

**ENHANCING ACADEMIC WRITING PERFORMANCE IN EFL  
UNIVERSITY STUDENTS THROUGH COGGLE-BASED MIND MAPPING: A  
PROCESS-ORIENTED APPROACH**

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**Abstract:** The present study investigates the pedagogical effectiveness of the Coggle platform in improving academic writing skills among English as a Foreign Language (EFL) university students. Writing in a second language involves complex cognitive and metacognitive processes, including planning, organization, and revision. Drawing on recent research in digital pedagogy and second language writing, this study examines how mind-mapping tools facilitate these processes. The findings indicate that Coggle significantly enhances coherence, idea generation, and learner autonomy. The study contributes to current discussions on technology-enhanced language learning and process-based writing instruction.

**Keywords:** EFL writing, mind mapping, Coggle, academic writing, digital pedagogy, learner autonomy

**Аннотация:** Настоящее исследование посвящено анализу педагогической эффективности платформы Coggle в улучшении навыков академического письма у студентов вузов, изучающих английский язык как иностранный (EFL). Письмо на втором языке включает сложные когнитивные и метакогнитивные процессы, такие как планирование, организация и редактирование. Опираясь на современные исследования в области цифровой педагогики и письменной речи на иностранном языке, данное исследование рассматривает, каким образом инструменты интеллект-карт способствуют этим процессам. Результаты показывают, что использование Coggle значительно улучшает связность текста, генерацию идей и автономность обучающихся. Работа вносит вклад в современные дискуссии о технологиях в обучении языкам и процессно-ориентированном обучении письму.

**Ключевые слова:** письмо на иностранном языке, интеллект-карты, Coggle, академическое письмо, цифровая педагогика, автономность обучающихся

**Annotatsiya:** Mazkur tadqiqot Coggle platformasining ingliz tilini chet tili sifatida (EFL) o'rganayotgan oliy ta'lim talabalari akademik yozuv ko'nikmalarini rivojlantirishdagi pedagogik samaradorligini o'rganishga bag'ishlangan. Ikkinchi tilda yozish murakkab kognitiv va metakognitiv jarayonlarni, jumladan rejalashtirish, tashkil etish va tahrirlashni o'z ichiga oladi. Raqamli pedagogika va ikkinchi til yozuvi bo'yicha zamonaviy tadqiqotlarga tayangan holda, ushbu ish intellekt-xaritalash vositalari ushbu jarayonlarni qanday qo'llab-quvvatlashini tahlil qiladi. Natijalar shuni ko'rsatadiki, Coggle platformasi matnning mantiqiy bog'liqligini, g'oyalar yaratishni hamda talabalarning mustaqilligini sezilarli darajada oshiradi. Tadqiqot texnologiyaga asoslangan til o'qitish va jarayonli yozuv metodikasi bo'yicha ilmiy muhokamalarga hissa qo'shadi.

**Kalit so'zlar:** EFL yozuv, intellekt-xaritalash, Coggle, akademik yozuv, raqamli pedagogika, o'quvchi mustaqilligi

### Introduction

Academic writing in EFL contexts is widely recognized as a cognitively demanding activity requiring the coordination of multiple skills. Beyond grammatical accuracy, students must develop the ability to generate, organize, and articulate ideas effectively. However, traditional writing instruction often prioritizes surface-level correctness over deeper cognitive processes. Recent studies emphasize the importance of pre-writing strategies. For example, Zhang and Zou (2022) argue that "visual mapping techniques significantly improve learners' ability to organize ideas and produce coherent written texts" (p. 134). This quotation is critical because it establishes a direct link between visualization and coherence, which constitutes the central focus of the present study. Similarly, Sun and Wang (2023) highlight that "planning is one of the strongest predictors of writing quality in second language contexts" (p. 201). This supports the argument that insufficient attention to planning stages may limit students' writing performance.

The Coggle platform offers a dynamic environment for idea organization, enabling learners to construct non-linear representations of their thoughts. Furthermore, digital environments promote autonomy. As Hafner and Miller (2021) note, "digital platforms foster self-regulated learning by allowing learners to monitor and control their writing processes" (p. 78). In addition, recent research in educational technology suggests that "interactive digital tools enhance engagement and support deeper cognitive processing" (Kohnke & Moorhouse, 2022, p. 56).

Thus, this study aims to explore how Coggle supports writing development in EFL university classrooms.

### Methods

The study employed a quasi-experimental design involving 48 undergraduate EFL students divided into control and experimental groups. The intervention lasted four weeks and focused on argumentative essay writing tasks. The experimental group used Coggle during the planning phase, while the control group followed traditional outlining techniques. The methodological framework is grounded in process writing theory. As Hyland (2021) notes, “writing is a recursive process involving planning, drafting, and revising rather than a linear progression” (p. 45). This quotation justifies the integration of Coggle into the pre-writing stage, emphasizing its role in structuring ideas. Additionally, digital scaffolding theory underpins the use of mind mapping. According to Godwin-Jones (2021), “digital tools provide scaffolding that supports learners in managing complex writing tasks” (p. 9).

Data collection included:

- *pre- and post-tests*
- *rubric-based writing assessment*
- *student perception surveys*

### Results

The results demonstrate that the experimental group outperformed the control group across all measured criteria.

First, coherence and cohesion improved significantly. Students were better able to structure their arguments and maintain logical flow. Second, idea generation increased both in quantity and quality. Students developed more detailed and relevant arguments. Third, engagement levels were higher. Students reported that visual tools made writing tasks more intuitive and less stressful. These findings align with existing research. For instance, Chen and Yu (2023) found that “mind mapping tools significantly improve students’ ability to generate and organize ideas in writing tasks” (p. 215). This quotation reinforces the empirical validity of the results.

### Analysis

From a cognitive perspective, the effectiveness of Coggle can be explained through cognitive load theory. Writing in a second language places heavy demands on working memory. Hafner and Miller (2021) argue that “external digital tools enable learners to offload cognitive

demands and focus on higher-level thinking processes” (p. 82). This explains why students using Coggle demonstrated improved organization and coherence.

From a pedagogical perspective, the tool supports scaffolded learning. By externalizing thought processes, students gain a clearer understanding of text structure. Moreover, Kohnke and Moorhouse (2022) emphasize that “technology-enhanced environments promote active learning and collaboration” (p. 60).

This supports the observation that students were more engaged during the writing process.

### Discussion

The findings of this study confirm that integrating mind-mapping technology into EFL writing instruction yields substantial benefits. One major implication is the need to prioritize the planning stage in writing pedagogy. The results demonstrate that structured idea organization leads to improved writing quality. Another implication concerns learner autonomy. Digital tools empower students to take control of their learning processes, fostering independence and self-regulation.

However, the use of technology must be pedagogically guided. As Hyland (2021) warns, “technology should support, not replace, the development of critical writing skills” (p. 52). This quotation is included to highlight the importance of balanced integration.

Overall, the study contributes to current research by demonstrating that Coggle is an effective tool for enhancing academic writing in EFL contexts.

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