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Enhancing Writing Pedagogy: An Exploration of Metacognitive Awareness Raising Strategies on Creativity and Critical Thinking in Writing Courses

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Abstract

Research has highlighted the importance of metacognitive awareness raising in English classrooms, yet the role of this strategy on creativity and critical thinking levels of L2 learners in writing courses remains underexplored. Addressing this gap, the current study delved into the influence of metacognitive awareness raising strategy on EFL learners' creativity and critical thinking levels while completing a writing course. To this end, a sample of 56 intermediate EFL learners from a private language institute in Tabriz, Iran, was selected based on the convenience sampling. Data collection tools included the Oxford quick placement test, creativity scale, and critical thinking questionnaire. Participants experienced two instructional approaches: metacognitive awareness instruction and traditional writing instruction. Analyzing the data using independent samples t-tests and Mann Whitney U test indicated that learners exposed to the metacognitive awareness raising strategy showcased superior outcomes in both creativity and critical thinking compared to their counterparts in the control group. Overall, the study underscores the benefits of metacognitive strategies to enhance EFL learners' creativity and

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critical thinking levels as fundamental to writing skill. The pedagogical implications are discussed.

Key words: Creativity, Critical Thinking, Metacognitive Awareness Raising Strategies, Writing Courses

1. Introduction

In the ever-evolving realm of education, there is an ongoing quest to discover efficient teaching methods that enhance both fundamental abilities and advanced cognitive thinking. Within the sphere of writing education, the blend of instructional approaches and individual characteristics significantly influences a student's intellectual development. Writing transcends mere expression; it is a multifaceted journey that immerses students in intricate cognitive processes. Consequently, writing courses present intricate challenges, given their layered and tactical approaches. Considering the intricate aspects of writing courses, the difficulties intensify when students are tasked with writing in a second or foreign language. For those learning a second language (L2), writing becomes a process that's both communicative and goal-oriented, demanding significant time and encompassing cognitive, metacognitive, behavioral, and emotional facets (Chen, 2022). Within these aspects, metacognition emerges as crucial, influencing how L2 learners manage their mental operations and assimilate linguistic insights to enhance their writing capabilities (Teng & Zhang, 2020).

Metacognition encompasses learners' introspection and control over their cognitive functions, comprising three core elements: metacognitive knowledge, metacognitive experiences, and metacognitive strategies (Flavell, 1979; Sato, 2023; Xu, 2023; Zhang & Zhang, 2019). These elements are inherently interconnected, collaborating to oversee and manage the writing procedure (Sun & Zhang, 2023; Teng, 2020). For example, within the realm of L2 writing, a student's metacognitive knowledge and strategies amplify their metacognitive experiences. Concurrently, these experiences can refine the metacognitive knowledge and trigger the deployment of metacognitive strategies (Teng et al., 2021).

Prior studies have highlighted the beneficial effects of metacognitive approaches on diverse facets of writing (Han & Hiver, 2018), given the intricate metacognitive demands of the

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writing process (Zhang & Zhang, 2022; Zhao & Liao, 2021). Within this research landscape, certain scholars have identified a strong correlation between L2 learners' metacognitive knowledge, strategies, and their writing skills (Zhang et al., 2019). Broadly speaking, L2 writers possessing heightened metacognitive awareness tend to employ writing techniques more effectively, leading to superior outcomes compared to their counterparts (Chien, 2012; Teng & Zhang, 2020).

In recent years, there has been a pronounced interest among scholars in understanding how metacognitive elements enhance L2 writing outcomes (Huang & Zhang, 2022; Negretti & McGrath, 2018). Yet, the interplay between metacognition, creativity, and critical thinking remains a compelling domain warranting further comprehensive exploration. Creativity has gained prominence across various professions, as its application can yield significant benefits for humanity and the global community (Bereczki & Kárpáti, 2018; Livingston 2010). Educators should introspectively assess their views on creativity, emphasizing its role in learning and English Language Teaching (ELT) (Tin et al., 2009). There's an underlying belief that a teacher's creative prowess can significantly impact the effectiveness of their instruction.

Indeed, creativity emerges as an advanced cognitive function, offering solutions to challenges across various professional domains. Within the framework of Higher Order Thinking (HOT), creativity is synonymous with problem-solving. A teacher with creative abilities can effectively address and resolve classroom challenges. Concurrently, critical thinking (CT) has become a focal point in second language education and fostering linguistic communication, garnering increased scholarly attention in recent times (Tathahira, 2020). Given CT's significance across disciplines, it's widely accepted that education, as Dewey (1933) suggested, should primarily cultivate thinking skills. CT is recognized as vital for students to excel in academic discourse (Connolly, 2000; Davidson, 1998; Davidson & Dunham, 1997). In Kress' (1985) perspective, critical thinking operates as a social act and can be viewed as a distinct form of language. The mastery of CT abilities is crucial for attaining academic goals (Facione, 2010).

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It is posited that writers, by recognizing their cognitive patterns, can adeptly navigate the creative dimensions of communication and partake in advanced analytical thinking. To validate this proposition, this study delves into a profound investigation, aiming to understand the

complex relationship between interventions promoting metacognitive awareness and the subsequent development of creativity and critical thinking within writing programs. Such findings bear significant relevance for educators, curriculum developers, and scholars in language education. By clarifying the subtle links among metacognitive awareness, creativity, and critical thinking within writing contexts, the study offers insights to refine teaching methodologies and enrich conversations on impactful pedagogical approaches.

2. Literature Review

2.1 Metacognitive Awareness Raising

Understanding how to perform tasks, grasping why certain actions are undertaken, and having the flexibility to make choices are all facets of cognitive awareness, representing individuals' insights into their mental processes (Sugiharto et al., 2018). Flavell defines metacognition as the understanding and awareness of cognitive activities (1979, p. 906). Within an ELT environment, metacognitive awareness pertains to recognizing one's learning methods. Enhancing learners' proficiency and fostering their independence necessitates the cultivation of this metacognitive understanding (Akbarzadeh et al., 2020). Metacognition can be divided into two primary components: cognitive knowledge and cognitive regulation (Veenman et al., 2006). Cognitive knowledge pertains to an individual's understanding of their own cognitive processes, encompassing declarative, procedural, and conditional awareness. This involves recognizing information, understanding how to execute tasks, and comprehending the reasons behind actions and the potential to act. On the other hand, cognitive regulation refers to the strategies learners employ to manage their learning journey, encompassing activities like planning, overseeing, and evaluating their educational progress (Azizoğlu & Okur, 2020). Consequently, metacognitive knowledge represents learners' insights about the learning process, which varies based on age and proficiency. This understanding influences their approach to language acquisition and shapes

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their expectations regarding the outcomes of their endeavors (Wenden, 1998). This understanding encompasses awareness of elements that can either support or hinder their learning, typically acquired through personal experiences in language acquisition. It also involves comprehension of details related to the specific language task at hand, such as its purpose, relevance, and the challenges involved in completing it. Additionally, it includes insights into the learning journey itself, incorporating strategic knowledge like language learning techniques, their application, and the manner and context in which they're employed (Teng & Huang, 2019). Consequently, the terms "metacognitive knowledge" and "metacognitive awareness" are often used synonymously (Qin & Zhang, 2019).

In the intricate process of foreign/second language acquisition, both learners and instructors must recognize various forms of awareness. Ellis (2000) pinpointed several: language awareness, cognitive awareness, social awareness, and cultural awareness. She underscores that integrating these dimensions in teaching fosters positive mindsets, self-awareness, and confidence crucial for holistic growth. Moreover, Ellis emphasizes that merging cognitive and social competencies with linguistic and cultural insights cultivates favorable attitudes and beliefs. Metacognitive awareness, which involves recognizing and managing one's cognitive functions, stands out as pivotal for skill mastery (Teng & Yue, 2022). This awareness empowers learners to oversee and steer their cognitive processes towards achieving learning objectives (Sato, 2023). Recognizing the pivotal role of metacognitive encounters, scholars have emphasized the significance of acknowledging learners' metacognitive experiences, encompassing both cognitive and emotional facets. This recognition aids in bolstering their educational achievements, as evidenced in disciplines like mathematics (Efklides & Vlachopoulos, 2012) and L2 reading (Zhang, 2002), underscoring metacognition's efficacy.

2.2 Critical Thinking

Critical thinking (CT) remains a extensively explored concept in education, yet defining and describing it proves challenging, and there exists no unanimous agreement on its precise definition (Moeiniasl et al., 2022). In general, CT is perceived as a collection of advanced

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cognitive skills encompassing both specific skills and enduring tendencies, the latter representing consistent internal motivations to engage or respond to stimuli (Fisher, 2011). Undoubtedly, critical thinking is acknowledged as a process that stimulates creative thought among L2 learners and enables L2 teachers to design suitable activities fostering the development of judgment, evaluation, and problem-solving abilities (Dong & Chang, 2023). Learners not only acquire knowledge but are also captivated by the information they encounter (Harpaz, 2007). Across academia, workplaces, and society at large, there is a shared belief that the cultivation of critical thinking skills is imperative (Yüce, 2023).

Ellerton (2020) outlines that critical thinkers typically exhibit qualities such as open-mindedness, a readiness for inquiry, a recognition of their own potential errors, and a commitment to applying stringent thinking standards both to themselves and others. Arum and Roska (2011) emphasized the importance of fostering critical thinking skills in L2 learners as a primary educational objective. Brookfield (1987) posited that to thrive in today's information-centric era, individuals must be adept at questioning, devising innovative problem-solving strategies, connecting new insights with existing knowledge, and consistently applying reasoning abilities across diverse contexts. Given the significance of critical thinking for L2 learners' achievements, it's plausible to suggest that a deficiency in critical thinking skills within educational contexts might lead to a discrepancy between what L2 learners attain and what their instructors expect from them (Yüksel & Alc, 2012).

Researchers have varying interpretations of critical thinking, but there's a consensus that it encompasses specific cognitive skills and certain personal traits akin to habits or virtues (Kusumoto, 2018). Such cognitive skills often spotlight analytical, evaluative, and justificatory abilities, along with broader competencies like problem-solving and decision-making (Lu & Xie, 2022). Additionally, metacognitive abilities, vital for self-regulation and guiding thought processes, are frequently highlighted in discussions on critical thinking. Essential traits of critical thinkers encompass being open-minded, proactive in inquiry, acknowledging personal

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limitations, emphasizing the importance of substantiating claims, and upholding rigorous thinking criteria applied both internally and externally (Liang & Fung, 2021).

2.3 Creativity

Benjamin Bloom (1956) developed an important learning taxonomy in higher-order thinking (HOT) that includes *Cognitive* (Knowing), *Affective* (Feeling), and *Psychomotor* (Doing). Anderson who was one of Bloom's students revised the taxonomy in 1990s. Anderson, a protege of Bloom, updated this taxonomy in the 1990s. Anderson and Krathwohl (2001, p.67-68) further refined Bloom's framework, reorganizing cognitive tasks from basic "Remembering" to the more advanced "Creating," which involves synthesizing information into a cohesive or practical form.

Nunan (2013) defined creativity as "rearranging familiar components into novel configurations" (p. 70). Fostering creativity within the framework of critical thinking stands as a primary educational objective, serving as a vital asset for addressing and navigating forthcoming challenges (Róg, 2020).

In this framework, creativity is understood as a heightened self-awareness coupled with an imaginative approach to swiftly address challenging situations (Zai-toon, 1987). Given the rising complexities of contemporary issues and work environments, creative and innovative skills have become paramount for individuals (Wang, 2019). Recognizing the pivotal role of creativity, educators and scholars across disciplines have sought ways to cultivate environments that stimulate and nurture creative inclinations in students (e.g., Liao et al., 2018). This emphasis on fostering creative thought has seen a surge in interest within educational contexts, especially in recent years.

2.4 Empirical Studies

Over recent decades, a plethora of research has delved into the intersections of metacognitive awareness, creativity, and critical thinking. Existing literature underscores the benefits of cultivating metacognitive skills and the positive outcomes linked with metacognitive

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training (Anderson, 2002, 2012; Batang, 2015; Pintrich & Schunk, 2002). Such studies suggest that advanced L2 learners exhibit a deeper awareness of the strategies they deploy compared to their less proficient counterparts. Yet, a cursory review of research on the metacognition of pre-service teachers within a Turkish context (Alkan & Erdem, 2014; Memnun & Hart, 2012; Topcu & Ubuz, 2008; Yeúilyurt, 2013) reveals a predominant focus on domains outside of English language instruction. Recent investigations (Batang, 2015; Maftoon et al., 2014; Öz, 2014, 2015; Sun, 2013) further emphasize that metacognitive awareness significantly influences various facets of the L2 learning journey and academic performance. In recent research endeavors, Efklides and her team have systematically explored learners' metacognitive encounters within the broader learning context (Efklides et al., 2017). Their work has enriched our comprehension of the significance of these experiences in the learning journey. Within the realm of EFL education,

Jin and Zhang (2019) reanalyzed the essence of pleasure derived from foreign language classrooms. Their study identified three primary facets of this enjoyment: appreciation for teacher guidance, satisfaction in English learning, and contentment from peer interactions. Meanwhile, Shih and Huang (2020) utilized qualitative techniques to contrast the evolution of EFL students' metacognitive understanding and strategy application between a flipped classroom setting and a conventional one. The results indicated that within the flipped model, learners experienced notable shifts in their metacognitive understanding throughout the academic term. Based on the Metacognitive Instruction (MI) model proposed by Lee and Mak (2018) for L2 writing environments, Zhang and Xi (2023) implemented Dynamic Assessment (DA) within this framework, termed as MI-DA, in an EFL setting in a rural Chinese middle school. Evaluations of student-authored writings and interview feedback suggest that the MI approach notably enhanced students' writing outcomes and bolstered their metacognitive skills, positively shaping their perceptions and self-assurance in writing tasks.

In addition to research centered on enhancing metacognitive awareness, there's a rising interest among L2 scholars in nurturing the creative capacities of L2 learners (e.g., Lin & Wang, 2023; Yeh, 2017). These studies delve into strategies to inspire L2 students to engage in creative endeavors like crafting original writings and poetry (e.g., Dai, 2010). While research indicates

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the benefits of integrating creative L2 tasks into the curriculum, many studies predominantly spotlight educators as the primary drivers of creativity. Yet, Lin and Wang (2022) shifted the focus to L2 learners themselves. They examined the impact of an augmented-reality (AR) creative initiative on students' views on creativity and explored its potential to boost their academic motivation. Through a structured pretest-posttest approach, the research revealed that participants displayed enhanced inclinations towards creative thought, such as a heightened appreciation for generating ideas and valuing innovation, while showing reduced tendencies for premature critique, even if these shifts weren't statistically significant. Engaging in the project also brought about a notable increase in self-awareness regarding being preoccupied and potentially overlooking novel ideas. Yüce et al. (2023) investigated the interplay between metacognitive knowledge, receptiveness to diversity and challenges, and creative self-belief among 606 Turkish pre-service EFL educators using a survey. The findings revealed a moderate positive relationship among these factors. Furthermore, the results from the path analysis regression highlighted that metacognitive knowledge significantly influences openness to diversity and challenges, with creative self-efficacy acting as a mediating factor in their association.

As mentioned, Critical Thinking (CT), characterized by reasoned analysis and problem-solving, stands as a pivotal element in the writing process. Kupriyanov et al. (2021) explored the interplay between metacognitive abilities, critical thinking, and proficiency in a foreign language. Their findings highlighted a significant correlation between English language acquisition success and both the depth of critical thinking and specific facets of metacognitive awareness. Thus, honing critical thinking and reflecting on one's cognitive capacities can elevate English academic achievements. Similarly, Teng and Yue (2023) utilized structural equation modeling to probe if heightened metacognitive awareness can bolster critical thinking, subsequently enhancing academic writing prowess. Their results underscored notable connections among the trio of variables. Furthermore, Akcaoğlu et al. (2023) delved into the intermediary role of metacognitive awareness in the nexus between self-regulation and critical

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thinking. Their study emphasizes the importance of integrating self-regulation and metacognitive awareness strategies to amplify an individual's critical thinking abilities.

Overall, a majority of studies have highlighted the impact of metacognitive experiences on overall learning outcomes. Additionally, variables like Critical Thinking (CT) and creativity have garnered considerable research interest. However, it's noteworthy that, based on available literature, there's a scarcity of studies specifically delving into the influence of metacognitive experiences on L2 learners' CT and creativity within writing contexts. Essentially, at the heart of this investigation lie creativity and critical thinking, both pivotal elements for effective writing. Creativity, characterized by the capacity to produce innovative and valuable concepts, and CT, which encompasses analytical reasoning and problem-solving, are foundational pillars in the writing domain. Despite their acknowledged importance, the empirical connections between L2 writers' metacognitive experiences, Creativity, Critical Thinking, and writing proficiency remain an underexplored domain. Besides, in terms of creativity and CT, relatively little attention has been paid to EFL learners of language centers as they usually need to follow a set of institute-based curriculum with a predetermined textbook imposes significant constraints on teachers who attempt to integrate creative tasks regularly to support students' learning (Wang, 2018). Therefore, this meticulously designed mixed-methods study endeavors to unravel the effect of EFL learners' metacognitive experiences as a result of the treatment on CT and creativity in writing courses. Hence, this research was an effort to bridge this gap. For this reason, the following research questions were formulated:

To what extent does the implementation of a metacognitive awareness intervention in writing courses result in improvement of EFL learners' creativity level?

To what extent does the implementation of a metacognitive awareness intervention in writing courses result in improvement of EFL learners' critical thinking levels?

1. Method

3.1 Participants

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The study involved 56 out of 63 EFL students from Zeyton Language Institute in Tabriz, Iran, within the West Azerbaijan province. Although the institute categorized the learners as intermediate, the researcher utilized a homogeneity test to confirm their English proficiency levels. It's important to highlight that Turkish was the native language of the study's participants. The student group comprised both males and females, aged between 17 and 21 years. Using the Oxford Placement Test and analyzing the means and z-scores, those participants deviating by more than one standard deviation from the mean were excluded. This ensured a sample that truly represented the broader population. Consequently, 7 participants were excluded, leaving a sample of 56 participants. These participants were then randomly divided: 28 were placed in the experimental group, which received the intervention, and the other 28 in the control group, which underwent conventional teaching methods.

3.2 Instruments

The primary tool used to gauge the participants' L2 proficiency was the OQPT, designed for intermediate-level assessment. This test encompassed 60 questions spanning vocabulary, grammar, and cloze tests, offering an overall proficiency gauge. Participants were allotted 60

minutes for completion. The test's reliability stands at .809 as per its creators. Participant homogeneity was determined based on scores within one standard deviation (SD) of the mean. OQPT scores adhered to the normal distribution criteria, with skewness and kurtosis values below +/- 1.96.

To evaluate participants' CT abilities, the California Critical Thinking Skill Test (CCTST) by Facione (1990) was employed. This test assesses five facets: evaluation, analysis, inference, inductive reasoning, and deductive reasoning, encompassing 34 multiple-choice questions. The entire test takes approximately 45 minutes. For clarity, the Persian version of CCTST was used. Its reliability, as determined by the KR-21 formula, stood at .75, indicating a satisfactory reliability level.

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The Abedi-Schumacher Creativity Test (ACT), conceptualized by O'Neil, Abedi, and Speilberger in 1992 (referenced in Cropley, 2000), was another tool utilized. The ACT, comprising 60 multiple-choice items, assesses four creativity facets: Fluency, Flexibility, Originality, and Elaboration, with scores ranging from 60-180. Abedi (2002) noted a significant correlation between ACT's subscales and the Torrance Test of Creative Thinking (TTCT), affirming its concurrent validity. Additionally, the ACT subscales demonstrated reliability, ranging from 0.61 to 0.75 (Auzmendi, Villa, & Abedi, 1996). Participants scoring between 3-90 were categorized as having low creativity, while those between 90-180 were deemed high in creativity.

2. Procedure

At the study's initiation, and in line with standard research ethics, the institute's Academic Affairs granted approval for the research. Consequently, students were briefed about the study's objectives and assured of the confidentiality of their responses. Ensuring anonymity for both the institution and participants was paramount (Vaus, 2001). While students wrote their names on the questionnaires, their identities remained undisclosed to the researcher. Subsequent to this, the research commenced, with an initial data set derived from a placement test to ensure the comparable proficiency of both groups.

Two weeks prior to initiating the intervention, the OQPT was administered to all 63 students to ascertain their language proficiency. Following analysis, 7 students were excluded due to extreme scores, ensuring the homogeneity of the remaining participants. The students were then divided into experimental and control groups and provided with questionnaires pertaining to creativity and CT. The study spanned 13 sessions: one for ensuring group homogeneity, another for pretest assessments in creativity and CT, a subsequent session for post-test evaluations, and 10 sessions dedicated to the intervention. The 10-session treatment, each lasting 70 minutes, aimed to ensure the retention effect between the pretest and posttest assessments. While the instructor remained consistent across both groups, variations were introduced in the materials,

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teaching methodologies, and strategies employed. Following the completion of all tests and preliminary phases, the intervention was rolled out for the treatment group as outlined.

Various frameworks for categorizing metacognitive writing strategies exist. However, this study adopts the Planning, Monitoring, and Evaluating taxonomy proposed by Papleontiou-Louca (2003). Within this model, metacognitive writing strategies revolve around three core processes: planning, monitoring, and self-evaluation. Specifically, these strategies empower the writer to oversee, direct, and refine their writing endeavors.

During the planning phase, the instructor organized students into groups and introduced brainstorming exercises. Within each group, students were assigned distinct roles: idea generator, writer, or criticizer. Students were tasked with drafting an initial plan, which, upon completion, underwent revisions based on content and structural considerations, such as content additions or omissions. This planning phase emphasized both overarching elements, like content and structure, and finer details like grammar and mechanics. Each student within the groups was encouraged to refine these aspects individually. Monitoring, another pivotal phase, entailed overseeing the writing process in real-time. This ensured the writing aligned with intended objectives and maintained coherence.

The concluding strategy, Evaluation, was implemented post-writing. Here, writers critically assessed their compositions, considering both broad themes and intricate details. This phase often involved peer reviews, wherein students exchanged papers, discussed potential enhancements, and provided feedback. Additionally, students were prompted to engage in self-editing. To streamline this process, they were advised to adopt a systematic approach, prioritizing elements like content clarity or linguistic structure, especially since managing multiple aspects simultaneously could be challenging for novice writers.

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In the conventional instructional approach, serving as the control group, students were taught writing tasks devoid of any metacognitive techniques. Each session was led by the researcher, adopting a teacher-centric approach. Following the sessions, students were assigned routine writing tasks as homework. By the 13th session, post-tests on creativity and CT were administered using questionnaires. Various analytical methods were employed to scrutinize the data garnered from tests and surveys. Initially, mean values, standard deviations, and z-scores were computed to assess the placement test outcomes. The z-scores facilitated the identification and subsequent exclusion of outliers, ensuring the dataset's reliability. Upon collecting and coding the completed questionnaires, the data underwent analysis using the Statistical Package for the Social Sciences (SPSS version 23). The analytical toolkit included descriptive statistics, mean comparisons, tests for data normality, and specific tests like the independent samples t-test and Mann Whitney U test (for evaluating critical thinking).

3. Results

The first research question aimed to answer whether implementing metacognitive awareness raising strategy in writing courses have any statistically significant effect on EFL learners' creativity level. After the homogeneity test, a pretest in creativity inventory was used. The results of descriptive statistics of pretest in creativity in are represented at Table 1.

Table 1

Descriptive Statistics of Pretest of Creativity

	Mean	N	Std. Deviation	Std. Error Mean

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Pre- Experimental Group	87.92	28	3.12	.679
Pre-Control Group	85.99	28	3.04	.711

The results indicated that the treatment group had a mean score of 87.9 in the creativity pretest, with a standard deviation (SD) of 3.1, while the control group had a mean score of 85.99, with an SD of 3.04. At the beginning of the course, the creativity scores for both groups were quite similar, confirming the groups' comparability. Nevertheless, to ascertain significant differences between the groups, an independent samples t-test was required. Before conducting the t-tests, it was essential to verify the assumptions of parametric tests, with data normality being a crucial one. Table 2 presents the normality assessment for the creativity pretest.

Table 2

Kolmogorov-Smirnov Tests of Normality in Pretest of Creativity

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Experimental Group	.183	28	.200*	.703	28	.399
Control Group	.179	28	.200*	.732	28	.470

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The Sig in the experimental group for pretest of creativity with df=28 is.399, while the Sig in the control group with df=28 is.470. As both of the significance levels are higher than 0.05; thus, the data is normally distributed, so it can be concluded that the two groups enjoyed the same level of creativity before the treatment. As a result, an independent samples t-test was run that the results are represented in Table 3.

Table 3

Independent Samples T-test on Creativity Pretest

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		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pretest	Equal variances assumed	.032	.689	.053	54	.594	.0455	.524	-.876	1.032
	Equal variances not assumed			.053	54	.594	.0455	.532	-.855	1.037

Based on the results obtained from the above table, Levene's test for the equality of variances was .032 (F= .032) with a significant level of .689. The results also represent the t-test value of .053 to manifest the equality of means with a significant level of .594. As for the equal variances, the results show that the significant level of .594 is more than 0.05. As the results showed as the significant value was higher than the p value, then two groups were not heterogeneous in creativity pretest. It indicates that there is no significant difference between two groups' scores in creativity before the treatment. For the creativity posttest, the aforementioned process was repeated. Table 4 displays the descriptive statistics in the posttest of creativity.

Table 4

Descriptive Statistics of Posttest of Creativity

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	Mean	N	Std. Deviation	Std. Error Mean
Post-Experimental Group	128.89	28	4.13	.614
Post- Control Group	96.50	28	3.89	.634

Table 4 reveals that the mean score of students at treatment group is 128.8 with SD of 4.1 and the mean of students at control group is 96.5 with SD of 3.8. Based on the results, the means of creativity posttest in two groups were different, however, the differences between them needed to be tested statistically via using independent samples t-test; however, before running t-test, there is a need to run normality test, which based on the results, the Sig value in control group with df = 28 is .547, and the Sig of the treatment group in the posttest of creativity with df=28 is .590. As both of the significance levels are higher than 0.05; thus, the data is normally distributed in posttest of creativity. After the above-mentioned procedure, an independent samples t-test was run to estimate two groups' performance in creativity posttest (Table 5).

Table 4.10

Independent Samples Test on Creativity Posttest

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.06	.130	1.8	54	.041	19.140	9.45	.6329	47.211

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Equal variances not assumed	2.1	54	.038	19.140	9.11	3.437	43.126

Based on the provided table, the result from Levene's test regarding the equality of variances is F=2.06, with a significance level of .041. Given that the Sig value is lower than the p values, it indicates a notable difference between the control and treatment groups concerning creativity. In terms of mean values, the treatment group demonstrated superior performance compared to the control group. Consequently, the data suggests that participants exposed to the metacognitive awareness raising strategy, as represented by the treatment group, showcased higher creativity levels than their counterparts in the control group while preparing for writing courses. Thus, the findings underscore the positive impact of the treatment on enhancing participants' creativity.

The second research question tried to explore the role of metacognitive awareness raising strategy on EFL learners' critical thinking. Table 6 shows the descriptive statistics of learners on the pretest of CT prior to the main study.

Table 6

Descriptive Statistics of Pretest in CT

Group	N	Mean	Std. Deviation	Std. Error Mean
Experimental Group	28	48.20	4.07	.692
Control Group	28	50.27	4.16	.631

Based on the results displayed in Table 6, it can be claimed that the experimental (M = 48.20, SD = 4.07) and control (M = 50.27, SD = 4.16) groups had had fairly close means on the pretest of CT. Before running t-tests, the assumption of parametric test needed to be tested. Based on the results of normality test, the Sig in the experimental group for pretest of CT with

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df=28 is.649, while the Sig of CT in the control group with df=28 is .606. Based on the results, it can be concluded that since both of the significance levels are higher than 0.05; thus, the data is normally distributed, so the data in pretest of CT is normally distributed before the treatment, as a result, an independent samples t-test can be run (Table 7).

Table 7

Results of Independent Samples T-Test in CT Pretest

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.114	.697	.287	54	.634	16.43	3882	.6427	.813
Equal variances not assumed			.287	54	.634	16.43	3879	.6427	.813

According to the above table, (t (.287) = .634); the p-value for this t was .287 (Sig (2-tailed) = .634≥.05). Since the Sig value is higher than the p values, hence, it can be concluded that there is not a significant difference between pretests of two groups in terms of CT. In the second assessment and after the treatment, the same scale was given to the students as the posttest. After the treatment, the same CT scale was presented to the learners as the posttest. Table 8 displays the descriptive statistics in the posttest of CT.

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Table 8

Descriptive Statistics of Posttest of CT

	Mean	N	Std. Deviation	Std. Error Mean
Experimental Group	97.11	28	4.94	.5932
Control Group	65.32	28	5.12	.6545

Table 8 reveals that the mean score of the treatment group in the CT posttest is 97.11 with SD of 4.94. Also, the mean of students in the control group is 65.32 with SD of 5.12. Based on the results, the means of CT posttest in two groups were slightly different, however, the differences between them needed to be tested. Based on the results obtained from the normality test, the Sig value in experimental group with df = 28 is .001, and the Sig of the control group in the posttest of CT with df=28 is .033. As both of the significance levels are less than 0.05; thus, the data is not normally distributed in posttest of CT. hence there is a need to run a Mann Whitney test instead of an independent samples t-test. Table 9 shows the mean ranks of the learners in posttest of CT.

Table 9

Mean Ranks of CT Posttest

Group	N	Mean Rank	Sum of Ranks	Median
Experimental Group	28	41.28	678.00	68.32
Control Group	28	32.67	603.00	51.75

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The results indicated that the experimental group (Median = 68.3) had a higher median score than the control group (Median = 51.7) on the posttest of CT, however a Mann-Whitney test was run on the posttest of CT (Table 10).

Table 10

Mann-Whitney Test of CT Posttest

	Score
Mann-Whitney U	212.500
Wilcoxon W	557.000
Z	-2.514
Sig. (2-tailed)	.000

The results of the Mann-Whitney tests ($Z = -2.51$, $p < .05$) indicated that the experimental group had a significantly higher median than the control group on the posttest of CT. Thus, it can be claimed that implementing metacognitive awareness raising strategy has statistically significant effect on EFL learners' critical thinking in writing courses.

4. Discussion

Overall, the findings of this research support the positive impact of enhancing metacognitive awareness on both creativity and CT. These outcomes align with several foundational theories, including the interactionist theory by Vygotsky (1978), the constructivist learning approach, and Krashen's (1982) concept of the lower affective filter. The interactionist theory underscores that learners grasp a second language through meaningful interactions, communication, and comprehensible input. Bakhtin (1986) further elaborates on this by highlighting the significance of dialogue in language acquisition. He views language primarily as speech, emphasizing the

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importance of interactions and the interconnectedness of utterances within dialogues. The constructivist learning perspective offers a relevant lens for understanding Second Language Acquisition (SLA). This viewpoint posits that learners actively build understanding through factors like context, social engagement, cultural influences, previous knowledge, and personal experiences (Dunleavy & Dede, 2014). Within this framework, educators play a pivotal role in steering students towards effective metacognitive strategies, prompting them to tap into their prior knowledge using reflective inquiries, and encouraging them to apply their background understanding to address challenges.

Krashen's (1982) notion of the lower affective filter also resonates with the study's context. This hypothesis underscores the emotional and motivational barriers that language learners might encounter when grappling with understandable input, such as the task of generating ideas for writing. Learners could feel overwhelmed, anxious, or demotivated if they perceive writing tasks as too intricate, if they make errors, or if they face frequent corrections from their teachers.

In response to the first research question, the findings revealed that the EFL learners in the treatment group outperformed the control group in creativity level. In effect, major improvement was observed in the creativity levels of the learners in the group who were exposed to metacognitive awareness raising strategy instruction in the writing courses. The improvement can be supported by looking both at the pre and posttests means and the results of independent samples t-test.

The observed difference indicates a marked enhancement in the creativity level of this group post-treatment. Essentially, the initial null hypothesis, suggesting that the application of metacognitive awareness raising strategies would not yield a statistically significant impact on EFL learners' creativity, was refuted with a significance level below 0.05. Thus, it's evident that

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the treatment group experienced a notable boost in their creativity post-intervention. This outcome aligns with Takallu's (2011) findings, which initially posited that metacognitive strategy

instruction wouldn't substantially influence EFL learners' metacognitive awareness. However, the current research indicates a significant uptick in students' awareness following the metacognitive strategy instruction. This suggests that the explicit guidance and exercises on planning and monitoring, imparted to the experimental group, played a pivotal role in enhancing their metacognitive awareness through the treatment.

The findings of this study, emphasizing the beneficial impact of metacognitive strategy instruction, resonate with several other research endeavors within the realm of second language acquisition (e.g., Baleghizadeh & Rahimi, 2011; Goh & Hu, 2013; Goh & Taib, 2006; Mareschal, 2007; Rahimi & Katal, 2012; Vandergrift & Tafaghodtari, 2010; Zeng, 2012). These studies collectively suggest that adopting a process-centric approach to metacognitive strategy instruction can indeed augment variables like metacognitive awareness. Moreover, while qualitative research has underscored the efficacy of metacognitive strategies in refining abilities such as writing, there have been challenges reported in the execution of these strategies (Al-Jarrah et al., 2018). However, when it comes to assessing the interplay between metacognitive awareness raising and creativity, empirical evidence remains scarce, particularly within the confines of quasi-experimental studies akin to the present research. Notwithstanding, some studies anchored in correlation analysis, like that of Shoghi and Ghonsooly (2015), have delineated a discernible link between creativity and metacognitive awareness. Their findings underscored a significant association between overall creativity scores and metacognitive awareness scores across both novice and proficient EFL learners.

To put it differently, both facets of metacognitive awareness—knowledge of cognition and regulation of cognition—demonstrated significant correlations with overall creativity. Moreover, the total creativity scores exhibited a noteworthy association with the total metacognitive awareness scores in both participant groups. The assumption is that creativity in writing entails the capacity to generate content that is original, novel, and imaginative. Metacognitive processes can contribute to nurturing creativity by enabling writers to scrutinize their cognitive patterns,

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explore alternative ideas, and deliberately decide on their approach to writing. In essence, writers endowed with metacognitive awareness might be better positioned to engage in creative thinking. They can actively select and adapt writing strategies, assess their progress, and modify their work in ways that amplify creative expression.

While this study primarily centered on creativity and critical thinking as intertwined concepts with writing, rather than solely on the writing performance due to metacognitive instruction, the instructor/researcher noticed noticeable enhancements and increased motivation among learners in the treatment group during the writing process. It appeared that the cultivation of metacognitive awareness provided students with more opportunities to employ their skills and strategies in various texts and related tasks as they honed their writing abilities. Addressing the study's second research question about the impact of the strategy on the critical thinking capacities of EFL learners, the results indicated that those in the treatment group surpassed their counterparts in the control group in terms of critical thinking proficiency. This study sought to discern the relationship between metacognitive skills, critical thinking, and the mastery of a foreign language. The findings suggest that achieving proficiency in English is significantly correlated with levels of critical thinking and certain aspects of metacognitive awareness. Thus, enhancing critical thinking and fostering self-awareness about one's cognitive processes can be instrumental in boosting academic performance in English.

The findings align with research by Kupriyanov et al. (2021) and Teng and Yue (2023), emphasizing the impact of metacognitive awareness strategies on learners' critical thinking. This is consistent with earlier studies, such as Fitrisia et al. (2015) and Viswanathan and Childers (2003), which demonstrated that enhancing students' metacognitive awareness and integrating it into lessons allows for timely responses and feedback. These outcomes echo research underscoring the importance of cultivating metacognitive awareness and skill training (Anderson, 2012; Batang, 2015; Pintrich, 2002). Furthermore, compared to their less adept counterparts, more skilled English learners exhibit greater awareness of the strategies they employ to tackle tasks.

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Several studies on instructional strategies have presented conflicting findings regarding the impact of metacognitive teaching on L2 proficiency. While some research, including works by Goh (2008), Kassaian & Ghadiri (2011), and O'Bryan & Hegelheimer (2009), suggests no immediate enhancement in listening comprehension due to such instruction, others, like the study by Milliner & Dimoski (2021), indicate a positive influence of metacognitive awareness training. The absence of a clear statistical difference could be attributed to factors such as students' existing listening comprehension abilities, the duration of the lessons, and the dynamics of the EFL/ESL context.

The observed outcomes might also be linked to the proficiency level of the learners; notably, the participants in this study were intermediate-level EFL students with limited exposure to English outside the classroom. Additionally, individual variances among students could be another contributing factor to the observed results. While the study did not delve into the individual nuances of the participants, one could speculate that the success observed in the two treatment groups was not solely due to the instructional method but possibly stemmed from individual attributes. These attributes might include their intrinsic motivation, positive mindset, and enthusiasm for learning. Evaluating how many participants genuinely benefited from the intervention and whether these benefits endured over time could have provided a more comprehensive understanding of the results. Scholars emphasize the significance of individual variances, encompassing factors like intelligence, cognitive styles, and learning strategies, in studies aiming to determine effective teaching methodologies for diverse skills and sub-skills (Erlam, 2003). Even though research on the impact of metacognitive awareness strategies on variables like creativity and CT remains limited, this study's contribution lies in its exploration of these areas. The iterative application of this strategy, combined with guided instruction, appears to have positively influenced L2 outcomes, a sentiment echoed by Lambert et al. (2017).

5. Conclusion

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The goals of the current study were multifold. The study tried to investigate the effect of metacognitive awareness raising strategy on intermediate EFL learners' creativity as well as critical thinking levels in writing courses. The results showed that EFL learners in the treatment group outperformed the control group in both creativity and critical thinking levels while writing. The research indicated that providing learners with tailored methods and settings can amplify their creative thinking and critical thinking, especially during challenging tasks like writing.

Such progress is an evolutionary journey, not an instantaneous transformation. Drawing from Scharle and Szabo's (2000, p.9) model, this evolution is characterized by stages: "raising awareness," "shifting perspectives," and "delegating responsibilities." These insights hold significance for EFL educators. Incorporating metacognitive awareness-raising strategies can complement their curriculum. Such strategies can be seamlessly integrated into various classroom activities, enabling teachers to introduce and enhance topics pertinent to their instruction. Moreover, educators will recognize the profound impact of strategies that bolster both creativity and critical thinking in students. Essentially, purposefully adopting and implementing this strategy can empower learners, refining both their linguistic prowess and their approach to the learning process.

By introducing dynamic activities like collaboration through metacognitive awareness-raising strategies, a shift from instructor-led to student-centric methodologies is expected. Encouraging students to diversify their resources is a pivotal recommendation for language educators. Rather than solely directing, the teacher's role should evolve into that of a guide, inspiring learners to actively participate and cultivate the skills and knowledge essential for self-directed learning. This study underscores the importance of affording EFL students varied strategies to bolster their comprehension and appreciation of language acquisition nuances.

The implications of this study for EFL learners are the potential of adopting strategies beyond the traditional rote memorization, which has often been deemed ineffective. By integrating methods like metacognitive awareness-raising, students can delve deeper, forging meaningful connections between concepts while crafting written content. However, the study's

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findings come with certain limitations, including the students' proficiency levels, a limited sample size, and the method of selection. Utilizing observational techniques could offer richer insights, capturing students' genuine linguistic performance over time. Recognizing that behavioral shifts occur gradually, longitudinal studies are recommended for more comprehensive findings.

For future investigations, researchers might consider exploring variables like age and gender and their potential influence on outcomes following metacognitive strategies. Delving into how this strategy impacts specific language facets, such as grammar or idiomatic expressions, could also yield valuable insights. Moreover, a comparative study examining the efficacy of this approach in diverse learning settings—both online and traditional—could shed light on its impact on cohesive word groupings and idiomatic structures.

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