusion of the academic term. This approach allows researchers

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to capture what transitions in student understanding and self-regulation occur when looking back at a completed learning trajectory.

Participant Profile and Context

The sample for this study consisted of undergraduate English language students (N = 21) enrolled in an intensive, 12-week university grammar course. The course curriculum was designed to transition students from foundational, prescriptive grammar rules to advanced structural and descriptive linguistic analysis. This environment served as an ideal site for data collection, as the condensed timeframe and demanding structural nature of the curriculum naturally test students' self-regulatory capabilities.

Data Collection

Data collection was conducted during the final week of the academic term to ensure that participants had completed the full course trajectory and experienced the major learning activities and challenges associated with the Grammar course. The primary data collection instrument was an open-ended qualitative reflection form administered digitally. Participants were presented with the following situational prompt:

"If you could go back to the first week of this Grammar class, what advice would you give yourself to make the most of the 12 weeks?"

The prompt was designed to stimulate retrospective metacognitive reflection by encouraging students to examine their previous learning strategies in light of their current understanding and experiences. Additionally, retrospective reflection activities can support learners' self-awareness and metacognitive development by encouraging them to articulate changes in their learning processes and self-regulatory behaviours (Chaika, 2023). Through this reflective process, students were able to critically evaluate their learning journeys, identify areas for improvements, and express emerging understandings of effective grammar learning strategies. All responses were collected anonymously, and participants were assigned identification codes to ensure confidentiality and adherence to ethical research procedures.

Data Analysis and Coding Framework

The qualitative text data gathered from the text responses underwent a rigorous thematic analysis using the combination of deductive and inductive coding procedures. To ensure the findings remain closely aligned with the study's underlying theoretical framework, the coding scheme was mapped onto the Triadic Reciprocal Determinism Model of Self-Regulated Learning (SRL) introduced in the literature review.

The data analysis proceeded through three phases:

1. **Initial Coding:** The raw responses from the reflection forms were divided into distinct semantic units, consisting of phrases or sentences that expressed a single complete thought.
2. **Thematic Categorization:** These semantic units were then organised into three primary analytical domains of the SRL framework, as presented in Table 1.

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3. **Cross-Node Mapping:** As the framework emphasises reciprocal and bidirectional relationships, instances in which students connected two domains were also identified and coded. For example, a behavioural habit such as procrastination that was linked to an affective outcome such as anxiety was coded to capture the interaction between the two dimensions.

Table 1: Analytical Coding Framework Based on Self-Regulated Learning Dimensions

Analytical Domain / Node	Target Indicators in Student Data	Primary Operational Mapping
1. Behavioural / Self-Regulatory	Statements related to procrastination, assignment management, time management, and incremental daily study and quiz practices	RQ1 / Figure 1: Behavioural Node
2. Affective / Environmental	Statements related to classroom anxiety, social shyness, reluctance to seek clarification, physical fatigue, sleep patterns, and emotional burnout	RQ2 / Figure 1: Affective Node
3. Cognitive / Metacognitive	Statements related to note-taking strategies, moving beyond rote memorisation of grammatical rules, passive reproduction of lecture materials, and recognition of the communicative value of grammar	RQ3 / Figure 1: Cognitive Node

To ensure qualitative reliability, two independent readings of the dataset were conducted. Inconsistency regarding text segments that spanned across multiple categories were resolved through iterative contextual analysis, ensuring that each participant quote was anchored to its appropriate conceptual framework node.

Results and Discussion

The findings are structured below according to the three distinct domains identified in the research questions: behavioural/self-regulatory habits, affective/psychological barriers, and cognitive/metacognitive shifts in learning strategy.

Behavioural and Self-Regulatory Dimensions (RQ1)

The most common theme across the dataset related to behavioural self-regulation are the issues of procrastination and the lack of incremental, daily study habits. When looking back at Week 1, majority of the respondents identified time management as their primary hurdle.

The Burden of Procrastination

The students' reflections showed that putting off assignments often affected more than just their academic work. Several students described how delaying tasks eventually increased the pressure they felt later in the semester, leaving them emotionally exhausted and affecting their overall well-being. Theor reflections also point to procrastination as a difficulty in managing their own learning, particularly when it comes to planning assignments, keeping track of academic progress, and maintaining consistent study habits. When these areas are not managed

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effectively, procrastination may have consequences for both academic performance and students' emotional well-being. This is in line with recent findings linking procrastination with poor planning, limited self-monitoring, lower academic performance, and greater emotional exhaustion (Faure-Carvallo et al., 2025). In relation to the conceptual framework in Figure 1, these reflections show how difficulties in the behavioural domain may be accompanied by psychological strain I the affective domain, reflecting the reciprocal relationship between the two dimensions.

- Respondent 1 reflected that completing assignments immediately would have "benefit[ed] my mental health tremendously".
- Respondent 7 similarly advised their past self to "never procrastinate on your work as it could pile up and become a burden".
- Admitting to a chronic issue, Respondent 15 candidly shared: "I'm always procrastinate[ing] my work to complete the E-portfolio, even procrastinate this reflection form".

Spaced Rehearsal vs. Cramming

Contrarily, students who successfully navigated the course, or retroactively recognized what was missing from their routine, emphasized the necessity of consistent, daily engagement with the linguistic material rather than massed cramming session.

- Respondent 12 suggested a highly actionable behavioural baseline: "do at least one grammar quiz every day... doing a little bit every day is better than waiting until the last minute".
- Respondent 17 echoed this by advising their past self to "stay consistent with revision [and] do extra practice every week".

These student reflections are consistent with research supporting the value of spaced repetition. Recent studies in digital and blended learning environments have also highlighted the benefits of micro-learning and distributed practice. Compared with massed cramming, these approaches can be more effective for retaining complex rule-based systems such as syntax and grammar. By encouraging learners to revisit grammatical concepts repeatedly over time, they can support stronger memory consolidation and retrieval. Empirical evidence further shows that repeated testing and restudying across multiple sessions can significantly improve retention, with measurable benefits observed between 12 and 36 hours after learning (Walsh et al., 2022). From the perspective of SRL, establishing regular daily routines can therefore strengthen students' behavioural regulation and create better conditions for engaging with more complex grammatical concepts as the course progresses.

Affective and Psychological Dimensions (RQ2)

Beyond academic habits, the data revealed a deep emotional feeling in grammar learning. This is because students frequently reported that emotional barriers directly impeded their classroom performance and engagement.

Social Shyness and the Fear of Querying

A number of students noted that they wanted to seek help during the initial weeks but hesitated because of social anxiety and fear of being judged. This experience can be understood in

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relation to Foreign Language Classroom Anxiety (FCLA) or grammar anxiety, where students may feel vulnerable when making mistakes publicly because of the perceived rigid "right versus wrong" nature of prescriptive grammar rules (Horwitz et al., 1986(. Furthermore, recent studies suggest that adult learners may experience a form of linguistic vulnerability in grammar-focused settings, where anxiety, fear of negative evaluation, and reduced self-perceived communicative competence can contribute to reluctance to seek clarification, participate in classroom discussions, or make use of available learning support. Fakhrurrazi et al. (2026) found that students' speaking reluctance is shaped by speaking anxiety, fear of negative evaluation, diminished communicative self-confidence, and instructional approaches that prioritise accuracy over interaction. Importantly, silence was identified as a context-dependent and psychologically motivated responses rather than simply an indicator of learning disengagement. Similarly, Solhi (2024) found that negative emotional orientations, including anxiety, boredom, and demotivation, influence English as a Foreign Language (EFL) learners' willingness to communicate (WTC) in both face-to-face and online learning environments. These findings highlight the affective-to-behavioural relationship presented in Figure 1, where internal anxiety may be reflected in observable behaviours such as classroom silence, reluctance to participate, and withdrawal from available learning support.

- Respondent 20 noted that they wished they could "talk freely... but my shyness and socially awkward personality is taking all over me".
- Respondent 18 described a persistent internal conflict: "ask more, I would often advise myself to but couldn't bring myself to do so. A dilemma that I hope to get rid of".
- Highlighting the academic cost of this isolation, Respondent 13 advised their past self to "ask the lecturer whenever I have any concerns... instead of trying to cope with it alone. That way, I wouldn't have been so confused during the mock test".

Physiological and Emotional Exhaustion

The affective domain also manifested physically. From the data, multiple students highlighted a direct link between poor physiological self-care and an inability to maintain cognitive focus during lectures.

- Respondent 15 stated that they needed to "manage my sleep schedule so that I won't get sleepy" and "eat healthily so that I will gain energy".
- Respondent 18 humorously but sharply advised themselves to "try not to pass out during classes," wishing they could "smack the back of my past self every time I tried to fall asleep".

These comments illustrate the intersection between the affective filter (Krashen, 1982) and physical stamina. Other than that, recent research on university student burnout highlights the relationship between physiological exhaustion, stress, and learners' capacity to regulate their academic behaviours. In addition, inadequate sleep and prolonged fatigue may weaken students' emotional readiness cognitively demanding tasks such as grammatical analysis. Supporting this claim, Allen et al., (2020) found that sleep may serve as a protective factor against stress-related outcomes, with longer sleep duration and better sleep quality associated with a weaker relationship between stress and exhaustion. Therefore, Makkawi et al. (2026), in their study, reported that poorer sleep quality was significantly associated with lower academic performance, increased stress levels, and greater difficulty completing academic tasks within expected timeframes. Thus, these findings suggest that sleep-related challenges

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may extend beyond physical fatigue. This is because sleep-related challenges influence students' self-regulatory capacities, academic functioning, and emotional readiness for learning. Additionally, prolonged fatigue may heighten the learners' affective filter, creating emotional barriers that limit learners' ability to engage effectively with cognitively demanding classroom activities.

Cognitive and Metacognitive Shifts (RQ3)

The most crucial academic finding was the conceptual evolution students underwent to realise what grammar learning actually is. This is because students moved away from viewing grammar as an overwhelming system of arbitrary rules towards viewing it as a functional. communicative tool.

Moving Beyond Rote Memorization

In the beginning, students faced cognitive overload by attempting to treat undergraduate grammar learning as a purely mechanical subject that requires rote memorisation.

- Respondent 10 explicitly warned against this approach: "don't overthink about the rules in grammar because in the end I will feel overwhelmed and confused".
- Respondent 21 recognized a flaw in their initial note-taking methodology, advising themselves to focus on a deeper "point of understanding... rather than writing out the whole slides".

From the data, this transition can be understood through the framework of Threshold Concepts proposed by Meyer and Land (2003). Recent pedagogical perspectives emphasise that metacognitive engagement can help students move beyond surface-level learning behaviours such as passively copying lecture materials, by encouraging them to monitor, evaluate, and reconstruct their understanding of complex concepts. However, the acquisition of troublesome knowledge is rarely a straightforward process, as learners may become cognitively "stuck" within the liminal space before developing sufficient understanding to move towards conceptual transformation (Alyafee, 2023). In this study, students' movement away from rote memorization and passive reproduction of what they had learned towards deeper conceptual engagement was interpreted as evidence of the cognitive monitoring dimension within the proposed framework. This shift suggests an emerging ability to evaluate the effectiveness of their learning approaches and make adjustment to their strategies accordingly.

Realization of Communicative Value and Future Investment

By Week 12, the students, who successfully survived the course, had moved beyond viewing grammar as merely an assessment requirement and had begun to recognize its broader communicative value. The students also realised the potential of grammar learning as an investment for their future academic and professional development.

- Respondent 11 demonstrated a clear metacognitive shift, advising themselves to "take grammar practice as a tool for communication rather than just a technical subject."
- Respondent 17 similarly captured this conceptual transformation, reflecting that students should "enjoy the process because learning grammar is not just about rules it's about expressing ideas more clearly and confidently."

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This transition reflects a significant shift in students' language investment (Norton, 2013). During the early stages of the course, many students appeared to perceive grammar learning as a low-value academic obligation undertaken primarily to perform well in high-stakes assessments. However, by Week 12, their reflections suggested a growing recognition that grammatical competence extended beyond performance during examination. They also noted that grammar learning could be seen as a valuable linguistic resource for their future academic and professional lives. In short, students began to recognise that the knowledge and skills developed through sustained grammar learning as an investment for their future communicative abilities and identities.

In addition, rather than viewing grammar as a rigid set of mechanical rules, students increasingly understood it as a means of strengthening their communicative confidence and enhancing the clarity, credibility, and professionalism of their communication skills. This changing perception reinforced the value of grammar within their broader language-learning journeys (Adalia et al., 2025). Therefore, the reflections actually suggest a retrospective re-evaluation of the cognitive effort invested in grammar learning. From what had initially perceived as an examination-oriented obligation to understanding it as a worthwhile investment in their future academic and professional identities.

Discussion

Finally, the Week 12 reflections reveal a substantial difference between students' retrospective metacognitive awareness and the learning approaches they adopted at the beginning of the semester. As illustrated in Figure 2, the three dimensions of the proposed framework operate not as isolated components but as a dynamic and reciprocal cycle, which are cyclical. Many students initially approached undergraduate grammar using passive learning strategies developed through earlier rule-based instruction. However, when confronted with the conceptual complexity of formal grammar, these approaches often gave away to maladaptive responses, including procrastination, surface-level learning behaviours, and reduced classroom participation arising from anxiety, shyness, or fatigue.

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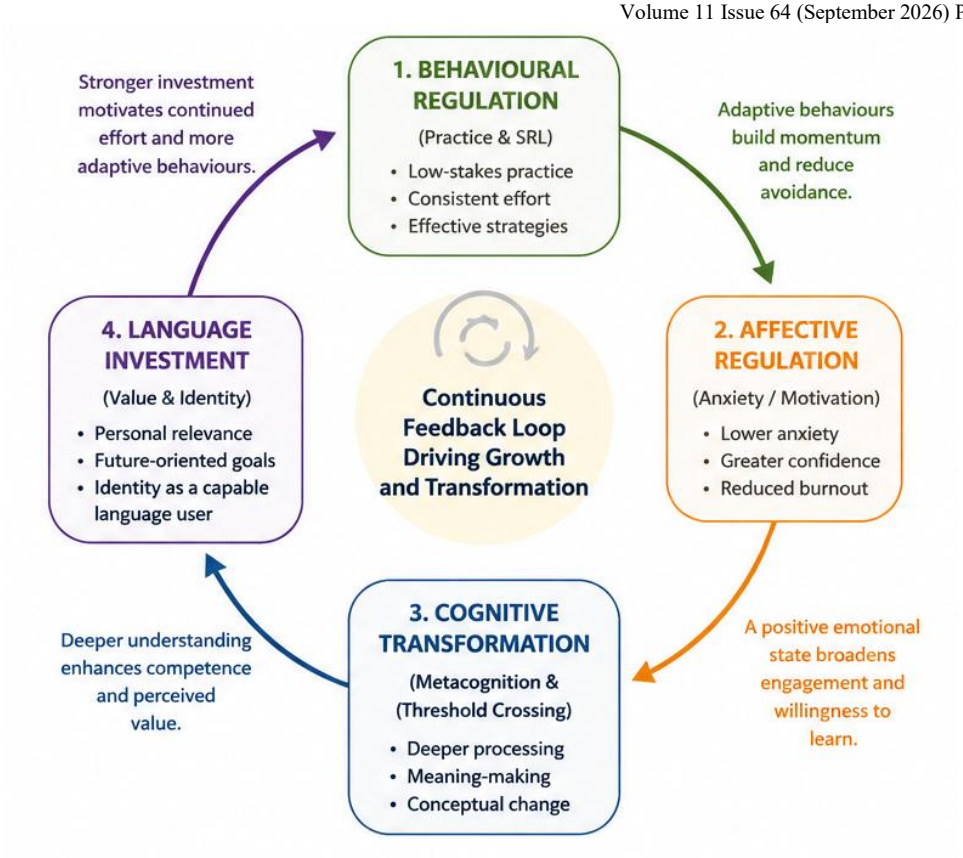


Figure 2: The Recursive Cycle of Self-Regulated Grammar Learning and Language Investment

From Figure 2, the findings further suggest that a critical turning point occurred when students recognized the reciprocal relationship among these three dimensions (Behavioural, Affective, and Cognitive). In addition, improvements in learning behaviours, such as engaging in consistent low-stakes practice and adopting more effective study strategies, appeared to reduce emotional barrier in learning. This also simultaneously supporting deeper cognitive engagement with complex grammatical concepts. Plus, rather than operating independently, behavioural, affective, and cognitive processes continuously influenced one another throughout students' learning journeys. These interconnected changes also influenced students' language investment as they become more aware of their learning goals, the value of grammatical knowledge and their identity as language users. Additionally, language investment emerged from the interaction of the three dimensions, in the sense of what students did to regulate their learning, how they experienced grammar learning emotionally, and how they came to realise the value and relevance of grammar learning. Thus, the reciprocal development of behavioural, affective, and cognitive dimensions contributed to a changing perception of grammar as a meaningful linguistic resource for the students' future academic, professional and communicative skills.

In conclusion, these findings suggest that pedagogical interventions should address all three dimensions from the beginning of the course by fostering effective self-regulation, reducing affective barriers, and promoting metacognitive engagement.

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Conclusion and Pedagogical Implications

The retrospective reflections of undergraduate language students at the end of a 12-week grammar course provide valuable insight into students' metacognition, self-regulation, and emotional resilience. By examining what students wished they had known in Week 1, this study highlights a clear gap between their initial expectations and the actual cognitive, behavioural, and affective demands of university-level linguistic study.

When considered alongside the synthesised model presented in Figures 1 and 2, the findings suggest that success is not simply a matter of linguistic aptitude. Rather, it involves an ongoing and dynamic process in which behavioural discipline, such as avoiding procrastination and maintaining spaced revision, interacts with affective management, including the ability to cope with classroom anxiety and physical fatigue. Together, these factors may support cognitive transformation and contribute to students' longer-term language investment.

Pedagogical Implications for Higher Education

To translate these findings into classroom practice, educators need to consider the triadic reciprocal relationships identified in the conceptual framework and the recursive cycle of student investment presented in Figure 2. Based on the synthesis of students' reflections and established educational frameworks, several practical pedagogical interventions are recommended for instructors designing intensive or condensed 12-week grammar curricula:

- **Implement Explicit Metacognitive Scaffolding in Week 1:** Instructors should not assume that undergraduate students enter the classroom with established self-regulations strategies. The first week of the course should explicitly address the difference between rote memorisation and structural analysis while teaching students how to monitor their own understanding and move beyond passive slide-copying (Cognitive Domain).
- **Normalise Early, Low-Stakes Formative Assessment:** To address the behavioural pattern of procrastination followed by cramming, course syllabi should incorporate frequent, low-stakes micro-assessments, such as daily or weekly digital grammar quizzes. These activities can encourage spaced repetition and distributed practice (Behavioural Domain), while also helping to reduce cognitive load.
- **Proactively Lower the Affective Filter:** Since fear of asking questions due to shyness, or social awkwardness can become a significant barrier to students' progression, educators should create low-anxiety channels for communication (Affective Domain). For example, anonymous digital question boards, during live lectures can allow anxious students to clarify misconceptions without the pressure of speaking publicly. This may, in turn, encourage greater participation and alter students; classroom behaviour.
- **Integrate Peer-Assisted Learning Networks:** Students may struggle when attempting to understand complex syntactic patterns on their own. Establishing structure study pairs or peer-review circles early in the semester can provide supportive spaces for learning (Affective Domain), allowing students to build confidence and negotiate grammatical meaning collaboratively. Such activities can also reinforce positive study habits (Behavioural Domain).

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- **Limitations and Future Research**
  While this study provides valuable qualitative insights drawn directly from student narratives, it is limited by its relatively small sample size (N = 21) and its reliance on a single institutional cohort. In addition, because the data were collected at a single point in Week 12, the findings rely heavily on the accuracy of students' retrospective memories.

Future research could build on these findings by using longitudinal tracking and collecting student reflections at multiple points, such as Week 1, Week 6, and Week 12. This would allow researchers to examine how birectional relationships between cognitive, behavioural, and affective dimensions develop over time. Cross-institutional studies could also explore whether these behavioural and emotional challenges remain consistent across students from different cultural and demographic backgrounds.

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Ethics Statement: This study was conducted in accordance with ethical research standards. Informed consent was obtained from all participants prior to data collection. Participation was voluntary, and respondents were assured of confidentiality and anonymity. The data collected were used solely for academic purposes.

Author Contribution Statement: Author was responsible for the overall development of this manuscript. Author read and approved the final version of the manuscript prior to submission.

Declaration on the Use of Artificial Intelligence (AI) The author declares that generative AI or AI-assisted technologies were used during the preparation of this manuscript. The following tool(s) were used: Gemini, ChatGPT, Claude and Consensus. The tool(s) were used for language editing, grammar improvement, data analysis. All AI-assisted content was reviewed and verified by the author, who take full responsibility for the accuracy, originality, integrity, and final content of the manuscript.

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