



The Impact of Foreign Language Anxiety on University EFL Learners' Metacognitive Regulation: A Literature Review Study

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Received: 11/07/2026

Accepted: 05/09/2026

Published:18/09/2026

Abstract

Despite Foreign Language Anxiety (FLA) and metacognitive regulation being recognised as pivotal constructs within English as Foreign Language research, their relationship remains insufficiently explained, as they have historically been examined in isolation. Despite this recognition, current literature often fails to account for how anxiety specifically interacts with the learner's higher-order executive system during real-time task performance. This paper, therefore, aims to investigate the effects of FLA on the metacognitive regulation of university EFL learners by comparatively analysing empirical research conducted across different countries examining the role of anxiety across various linguistic skills through the lens of Attentional Control Theory and the three-stage model of learning. This paper scrutinises the existing literature and research related to the topic and provides a critical analysis of the main findings. The findings indicate that the effect of FLA is not consistent but rather varies according to the context. On the one hand, within productive skills, such as speaking, anxiety has been shown to cause a "cognitive blockage" that interferes with the access to mental resources. On the other hand, in receptive skills such as listening and reading, anxiety may act as a trigger for using compensatory strategies. Crucially, the analysis acknowledges a shift in quality over quantity, as high-anxiety learners are frequently shown to resort to lower-level support strategies, which may reflect a failure in functions like inhibition and shifting functions of attentional control. Based on these findings, several pedagogical implications are given.

Keywords: Foreign language anxiety, metacognitive regulation, attentional control theory, cognitive interference, EFL university learners

Introduction

Foreign Language Anxiety (FLA) and Metacognition represent well-established concepts within English as Foreign Language (EFL) research (Horwitz et al., 1986; Flavell, 1979). FLA, on the one hand, has been extensively investigated as an affective variable influencing learners' attitudes, motivations, and performance in the language classroom (MacIntyre, 1999). Metacognition, on the other hand, has been widely represented as a higher-order cognitive system that enables learners to self-regulate their thinking through processes of planning, monitoring, and evaluation (Schraw & Moshman, 1995), a regulatory framework fundamentally governed by a hierarchical relationship between an "object-level" task and a "meta-level" oversight system (Nelson & Narens, 1990).

In recent years, research on FLA and metacognition has considerably increased, particularly in university EFL contexts. These two components, however, have largely been examined separately, making the grasp of anxiety's real-time effects on metacognitive regulation limited (Pawlak, 2011). Although existing studies acknowledge that anxiety may interfere with learners' self-regulatory processes, the nature of this interaction remains insufficiently explained (Eysenck et al., 2007). A primary methodological limitation is the heavy reliance on self-report instruments such as the Strategy Inventory for Language Learning (SILL) (Oxford, 1990). This reliance may reduce metacognition to a fixed set of behaviours limiting the ability to capture the dynamic nature of metacognitive regulation during task performance (Sun & Zhang, 2022; Cohen & Henry, 2019). As a result, research might not provide reliable explanations on anxiety's influence over the effectiveness and efficiency of metacognitive regulation in different language skills, making the literature appear fragmented.

This paper aims to explore the effects of FLA on the metacognitive regulation of university EFL learners by critically reviewing the literature on the role of anxiety across various linguistic skills. It specifically aims to determine how the impact of anxiety varies across these linguistic skills. The present analysis is grounded on a thoroughly selected studies to examine the impact of FLA on the metacognitive regulation of university EFL learners varies across speaking, writing, listening, and reading. The researchers critically analysed, compared, and synthesised the major findings of the selected studies in order to provide insights on FLA and its impacts and to highlight pedagogical implications to improve teaching and learning. The selection of the studies is based on specific criteria. First, they all examined EFL learning in higher education settings. Second, the studies are consistent with the objective of the present study, i.e., they all focus on foreign language anxiety and metacognitive regulation in university EFL learning. Findings of this critical review could clarify the theoretical and practical relationship between FLA and metacognitive regulation. By understanding this relationship, instructors can play a crucial role in promoting an atmosphere that supports the development of self-regulation skills and help decrease anxiety among learners.

1.Literature Review

The body of the literature review is devoted to the definitions of key concepts and relevant cognitive theories that will be referred to throughout this paper.

1.1.Foreign Language Anxiety (FLA) and Metacognition

Foreign language anxiety is a situation-specific form of anxiety that appears in foreign language learning contexts, more particularly in classroom environments where learners are required to communicate and perform in a foreign language. This concept was formally introduced by Elaine K. Horwitz, Michael B. Horwitz, and Joann Cope (1986), who defined it as a conceptually distinct form of anxiety that is related to learners' self-perceptions, beliefs, feelings, and behaviours in language learning situations, differentiating it from general forms of anxiety. According to them foreign language anxiety is directly related to the state of feeling tension and apprehension for learning a foreign language in a classroom atmosphere. Moreover, researchers such as He et al., (2021); Urbaniak et al., (2025); Toyama & Yamazaki (2021) have classified FLA core dimensions. These dimensions include communication apprehension, fear of negative evaluation, other variables associated with foreign language classroom anxiety. In other words, FLA is understood within research as a specific and separate response from general anxiety that is characterised by the unique demands of language learning.

Metacognition can be defined as the executive system that allows for the conscious monitoring and control over basic cognitive processes. First introduced by Flavell (1979), the construct includes two components; a person's awareness of their own cognitive products and the strategic management necessary to regulate thinking during tasks. The mechanism of metacognition is realised through the hierarchical organisation of the system, consisting of an "object level"; which represents the main linguistic task itself, and a "meta-level"; which is the internal control mechanism. As pointed out by Nelson and Narens (1990), there are two ways in which these two elements of the system work: monitoring, where the meta-level is informed of the current state of the object-level, and control, where the meta-level modifies the object-level to initiate, continue, or terminate specific actions, constituting a "loop". Contemporary theoretical frameworks, most notably those of Schraw and Moshman (1995), have divided this complex of mechanisms into two major components: metacognitive knowledge cognition and metacognitive regulation. In university EFL context, this regulatory capacity is vital for achieving self-regulated learning (SRL), since through regulation students are able to modify their cognitive and affective states. Within this framework, SRL is explained as an active, constructive process where learners independently establish specific objectives and, as a result, monitor, regulate, and control their cognition and motivation to reach their goals (Pintrich, 2000; Zimmerman, 2000)

1.1.1. Foreign Language Anxiety and its Components

Horwitz et al. (1986) identified three primary components of FLA: communication apprehension, test anxiety, and fear of negative evaluation. Communication apprehension refers to learners' discomfort when speaking or listening in the target language in social interaction. Test anxiety is described as a type of performance anxiety that originates from a fear of failure. Fear of negative evaluation is characterised by fear of other people's judgements, avoidance of evaluative situations, and anticipating being negatively evaluated (Horwitz et al., 1986).

These components demonstrate that FLA is a multifaceted construct, encompassing both performance-related and socially evaluated dimensions, as can be seen later in (MacIntyre, 1999).

In classroom contexts, these components are highly prominent in tasks requiring real-time processing and public performance. For example, communication apprehension may arise in learners as avoidance of speaking tasks or hesitation during oral interaction. Test anxiety may show up in the form of cognitive blockage during exams, even when learners possess the required level of knowledge. While fear of negative evaluation can lead to hesitation to participate, over-monitoring of speech, or an avoidance of risk-taking.

Researchers such as Liu and Jackson (2008), support these observations. They found that learners who experienced higher levels of anxiety were significantly less willing to communicate in classroom settings. Young (1991) found that classroom practices such as error correction and oral performance were major triggers of anxiety; likewise, Ghonsooly and Loghmani (2012) identified oral performance as the most "threatening aspect" of learning, showing how these components appear in classroom settings.

1.1.2. Metacognition Components and Strategies in EFL Learning

Starting with Metacognitive knowledge, it includes person knowledge, task knowledge, and strategy knowledge. Person knowledge refers to learners' awareness of their own strengths, weaknesses, and affective characteristics. Task knowledge involves understanding the specific purpose, demands, and nature of a task. Strategy knowledge refers to awareness of available strategies and their appropriate use (Flavell, 1979). These forms of knowledge inform learners' decisions but do not directly regulate behaviour. In other words, metacognitive knowledge provides the essential foundation of cognitive processes and task demands that guide a learner's strategic choices. This knowledge, however, remains static and inert until it is made use of by the executive functions of the regulatory system, which direct modification of behaviour during real-time performance.

Metacognitive regulation refers to the processes used to control cognition during mental tasks such as learning. It is identified as a set of skills that are categorised into three types: planning, monitoring, and evaluation strategies (Schraw & Moshman, 1995; Seker, 2016; Teng, 2019). Planning strategies involve goal setting and strategy selection, whereas monitoring strategies comprise an ongoing assessment of understanding and performance during a task. Evaluation strategies occur once the task is complete and involve reflection on outcomes and the success of the strategies applied. These processes enable learners to use self-reflection to adapt their behaviour according to task demands.

It is also important to distinguish between metacognition as a system and metacognitive strategies as observable behaviours. While planning, monitoring, and evaluation are often referred to as strategies in empirical research, they are more accurately understood as components of a broader regulatory system (Nelson & Narens, 1990; Schraw & Moshman, 1995). This system functions as a meta-level scaffold, that supervises, oversees, and arranges cognitive activities, all the while ensuring efforts remain aligned with the learner's goals (Teng, 2019; Vandergrift, 2003).

Metacognitive strategies are explained as higher-order executive processes that learners consciously employ to supervise, manage, and regulate their own cognitive activities during the language learning process. These processes are distinguished from cognitive strategies that are

employed to make actual progress on a task as opposed to metacognitive strategies which are specifically directed towards the supervision of that progress. Ultimately, the analogy of the orchestra proposed by Vandergrift (2003) explains the coordination of cognitive strategies through metacognitive strategies as a “conductor,” providing an oversight to be able to manage the cognitive system. Cohen and Henry (2019) further elaborate on this management function:

Metacognitive strategies are those processes which learners consciously use in order to supervise or manage their language learning. Such strategies allow learners to control their own cognition by planning what they will do, checking how it is going and then evaluating how it went. (p. 171)

1.2.Relationship Between FLA and Metacognition

The relationship between FLA and metacognition can be observed through the lens of cognitive theories that account for the impact of affective factors on regulatory processes such as Attentional Control Theory (ACT) as proposed by Eysenck et al. (2007).

1.2.1. Attentional Control Theory

According to Attentional Control Theory (Eysenck et al., 2007), anxiety impairs the functioning of the goal-directed attentional system and increases the influence of the stimulus-driven system. Attentional control theory defines three major executive functions that are impaired by anxiety, namely inhibition, shifting, and updating. Inhibition is related to the reduction of interference from irrelevant stimuli, shifting concerns switching between tasks, and updating involves monitoring working memory to correct assumptions as they present themselves. As anxiety loads mental resources, it is said that it reduces the efficiency of these regulatory processes without necessarily eliminating them. Learners may make use of metacognitive strategies, but the ability to do so will not be as effective. This is explained in the Processing Efficiency Hypothesis, which posits that anxious learners may maintain effectiveness, though their processing efficiency may be significantly reduced due to worry loading the working memory. This pushes learners to use more strategies to compensate. (Eysenck et al., 2007). The processing efficiency hypothesis can be backed up by certain findings, such as those by Zhao (2013), who found that anxious learners reported a high frequency of strategy use despite low effectiveness.

Two contrasting theories explaining the link between anxiety and metacognitive control can be derived from this finding: an Interference Hypothesis, suggesting that anxiety hinders one's attention control in such a way that the individual is unable to use metacognitive strategies, hindering processing efficiency, and a Compensatory Hypothesis which suggests that anxiety might drive people to engage in more metacognitive strategies as a defensive mechanism to maintain performance. These two views provide a conceptual background for interpreting the variability observed in empirical findings.

1.2.2.Opposing Views

Despite the theoretical agreement regarding the negative effects of anxiety on metacognitive regulation, empirical findings do not consistently show a negative correlation between these variables. While some studies report that anxiety degrades the deployment of strategies, such

results are not universal. For instance, research by Liu and Jackson (2008) found that higher levels of anxiety correlated with a reduced willingness to communicate and lower classroom participation, which can certainly limit the deployment of cognitive strategies. Conversely, other studies reveal weak or inconsistent relationships, stating that anxious learners may report a high frequency of strategy use that does not translate to better performance. As Pawlak (2011) and McDonough (1999) caution, issues such as the frequency and quality of strategy use do not bear a simple linear relationship to achievement in a second language. This suggests that high frequency reports of strategies used by anxious students may signal the presence of a problem of "quantity versus quality" in their learning processes rather than successful regulation.

Furthermore, the reasoning for investigating this relationship is fundamentally questioned by the Linguistic Coding Difference Hypothesis (LCDH). According to this theory, language anxiety is not seen as the cause of poor academic performance, but rather a consequence of linguistic deficits (Sparks and Ganschow, 1991, as cited in Pawlak, 2011). Consequently, from this perspective, language anxiety may be viewed as a result of the lack of proper skills. Ultimately, these findings suggest that the observed links between anxiety and metacognitive processes are far more complex and context-dependent, rather than strictly negative.

2.Presentation of Previous Studies Results

Literature examining the interaction between FLA and metacognitive regulation illustrate that while foreign language anxiety is persistent in university settings, its impact on metacognitive regulation is fundamentally shaped by the specific demands of the task. This section synthesises contemporary research across the four linguistic domains to establish how task demands and cognitive load dictate whether anxiety acts as a complete cognitive block or a stimulus for compensatory effort.

2.1.Metacognitive Regulation in Productive Skills

In the domain of oral production, research consistently demonstrates that high levels of anxiety interfere with the execution of regulatory strategies due to the immediate, public nature of the task. Speaking demands instant processing and production, and because it includes the element of public performance, it exacerbates the fear of negative evaluation or judgement. Razkane, Laaboudi, and EL Hosayny (2026) employed a mixed-methods approach in order to uncover the effects of metacognitive strategies (MCSs) and reflective practices (RPs) on speaking anxiety among English majors. The sample included 75 students from Chouaib Doukkali University in Morocco. The participants were split into an experimental group and a control group. Both groups were administered the Public Speaking Anxiety Scale (PSAS) to quantitatively measure anxiety, before and after MCS and RP training. Focus groups and self-reflection reports were used to gain qualitative insight into students' difficulties and their perception of the training. Statistically significant results showed a reduction in speaking anxiety along with an increase in confidence after the training. Qualitative analysis found that speaking anxiety mainly originated from students' fear of public speaking, low self- confidence, and poor vocabulary.

In the same way, Alvandi, Faruji, and Salehi (2025) conducted a quantitative correlational study with 70 upper-intermediate EFL learners administering the Self-Regulated Foreign

Language Learning Strategy Questionnaire (SRFLLSQ) and the Foreign Language Speaking Anxiety Scale (FLSAS). The results showed a significant negative correlation ($r = -0.61$) between self-regulated foreign language learning strategies use and speaking anxiety. This shows that when anxiety is higher, the capacity for high-order regulation is restricted. The findings of Zhang et al., (2021) can be used to back up the aforementioned claim. They found that perceptions of task difficulty significantly affected the use of metacognitive strategies, with anxiety acting as a mediator making students concentrate on immediate problem-solving rather than high-order monitoring.

The writing skill offers another point of view on how anxiety-related "metacognitive feelings" shape performance. Sun and Zhang (2022) conducted structural equation modelling (SEM) on 435 university writers from China through EFL Learners' Writing Metacognitive Experiences Questionnaire (EFLWMEQ) and found out that metacognitive estimates of quality were often inhibited by writing-related anxiety to cause a "cognitive blockage" that prevents access to mental resources. Qin and Zhang (2019) support this through a study of 126 participants using the Language Learners' Metacognitive Writing Strategies in Multimedia Environments (LLMWSLME) inventory. They discovered that writers who had high proficiency applied planning and evaluation strategies significantly more frequently compared to writers who were anxious and had low proficiency. To deal with these effects, Lam (2015) conducted an instructional intervention using a 15-week course involving stimulated recalls and language learning histories. He found that redrafting and scaffolding by teachers made students advance from local linguistic editing to global strategy self-regulation and reduced evaluation-related stress.

2.2. Metacognitive Regulation in Receptive Skills

As opposed to the total interference observed in productive tasks, receptive processing usually leads to compensation, in which case learners use more strategies to offset the loss in effectiveness. This is shown by the study conducted by Ölmezer Öztürk (2021), which used a quantitative approach in order to examine the relationship between listening anxiety and the use of metacognitive strategies by upper-intermediate and advanced-level learners. The participants were 112 freshman students majoring in English Language Teaching at Anadolu University in Turkey. The Foreign Language Listening Anxiety Scale (FLLAS) was used to measure the levels of anxiety of the participants, and the Metacognitive Awareness Listening Questionnaire (MALQ) to determine the employment of strategies. In order to carry out statistical analyses, the sample was split into three groups based on their anxiety scores, namely, low anxiety ($N=16$), moderate anxiety ($N=78$), and high anxiety ($N=18$). Findings showed that the participants tended to apply problem-solving strategies more than any others, while mental translation proved to be the least-used strategy among the subjects. On average, participants demonstrated a moderate degree of listening anxiety with a low positive correlation ($r = .22$) between anxiety and strategy use, indicating that students report using strategies more frequently as anxiety increases.

Moreover, the phenomenon is supported by the results of Pawlak (2011), who argue that anxiety does not necessarily lower the use of such strategies and can be positively associated with

the frequency of their employment in certain situations. Pawlak proposes that these strategies are implemented by learners as compensatory mechanisms intended to maintain performance effectiveness when cognitive resources are threatened. However, as both Pawlak (2011) and McDonough (1999) caution, strategy frequency and quality do not bear a simple linear relationship to achievement. A correlational study investigated the relationship between reading anxiety and metacognitive strategy use among 196 senior university EFL learners at Ferdowsi University of Mashhad in Iran, in order to examine the relationship between reading anxiety levels and metacognitive reading strategy use. Ghonsooly and Loghmani (2012) used the Foreign Language Reading Anxiety Scale (FLRAS) to select students based on their scores to form a low-anxiety group (N=23) and a high-anxiety group (N=23). A Survey of Reading Strategies (SORS) was then administered to determine how these specific groups managed academic reading. While the results showed no significant overall relationship between the total scores of the two questionnaires ($r = -.148$), a descriptive analysis revealed a shift in the type of strategies used. More precisely, the high-anxiety group showed greater reliance on support strategies, such as mental translation (52%), while the low-anxiety group applied global and problem-solving strategies, showing they were more competent and confident, indicating a degradation of efficiency despite maintained strategy volume.

Evidence of this efficiency deficit is found in Zhao's (2013) study of 114 university students in the United States. Through the FLRAS and email interviews, Zhao identified that anxious learners frequently utilised "word-by-word translation" as a defensive mechanism against unfamiliar scripts. To address this, Auerbach and Paxton (1997) used strategy logs in an intervention to demonstrate that explicit metacognitive instruction allowed university ESL learners to regain a "stance of inquiry". By learning to monitor their decoding processes, students shifted from an intimidated, passive state to a more controlled, autonomous engagement with the text. Finally, Seker (2016) conducted a mixed method analysis of 222 students using the Self-Regulated Language Learning Questionnaire along with semi-structured interviews with 51 language teachers, establishing that while university learners report only moderate strategy use, self-regulation remains the single most significant predictor of overall linguistic achievement.

3. Discussion of Findings of Previous Studies

The collective evidence from the reviewed studies indicates that the interaction between Foreign Language Anxiety (FLA) and metacognitive regulation is fundamentally domain-dependent, dictated by the cognitive load and evaluative pressure inherent in specific linguistic tasks. These findings illustrate the conceptual fragmentation in FLA research which can be explained through the Interference vs. Compensation hypotheses found in Attentional Control Theory (ACT) and the three-stage model of cognitive processing.

3.1. Cognitive Interference and Blockage in Productive Tasks

In productive domains such as speaking and writing, the empirical data strongly support the Interference Hypothesis. Razkane et al.'s (2026) study provides strong support for the Interference Thesis present within ACT. In productive output tasks such as oral speaking, the cognitive load is so high that anxiety, specifically in the forms of communication apprehension

and fear of negative evaluation, consumes limited mental resources, thus creating a "cognitive blockage". This occurs because anxiety-related thought, namely worry, compete for the same central executive resources necessary for speaking.

In this respect, anxiety is a disruptor of efficiency, indicates poor functioning of two core executive skills: inhibition and shifting. As was noted above in Razkane et al. (2026), and Ghonsooly and Loghmani's (2012) studies, students become so preoccupied with the "cognitive noise" of worry that they are unable to inhibit task-irrelevant stimuli or shift their mental effort from local errors to global communication goals. Writing, as another productive language skill, also suffers from the interference effect of anxiety via the notions of "metacognitive feelings" and "estimates". As shown by Sun and Zhang (2022), writing-specific anxiety produces "cognitive blockage" which impedes the learner from producing correct estimates on the quality of writing and leads to a preference of simple structures for linguistic safety. However, the effectiveness of interventions offered by both Razkane et al. (2026) and Lam (2015) shows that this interference is not irreversible. Explicit metacognitive scaffolding may help teachers enable learners to take control over the working memory capacity, transitioning them from a state of affective paralysis to one of controlled, autonomous production.

3.2.Compensation and Efficiency Degradation in Receptive Processing

Contrary to the performance blocks encountered during production, receptive tasks often lead to compensation, where learners increase their regulatory efforts to lessen the threat of comprehension failure. The study by Ölmezer Öztürk (2021) provides support for the Compensation Thesis. In receptive skills like listening, the learner is not put under a spotlight, per se, in the same way as speaking, making anxiety act as a defensive stimulus. This drives learners to work harder, which is manifested as a higher report of strategy use to avoid failure. Among the proficient Turkish learners, the awareness of their own linguistic competence acted as a psychological "shield," preventing the total performance block. This behaviour illustrates the updating function of ACT, which involves learners' continuous monitoring and revision of incoming auditory information in working memory during real-time listening; a process that remains effective due to the availability of other processing resources.

However, as can be seen in Ghonsooly and Loghmani's (2012) study through its quality vs. quantity argument, the additional effort proves to be very often inefficient. Students who experienced high levels of anxiety had to resort to lower-level support strategies because their working memory was overloaded with worry. This shift clearly shows that the process of shifting and inhibition has failed, since the students were unable to inhibit task-irrelevant stimuli, which prevented them from shifting their mental effort from local decoding to high-level, global processing. This degradation is further evident in the reading domain, where Zhao (2013) identified Reading Anxiety as a distinct construct that competes for the storage capacity of working memory at the very point of lexical access. Consequently, while an anxious student may appear occupied and focused yet ineffective, they are often operating in a state of high-effort, low-efficiency processing, reflecting a failure to effectively integrate new linguistic input into existing cognitive structures.

3.3. Methodological and Conceptual Limitations of the Reviewed Studies

Despite the reviewed studies presenting a strong empirical map of the interrelation of FLA and metacognitive processes, a critical evaluation of these studies' methods highlights major challenges from a conceptual point of view, since research looking into the link between FLA and strategy use often relies on self-report instruments, such as the Strategy Inventory for Language Learning (SILL). As Nelson and Narens (1990) suggest, equating metacognition with self-reported strategy use could risk simplifying a complex regulatory system to a static set of behaviours. These universal scales are often inherently insufficient in revealing the mechanisms behind strategic learning because they measure a learner's perceptions or beliefs regarding their behaviour rather than providing an objective record of actual strategy implementation during task performance.

Despite the presence of theoretical models positing anxiety's effect on attentional control, empirical studies do not often integrate these aspects in their analyses. A critical issue of quality versus quantity arises consequently, suggesting that while anxiety may not always reduce the total amount of strategies a student reports, it may fundamentally degrade the processing efficiency of those strategies. From this perspective, anxiety forces a shift where students stop using high-level regulatory tools and instead rely on lower-level compensatory support strategies just to complete the task. This highlights a significant gap in the literature where the relationship is examined at the level of perceived behaviour rather than the root cognitive processing governing real-time regulation.

In order to overcome these limitations, older introspective work such as that of Vandergrift (1997) and recent research such as the mixed-methods study by Razkane et al. (2026) have focused the use of triangulation. In this perspective, triangulation refers to the practice of checking findings across different data sources to ensure a more complete understanding of what the learner is experiencing internally. Specifically, quantitative data collected via questionnaires are combined with qualitative data such as focus groups or reflection reports. Combining these various methods makes it possible for researchers to get different perspectives and to verify identified themes in several data sources. Thus, the use of triangulation helps overcome the limitation related to the reliance on static reports. Ultimately, a holistic understanding of this relationship requires more triangulation that integrates psychometric data with actual performance measures to observe how anxiety interferes with regulatory functioning during a task.

4. Pedagogical Implications and Recommendations

The synthesis of empirical evidence suggests that university-level EFL instruction must transition from a preoccupation with linguistic accuracy toward a process-oriented framework that prioritises the learner's regulatory system. Based on the skill-specific interactions identified in this review, the following strategies are recommended:

- Implement explicit affective regulation training: In speaking and writing contexts where anxiety acts as a primary disruptor, instructors should implement explicit training in reflective practices. According to the evidence provided by Razkane et al. (2026) and Lam (2015), the use

of strategy logs, which allows for the externalisation of disruption caused by worry, enables learners to dissociate their self-worth from their current performance and thus helps them overcome affective paralysis.

-Foster Strategic Efficiency in Receptive Skills: To deal with the "quality vs. quantity" dichotomy observed in listening and reading, teaching practices should design activities that help reveal signs of high-effort, low-efficiency processing. The recommendations of Auerbach and Paxton (1997) and Zhao (2013) imply that teachers should engage in guided reading and listening activities that will focus on top-down processing and script-familiarity to reduce cognitive load at the lexical access point.

-Integrate Self-Regulated Learning (SRL) into Curricula: Self-regulation being a powerful predictor of achievement despite evaluative pressure, this skill should be an integral part of the curriculum and not only a supplement. Curricular design should follow a two-step model, an initial problem-solving instruction aimed at overcoming the difficulties in task completion, and a multiple strategies instruction aimed at orchestrating complex regulatory clusters.

-Develop Teacher-as-Mediator Feedback Literacy: Teachers should make sure that the feedback provided is dialogic and aimed at developing strategic skills, and not just pointing out mistakes, creating a learning environment where mistakes are treated as "metacognitive data points" will help anxious learners preserve their ideal performance and make positive retrospective evaluation of their achievements, which are essential for sustained engagement.

Ultimately, all these techniques will enable university EFL learners to build cognitive resilience and autonomy necessary to navigate high-stakes evaluative environments.

Conclusion

In summary, the review of the selected studies revealed that the interaction between FLA and metacognitive regulation is fundamentally domain-dependent, dictated by task-specific cognitive loads. The synthesis of the four linguistic skills reveals a critical duality; in productive domains (speaking and writing), anxiety acts as a "cognitive blockage" that loads central executive resources, whereas in receptive domains (listening and reading), it triggers a compensatory mechanism where strategy quantity increases at the expense of processing efficiency.

From a methodology standpoint, the dependency on static self-report instruments within the field of metacognitive regulation proves insufficient for capturing real-time regulation, necessitating a move towards a qualitative triangulation approach in order to see how the orchestration of strategies" takes place in real-time. Consequently, higher education institutions must shift from linguistic accuracy toward process-oriented approaches enabling affective regulation scaffolding. Through the restoration of attentional control over working memory, educators can move learners from affective paralysis toward sustainable cognitive resilience and autonomy.

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