



## ORIGINAL ARTICLE

## Transforming TESOL Practices through Cognitive Psychology: A Collaborative Action Research Study on Working Memory and Growth Mindset

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### ABSTRACT

The current collaborative action research investigates the application of cognitive psychology principles in enhancing language learning in secondary English classrooms. It emphasizes how teachers, with a better understanding of cognitive processes, can implement strategies informed by cognitive psychology to improve student learning outcomes. Focusing on a single teacher and a cohort of secondary school learners in Grade 7 over the course of one semester, the study integrates action research in promoting teacher critical reflection. Cognitive and educational psychology principles are translated into practical strategies related to course planning, syllabi, lead-in activities, feedback, and learning-focused assessments. The findings suggest that teacher understanding about cognitive and educational psychological factors such as attention, working memory and growth mindset can play a critical role in enhancing language learning. For students, these strategies lead to improved engagement, greater agency and test anxiety alleviation. For the teacher, a deeper understanding of cognitive principles provides greater control over the teaching process and facilitates the development of effective teaching strategies. This research underscores the critical and practical role of collaborations between researchers and TESOL practitioners in comprehending cognitive factors to effectively implement learner-centered teaching methods and activities, thereby cultivating a highly responsive and impactful learning environment.

## 1. INTRODUCTION

Cognitive science, an interdisciplinary field encompassing linguistics, psychology, neuroscience, and artificial intelligence, has emerged as one of the most dynamic areas of research in modern science. Frankish and Ramsey (2012, p. 1) describe it as “*the emergence of one of the most exciting and fruitful areas of interdisciplinary research in the history of science.*” Central to this field is cognitive psychology, which examines mental processes such as thinking, reasoning, attention, memory, affect, decision-making, problem-solving, speech and visual perceptions, and language learning (Groome, 1999; McBride et al., 2022). By focusing on understanding the workings of the mind, cognitive science provides a robust foundation for effective methodologies in education, particularly in teaching and learning languages.

In the context of language education, cognitive psychology principles are highly relevant (Cirocki, Indrarathne, & McCulloch, 2024). These principles can enhance educators’ understanding of their students, including how they

process information, engage with content, and respond to instructional strategies. Such understanding is pivotal in designing effective TESOL (Teaching English to Speakers of Other Languages) practices. As for English language teachers, a deep awareness of cognitive processes can significantly enhance classroom practices, enabling them to foster more meaningful learning experiences. Well-designed cognitive psychology modules in teacher education programs can improve teachers' preparedness for the complexities of their professional roles.

However, in Vietnam, the integration of cognitive psychology into language education remains limited. The English Teacher Competency Framework, developed under the MOET National Foreign Language Project 2020 (Dudzik, 2008), acknowledges the importance of pedagogical competence and teacher psychological and research competences. Yet, these areas are often insufficiently addressed, with psychological competences particularly lacking explicit detail (Vu & O'Rourke, 2013). This gap is significant as both psychological and research competences are crucial for teachers to perform successfully in the workplace (Burns et al., 2022; Mercer & Kostoulas, 2018).

Globally and locally, a persistent challenge in teacher education is bridging the divide between theory and practice. Harmer (2015, p/41) emphasizes the necessity for teachers to critically assess theoretical insights, noting that *"research that is divorced from teacher reality is not very useful."* This disconnect hinders the integration of theory into practical teaching methods, leaving many educators ill-equipped to implement research-informed practices. Studies by Marsden and Kasprowicz (2017) and Luu, Phuong, Ly, and Vo (2017) similarly reveal that limited access to educational research restricts teachers' ability to make informed pedagogical decisions.

In Vietnam, the weak link between research in language science and educational policy planning further exacerbates this issue (Luu et al., 2017; Vu & O'Rourke, 2013). This dichotomized relationship between theory and practice is problematic, as theoretical frameworks often remain confined to universities while practice-oriented methods dominate classroom teaching. Such a divide limits teachers' ability to develop innovative, research-based approaches to language instruction.

This paper seeks to address these challenges by exploring how cognitive psychology principles can transform TESOL practices. Through a collaborative action research project, this study examines the collaboration between two researchers and a secondary school teacher in Vietnam. The research focuses on the application of cognitive psychology principles to an EFL classroom teaching. The aim is to explore the teacher's reflections on her practices before and after integrating these principles, thereby providing insights into bridging the gap between theory and practice. This study represents an initial effort to foster deeper connections between cognitive psychology and TESOL practices, with the goal of improving language education in secondary schools. The research question was:

*What problems in an EFL classroom can be solved with understanding and implementations of cognitive psychology principles?*

## 2. LITERATURE REVIEW

### 2.1. Action Research for EFL Classroom Practices

Action research (AR) is a systematic process of inquiry conducted by practitioners to address specific problems or improve practices in their own contexts (Burns, 2009). In the field of English as a Foreign Language (EFL), action research serves as a valuable tool for teachers to reflect on and refine their teaching methodologies. This approach involves iterative cycles of planning, action, observation, and reflection, enabling teachers to identify challenges, implement changes, and evaluate the outcomes in real time (Burns et al., 2022).

The collaborative nature of action research is particularly beneficial in EFL classrooms, where diverse learner needs and contextual factors require tailored interventions. By engaging in action research, teachers become active participants in the creation of knowledge, bridging the gap between theoretical insights and practical applications (Burns & Dikilitaş, 2024). Studies have shown that action research empowers teachers to develop innovative strategies, enhance their professional development, and improve student outcomes ((Burns et al., 2022; Kasi, 2010; Saeb et al., 2021).

In the Vietnamese EFL context, action research has the potential to address long-standing issues such as limited learner engagement, outdated teaching methodologies, and insufficient incorporation of research-based practices (Barnard, 2019). By fostering collaboration between researchers and teachers, action research can provide a framework for integrating cognitive psychology principles into classroom practices, enabling teachers to adopt evidence-based strategies that enhance language learning (Schlicht-Schmälzle et al., 2024).

## 2.2. Cognitive and Educational Psychology Principles

### *Working Memory in Foreign Language Learning*

Working memory refers to the cognitive system responsible for temporarily holding and processing information necessary for complex tasks such as language comprehension, learning, and reasoning (Baddeley, 2000). Retrieval practice involves actively recalling information from memory, which strengthens memory traces and enhances long-term retention (Roediger & Butler, 2011). Spaced practice refers to the distribution of learning sessions over time, which has been shown to be more effective for retention compared to massed practice (Cepeda et al., 2006).

In EFL classrooms, leveraging these principles can significantly improve language acquisition. For instance, activities that engage working memory, such as chunking information or using mnemonic devices, help learners process and store new vocabulary effectively. Retrieval practice can be implemented through regular quizzes, flashcards, or group discussions that require students to recall previously learned material (Karpicke & Blunt, 2011). Spaced practice, on the other hand, can be achieved by revisiting topics periodically through cumulative assessments or spiral curriculums, ensuring that learners consolidate their knowledge over time (Pavlik & Anderson, 2008).

### *Growth Mindset in Foreign Language Learning*

Growth mindset, a concept developed by Dweck (2006), refers to the belief that abilities and intelligence can be developed through effort and learning. In the context of foreign language learning, a growth mindset encourages students to view challenges and mistakes as opportunities for improvement rather than as indicators of failure.

Promoting a growth mindset in EFL classrooms involves creating an environment where effort is valued and mistakes are normalized as part of the learning process. Teachers can encourage this mindset by providing constructive feedback, setting achievable yet challenging goals, and celebrating incremental progress (Mercer & Ryan, 2010). Studies have demonstrated that learners with a growth mindset are more resilient, motivated, and likely to persist in language learning despite difficulties (Lou & Noels, 2020). Incorporating growth mindset principles into EFL teaching not only enhances student engagement but also fosters a positive classroom culture. For example, reflective journaling, peer collaboration, and open discussions about the learning process can help students develop a growth-oriented perspective, ultimately contributing to their long-term success as language learners.

In recent years, there has been a growing recognition of the role of psychology in language learning in Vietnam, within the context of English as a Foreign Language (EFL). Nguyen (2023) highlights that EFL high school students in Vietnam tend to endorse a growth mindset, which fosters resilience and a positive attitude toward language learning. Building on this, Tran (2024) advocates pedagogical approaches that prioritize the promotion of psychological empowerment (PE) within language learning contexts, emphasizing the importance of creating supportive learning environments. Additionally, Tran et al. (2024) critically examine the often under-investigated social and emotional aspects of EFL teaching and learning. They argue for the integration of Social and Emotional Learning (SEL) strategies into EFL pedagogy, recognizing the significant impact that emotional and social factors have on learners' language acquisition. Collectively, these studies underscore the need for a more holistic approach to language education that incorporates psychological insights to enhance both teaching practices and student outcomes.

## 3. MATERIALS AND METHODS

This study was conducted in collaboration with an English teacher at a secondary school in Vietnam, teaching a Grade 7 class using the Tieng Anh 7 *Global Success* textbook. The students' English proficiency levels ranged from A1 to A2 according to the CEFR (Common European Framework of Reference for Languages). The study spanned a semester, beginning at the start of the academic year.

### *Research Design*

The action research approach guides the study, emphasizing collaboration and iterative cycles of reflection and improvement (Kemmis & McTaggart, 1988). The research began with a semi-structured interview with the participating teacher to identify challenges in the classroom from a self-reflective, critical, and systematic approach. The term "critical" does not refer to being negative or derogatory about one's teaching, but rather adopting a questioning and 'problematizing' perspective (Burns & Dikilitaş, 2024). "Problematizing" does not suggest that teaching is ineffective or filled with issues, but rather focuses on identifying an area that could be improved,

subjecting it to inquiry, and developing new ideas and alternatives. In AR, the teacher takes on the role of an ‘investigator’ or ‘explorer’ of their personal teaching context, while simultaneously being an active participant in it. In this collaborative effort, the two external researchers were involved in all four stages of this bottom-up initiated action research with the aim of changing the participant’s understanding of their practice. In such an approach, the external researchers supported the inside participant in the practice that was about to be improved by formulating needs, planning actions and reflecting over actions together with the participant.

On the second stage of Action Planning, the teacher was provided with reading materials on cognitive psychology principles selected by the researchers. A subsequent presentation and Q&A session were conducted to help the teacher develop an action plan. Over the next month, as the semester started in September, the teacher implemented these principles in her classroom, integrating cognitive psychology strategies such as macro planning with chunking information, retrieval practices, spaced practices, and growth mindset activities.

Observations of classroom practices and student engagement with field notes were conducted during this phase by the teacher participant. She was asked to keep a journal to reflect on her daily teaching. Two unstructured interviews with one researcher were conducted in September and October.

On the last stage of Critical reflection, a semi-structured interview was held to reflect on the outcomes and identify areas for further improvement with guiding questions for reflection (Appendix A). This reflective stage marked the conclusion of one cycle and informed revisions for subsequent cycles.

#### *Data Analysis*

All interviews and teacher’s journals were transcribed verbatim to ensure accuracy and preserve the nuances of the participants’ responses. The transcribing process was carried out by both researchers, with one researcher transcribing the data and the other cross-checking for any inconsistencies or omissions. After transcription, the data were subjected to thematic analysis, a method that allows for the identification, analysis, and reporting of patterns or themes within qualitative data. The two researchers independently coded the data, highlighting significant phrases, ideas, and recurring patterns that emerged from the interviews, journals, and observation notes. The initial codes were then compared and refined through a collaborative discussion between the researchers to ensure consistency and reliability in the coding process. After the coding phase, the researchers grouped similar codes into broader themes, which were further analyzed to uncover key insights related to the research questions. This approach allowed for a rigorous and systematic examination of the data, facilitating the identification of common themes that contributed to understanding the participants’ experiences and perspectives (Braun & Clarke, 2006).

*Table 1. Timeline of Conducting Collaborative Action Research*

<b>Date</b>	<b>Action</b>	<b>Data sources</b>
August, 2024	Identifying the Problems, Data Collection	Semi-structured interviews, Lesson Plans
August, 2024	Action Planning	Lesson Plans
September, 2024	Action Implementation	Semi-structured interviews, Teacher’s journals
September - November, 2024	Observations, Outcome Assessment	Semi-structured interviews, Teacher’s journals
November – December, 2024	Critical Reflection	Semi-structured interviews

## **4. RESULTS AND DISCUSSION**

### *4.1. Identifying the Problems*

The initial phase of the research highlighted two significant challenges faced by the students in Grade 7 EFL classroom. First, the students exhibited considerable struggles in maintaining attention and retaining vocabulary and grammar rules. This issue appeared to stem from the cognitive demands of language learning, which often exceed

the working memory capacity of learners at the A1 to A2 proficiency levels. They struggled to process and recall newly introduced information, leading to gaps in their comprehension and retention.

Second, the research revealed low levels of motivation, confidence, and high language anxiety as well as test anxiety among students. These factors were intertwined and exacerbated by the perceptions of their own abilities. Many students expressed apprehension about making mistakes, which further hindered their willingness to actively participate in language tasks. This combination of cognitive and affective challenges created a cycle of disengagement and limited progress in language acquisition.

#### **4.2. Planning and Implementation**

The planning and implementation phase of this study was structured around several strategies designed to enhance learning outcomes by addressing working memory limitations and affective barriers. To begin with, the teacher simplified massed instruction by breaking content into smaller, more manageable chunks. This approach ensured that learners were not overwhelmed with excessive information at once, a common challenge for students with limited working memory capacity. Furthermore, distractions were minimized during lessons, and key points were repeatedly reinforced using a variety of formats, including visual aids, verbal explanations, and interactive activities. Regular comprehension checks were conducted to ensure students were consistently following the material and consolidating their understanding.

Another critical strategy involved the use of explicit input over implicit input. Research suggests that explicit instruction, such as boldfacing key vocabulary or explicitly presenting grammar rules, is more effective for learners with both weaker and stronger working memory abilities. This explicit approach allowed students to engage more actively with the material, providing clear and structured pathways for understanding the target language.

In addition, language training activities were designed to robustly engage working memory by encouraging the use of multiple cognitive strategies. For instance, the students were guided to break texts into smaller chunks, practise active rehearsal through speaking tasks, and integrate vocabulary into structured dialogues. These activities aimed to promote deeper cognitive engagement and lead to more pronounced learning effects over time. Spaced-retrieval practices were incorporated into teaching through activities like regular quizzes, flashcards, collaborative retrieval tasks that prompt students to recall previously learned material. These activities could last from five to fifteen minutes, and could be placed at the end of the lessons, bi-weekly, monthly and before the exams.

Growth mindset activities were also integrated into the classroom environment to address students' low motivation and anxiety. Positive affirmations were used as warm-up exercises to establish a supportive and encouraging atmosphere (Cf. Appendix B). Feedback was structured to first highlight students' strengths before addressing areas for improvement, fostering a constructive feedback loop that motivated students to continue learning. A mini-lesson on growth mindset further emphasized the value of effort and progress, encouraging students to view challenges as opportunities for growth rather than obstacles to success. This strategy also included a focus on students' strengths, helping them build confidence and resilience in their language learning journey.

#### **4.3. Observations**

Following a semester of changes, the initial improvement noted was an increase in student engagement and a shift in their attitudes toward test-taking. A major transformation in this semester was the implementation of retrieval practices, which replaced the traditional approach of individual test-taking. In these collaborative retrieval activities, small groups of students work together to answer quiz questions. The teacher participant observed a notable boost in classroom energy, describing the environment as *more 'lively'* during retrieval activities. The teacher's journal further documented that her students became more engaged in articulating their reasoning, incorporating a variety of perspectives, and taking greater responsibility for their learning. This observation supports previous studies that have shown retrieval practices can help alleviate student anxiety (Siegel et al., 2015; Terai et al., 2021) and foster motivation, as students are encouraged to perform well in front of their peers (Cantwell et al., 2013).

Furthermore, during speaking and presentation tasks, students demonstrated increased engagement and a greater willingness to participate. The teacher noted that previously reticent students began contributing to discussions and attempting tasks they had earlier avoided.

These findings are consistent with research by Dweck (2006), which underscores the motivational benefits of growth mindset interventions even in the absence of immediate academic improvements. Although short-term

interventions may not always lead to immediate measurable improvements in performance (Rohrer & Pashler, 2007), studies on retrieval and spaced practice (Cepeda et al, 2006) emphasize that the cumulative effects of these strategies often become evident over longer periods.

#### 4.4. Critical Reflection

The participating teacher's reflections highlighted the value of integrating cognitive psychology principles into classroom practices. The teacher reported a deeper understanding of working memory limitations and how to design instruction that accommodates these constraints. Growth mindset activities were particularly impactful, as they not only improved student attitudes but also enhanced the teacher's approach to providing feedback. This is in line with the studies asserting that growth mindset exhibits a significant influence on foreign language enjoyment (FLE), ideal L2 self, and grit (Fathi et al., 2024; Hu et al., 2022).

Furthermore, the teacher participant reflected on her prior focus, which was heavily influenced by the culture of performativity in her educational context. She admitted that her teaching approach had been predominantly centered around examination results, prioritizing test performance over cross-curricular learning. The demands of covering a vast volume of vocabulary and grammar within a limited timeframe had led her to overlook her students' cognitive load and negative emotions related to exam anxiety. This approach created a cascade of pressure, first on the teacher herself and then transferred to the students, perpetuating a cycle of stress and limited learning. She acknowledged this in her own words:

*"Maybe I was too concerned about whether my students can get the highest score in their written test, and forget that maybe their brain capacity cannot take in that much. The (provided) readings (on the brain and the working memory) are a gentle reminder that my good will of hoping for the students' highest score can be a backlash by an invisible pressure."*

This reflection underscores the importance of considering both cognitive and emotional aspects in education. While the teacher initially prioritized cognitive outcomes, such as vocabulary retention and grammar mastery, she overlooked the psychological consequences of these pressures. Research emphasizes that neglecting students' emotional well-being and focusing solely on cognitive skills can have adverse effects on both learning outcomes and classroom dynamics (Luttenberg et al., 2017).

The teacher further reflected on the changes she had observed during the intervention. Before the research, she interpreted student reluctance to engage as a sign of laziness. However, the integration of cognitive psychology principles provided her with a new perspective. She noted:

*"I already got a feeling about the reluctance in the classroom. I used to assume that behaviors [were] a form of laziness, but now I know maybe it is because of something else."*

This shift in perception highlights the role of professional development in enabling teachers to reconsider their assumptions about student behavior. By understanding the constraints of working memory and the effects of test pressure, the teacher became more empathetic and better equipped to address her students' needs.

Despite these positive changes, the teacher acknowledged several challenges in implementing the interventions. Chief among these was the difficulty of balancing curriculum demands with the time required for spaced and retrieval practices. While she recognized the value of review and retrieval strategies in enhancing long-term retention, she struggled to integrate them into her lesson plans due to time constraints. She described this issue as being *"over-ambitious on required lesson objectives,"* where the competing demands of fostering communicative competence and preparing for standardized, paper-based assessments created tension. This challenge is consistent with findings by Marsden and Kasprovicz (2017), who observed that practical constraints often hinder the adoption of research-informed practices in classroom settings.

Moving forward, the teacher suggested that future interventions would benefit from extending the duration of the study. She believed that a longer implementation period would allow for more effective integration of these strategies and provide more profound insights into their long-term impacts. Additionally, she emphasized the need for better alignment between curriculum goals and assessment methods, arguing that it should reflect a balance between communicative and test-oriented objectives.

This reflection illustrates the complex interplay between cognitive, emotional, and practical factors in teaching and learning. It also highlights the potential of action research to empower teachers with new insights and strategies,

while simultaneously revealing systemic constraints that need to be addressed. Future research should aim to support teachers in overcoming these challenges, offering practical frameworks for integrating cognitive psychology principles into their routines more seamlessly. By addressing these issues, educators can more effectively harness the transformative potential of these principles, ultimately fostering more meaningful and sustainable learning experiences for students.

## 5. CONCLUSION

This study demonstrates the potential of integrating cognitive psychology principles into TESOL practices through an action research framework. The findings highlight those strategies informed by working memory limitations, retrieval practice, spaced practice, and growth mindset can enhance both teaching methodologies and student engagement. However, the research also underscores the challenges teachers face in bridging theory and practice, particularly in contexts where curriculum demands and exam-oriented cultures dominate.

There is a clear shift in the TESOL field towards fostering teacher professionalization, with an emphasis on equipping educators with psychological insights and action-research skills. This trend reflects an increasing recognition that classroom-based research should be a core component of teacher education programs. Yet, as this study has shown, the implementation of these principles is not without difficulties. Teachers often lack adequate training in psychology-based pedagogy and face systemic constraints, such as time pressures and rigid assessment structures, which limit the application of these strategies.

While this study provides valuable insights into the effectiveness of the application of cognitive psychology understanding and their impact on teacher-student interactions, several limitations must be considered. Firstly, the research was conducted by a single teacher participant, meaning the findings may not be directly applicable to all TESOL contexts. The case-specific nature of the action research raises concerns about the transferability of the results to different educational settings, with varying student populations, curricula, and institutional cultures. Therefore, caution is needed when attempting to generalize these findings across broader contexts. Future research should aim to replicate these interventions across multiple classrooms and institutions to examine the extent to which the benefits of retrieval practices can be consistently observed in diverse settings.

Furthermore, the duration of the interventions in this study was relatively short. Future studies should extend the duration of the interventions to better capture the long-term effects of retrieval practices and spaced learning, allowing for a more thorough understanding of their sustained impact on student engagement, performance, and motivation. Additionally, research could explore the alignment between educational policies and pedagogical innovations to determine how best to integrate these strategies into mainstream teaching practices.

Collaborative efforts between researchers and educators will be essential to develop frameworks that can support teachers in adopting evidence-based practices, thus enhancing the overall quality of TESOL instruction. By fostering such partnerships, the discipline of TESOL can evolve into a field where theory and practice are seamlessly integrated, ensuring that teachers are better equipped to meet the complex demands of modern language education.

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## Appendix A

### Guiding Questions for Reflection

- How do you think the change you implemented went?
- Have you observed any differences/ changes/ unusual behaviours?
- Was there anything that did not go as planned?
- If you could conduct the same intervention again, would you do anything differently?

## Appendix B

### Positive Affirmations for EFL classrooms

Students listen and repeat these affirmations at the beginning of the classroom as a warm-up activity.

- I learn a little bit every day.
- I am doing my best.
- I know more today than I knew yesterday.
- I am ready to learn something new today.
- I can ask for help.
- I can help others who need me.
- I can achieve my goals.
- I can do difficult things.
- I can learn from my mistakes.
- I can use more than one language to communicate.