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The Effectiveness of the PBI Global Model in Developing Creative Writing Fluency and Flexibility among Saudi Secondary EFL Students(*)

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The Effectiveness of the PBI Global Model in Developing Creative Writing Fluency and Flexibility among Saudi Secondary EFL Students

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Abstract

This study examined how the Project-Based Inquiry (PBI) Global model supports the development of creative writing fluency and flexibility among second-year female secondary students in Saudi Arabia. A quasi-experimental pretest–posttest control-group design was used with 69 participants during the 2024–2025 academic year. Students in the experimental group received instruction through the PBI Global model, while their peers in the control group followed traditional English language instruction. Creative writing was evaluated using an analytic rubric focusing on fluency and flexibility. The results showed that students who experienced the PBI Global model demonstrated meaningful gains in both dimensions, with independent-samples t-tests indicating large differences at post-test in fluency ($t = 8.45$, $p < .001$, $d = 2.03$) and flexibility ($t = 7.89$, $p < .001$, $d = 1.90$) in favor of the experimental group. The findings of this study and the gain score confirmed that the model contributed to significant improvements compared with the control group. Overall, the intervention helped students generate ideas more creatively, adapt their writing to different styles, employ varied vocabulary, and express original perspectives, suggesting that the PBI Global model can serve as a valuable pedagogical tool for improving creative writing skills, fluency, and flexibility in EFL contexts.

Keywords: Project-based inquiry global model, creative writing, fluency, flexibility, global awareness.

فاعلية نموذج الاستقصاء العالمي القائم على المشروعات في تحسين مهارات الطلاقة والمرونة في

الكتابة الإبداعية لطالبات الصف الثاني ثانوي

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الملخص

هدفت هذه الدراسة إلى الكشف عن فاعلية نموذج مشروع الاستقصاء العالمي (PBI Global) في تنمية مهارات الكتابة الإبداعية لدى طالبات الصف الثاني الثانوي في المملكة العربية السعودية، في مهارتي الطلاقة والمرونة. اعتمدت الدراسة المنهج شبه التجريبي بتصميم اختبار قبلي وبعدي لمجموعتين، إحداها تجريبية والأخرى ضابطة، وبلغ عدد أفرادها (69) طالبة خلال العام الدراسي (2024-2025)، درست المجموعة التجريبية وفق نموذج (PBI Global)، بينما درست المجموعة الضابطة وفق الأساليب التقليدية لتعليم اللغة الإنجليزية. استُخدمت أداة تحليلية لقياس الكتابة الإبداعية ركزت على بعدي الطلاقة والمرونة. وأظهرت نتائج التحليل الإحصائي وجود فروق دالة إحصائية لصالح المجموعة التجريبية في الاختبار البعدي في كلٍّ من الطلاقة ($t = 8.45, p < .001, d = 2.03$) والمرونة ($t = 7.89, p < .001, d = 1.90$)، كما دعمت نتائج تحليل الفروق وتحليل التباين المصاحب (ANCOVA) هذه الفروق، مما يشير إلى أن المجموعة التجريبية حققت مكاسب أعلى مقارنة بالمجموعة الضابطة. وخلصت الدراسة إلى أن نموذج (PBI Global) أسهم في تحسين قدرة الطالبات على توليد الأفكار بانسيابية، والتكيف مع أنماط كتابة مختلفة، وتقديم أفكار مبتكرة، مما يؤكد فاعليته كمدخل تربوي داعم لتطوير مهارات الكتابة الإبداعية لدى متعلمي اللغة الإنجليزية بوصفها لغة أجنبية.

الكلمات المفتاحية: فاعلية، الاستقصاء العالمي، المشروعات، مهارات الطلاقة، المرونة.

Introduction:

Writing skills include more than just creating text; they are connected to an arrangement of cognitive functions that are essential for successful learning and language use (Issa & Shyamala, 2021). Furthermore, Al-Hoshani and Al-Nassain (2020) found that writing requires individual effort and continuous training to achieve proficiency and creativity, whereas speaking, listening, and reading skills must be practiced daily to develop more proficiency in these skills.

Writing is classified into two main categories of writing: creative and functional writing. Functional writing helps people connect and fulfill their practical needs, tasks like writing reports, official letters, and emails (Seleim et al., 2019). In contrast, creative writing includes poetry, stories, and articles and aims to express ideas, feelings, and emotions in a literary style (Seleim et al., 2019). The main purpose of creative writing is to engage and connect people by sharing human experiences, such as love, loss, gratitude, and even struggles. As a result, writers strive to reveal deeper truths about humanity through their imaginative storytelling and poetic expressions (Ibrahim et al., 2023).

However, Abu Glasi (2022) contended that educational writing instruction frequently emphasizes grammatical correctness, accuracy, and error correction over creative writing, limiting students' opportunities to practice creative expression. Therefore, he suggested that additional resources would be necessary to support creative writing outside of the traditional school environment, as creative writing requires cognitive skills that foster higher-level thinking.

The Project-based inquiry (PBI) Global model is an educational approach that integrates inquiry-based learning with global awareness, particularly aligned with the United Nations (UN) Sustainable Development Goals (SDGs) (Spire, 2016). It is designed to engage students in inquiry-to-action projects, fostering skills such as collaboration, critical thinking, and self-efficacy. Moreover, the approach has been adapted to various educational contexts, including remote and hybrid learning environments, and it has shown potential to enhance students' science content knowledge and motivation through cross-school collaborations (Spire et al., 2022).

According to Spires (2016), the PBI Global model is structured around five phases. Beginning with posing a compelling question that guides the inquiry, and ending with sharing, publishing, and taking action based on the findings. (Johnson et al., 2019). Furthermore, Spires et al. (2022) state that the PBI Global Model Inquiry Cycle has three key features that set it apart from other inquiry-based learning models or project-based inquiry learning. First, it centers on the UN SDGs and emphasizes 17 global issues, such as poverty and clean water. (Spires et al., 2022). Second, it adopts an interdisciplinary approach. Third, it encourages students to take social action based on their inquiry outcomes. Using this model, students from different schools reported varying levels of motivation, which influenced their performance and learning outcomes (Spires et al., 2022).

Due to the importance of implementing new teaching models in education and their positive impact on enhancing the English language learning process mentioned above, this study will investigate the effects of using the Project-Based Inquiry (PBI) Global Model on developing creative writing skills fluency and flexibility.

Statement of the Problem:

Many EFL (English as a Foreign Language) students struggle with limited vocabulary, which hinders their ability to express ideas effectively in creative writing. This challenge is prevalent among learners at various educational levels, from secondary school to university (Aidantausta, 2023; Febriana & Yusuf, 2023; Ali & Kottacheruvu, 2022). Also, traditional teaching methods, characterized by rigid structures and rules, can hinder creativity and prevent student participation in creative writing. As a result, students frequently find writing tasks boring, which decreases their motivation and excitement for writing (Abdelazim et al., 2022; Abu Hussein et al., 2020; Al-Mahdawi & Al-Smadi, 2022).

The current study conducted a small pilot study. The researcher identifies skills within the framework of creative writing. A rubric covering fluency and flexibility criteria was used to evaluate (15) participants, who were categorized into four performance levels: Needs Improvement, Satisfactory, Good, and Excellent. The findings revealed that (46.7%) of the participants performed at the Needs Improvement level, indicating that nearly half of the students need basic assistance in creative writing skills. About (26.7%) achieved a Satisfactory level, while 13.3% performed at the Good level and another (13.3%) achieved an Excellent rating.

To the best of the researcher's knowledge, there is limited research conducted in the Arabic context that investigates the connection between creative writing and the PBI Global model. So, based on the available literature reviewed, this study is the first to apply PBI Global specifically to creative writing skills fluency and flexibility.

Although previous research has examined project-based learning and creative writing separately, relatively few studies have investigated the effectiveness of the PBI Global model specifically in developing creative writing fluency and flexibility among Saudi secondary EFL learners. The way this inquiry-based model influences these two specific creative writing skills in the Saudi EFL context remains largely unexplored. Addressing this gap is necessary to provide empirical evidence on how innovative, inquiry-driven instruction can enhance EFL learners' creative writing performance and to inform teaching practice in this context.

Research Questions:

The study attempted to answer the following questions:

- 1- What sub-skills are required to improve creative writing fluency among second-year secondary students?
- 2- What sub-skills are required to improve creative writing flexibility among second-year secondary students?
- 3- What is the effectiveness of the project-based inquiry (PBI) Global model in improving creative writing fluency among second-year secondary students?
- 4- What is the effectiveness of the project-based inquiry (PBI) Global model in improving creative writing flexibility among second-year secondary students?

Objectives of the Study:

The present study aimed to achieve the following objectives:

- 1- To identify the sub-skills required to develop creative writing fluency among Saudi second-year secondary EFL students.
- 2- To identify the sub-skills required to develop creative writing flexibility among Saudi second-year secondary EFL students.
- 3- To investigate the effectiveness of the PBI Global model in developing creative writing fluency among Saudi second-year secondary EFL students.

- 4- To investigate the effectiveness of the PBI Global model in developing creative writing flexibility among Saudi second-year secondary EFL students.

Hypotheses of the Study:

To answer the third and fourth questions, the following hypotheses were tested at the (0.05) significance level:

H01: There is no statistically significant difference at ($\alpha \leq 0.05$) between the mean scores of the experimental group and the control group on the post-test of creative writing fluency.

- 1- There is a statistically significant difference at ($\alpha \leq 0.05$) between the mean scores of the experimental group and the control group on the post-test of creative writing fluency, in favor of the experimental group.
- 2- There is no statistically significant difference at ($\alpha \leq 0.05$) between the mean scores of the experimental group and the control group on the post-test of creative writing flexibility.
- 3- There is a statistically significant difference at ($\alpha \leq 0.05$) between the mean scores of the experimental group and the control group on the post-test of creative writing flexibility, in favor of the experimental group.

Significance of the Study:

The significance of the present study stems from both theoretical and practical considerations.

Theoretically, the study contributes to the literature on EFL creative writing by clarifying the fluency and flexibility sub-skills and by examining the PBI Global model as an inquiry-based instructional approach in the Saudi secondary context, where such research remains limited.

Practically, the findings may benefit EFL teachers by providing a structured model for developing learners' creative writing skills, support curriculum designers in integrating project-based inquiry tasks, and guide students toward more fluent and flexible written expression. The study may also inform educational supervisors and policymakers about innovative, learner-centred approaches to teaching writing.

Study Terminology:

Project-Based Inquiry Global:

Kerkhoff and Spire (2023) described PBI Global as a “collaborative inquiry process that guides students in reading, writing, creating, and taking

action across time, space, and cultures to address enduring global challenges” (p. 263).

Operationally, the current study defines project-based inquiry as a pedagogical approach that improves creative writing fluency and flexibility in second-year secondary students, by collaboratively exploring global challenges. This approach includes guided reading, structured writing exercises, creative multimedia projects, and proactive community engagement, with a focus on addressing universal issues across various time periods and spaces.

Creative Writing:

Hyland (2015) defined creative writing as "any writing, fiction or nonfiction, that occurs outside of everyday professional, journalistic, academic, and technical forms of writing. Most typically, we think of novels, short stories, and poems in this category, but it can also include screenwriting and playwriting, which are texts to be performed, and creative nonfiction, such as personal and journalistic essays (p. 229).

Operationally, in the current study, creative writing is considered to be the practice of composing original texts, including fiction and nonfiction, which stands apart from traditional professional, journalistic, academic, and technical writing. It encompasses the use of the PBI Global model to actively engage second-year secondary students in the writing process.

EFL Creative Writing Fluency:

Fung (2021) noted that fluency “measures interpretable, meaningful, and relevant ideas generated in response to the stimulus” (p.114).

Operationally, in the current study, EFL creative writing fluency is the capacity to produce clear, compelling, and relevant writing, characterized by a steady flow of ideas in creative writing among second-year secondary students, through the PBI Global model.

EFL Creative Writing Flexibility:

Pérez et al. (2021) defined flexibility as “the capacity to adapt oneself to new situations or circumstances. The student can break with stereotypes and monotony, chancing and renewing new ideas, trying to find new approaches and interpretations for the same topic” (p.14).

Operationally, in the current study, EFL creative writing flexibility is the ability to adapt writing styles, tones, and structures across various genres

(e.g., poetry, short stories). It involves exploring diverse themes and perspectives, experimenting with narrative techniques, and responding creatively to prompts in a PBI form

Literature Review:

Project-Based Inquiry (PBI) Global Model Framework:

Conceptual Foundations and Contemporary Developments

As the founder of this model, Hiller Spires, notes, the main theoretical foundation is constructivist learning theory, which emphasizes active knowledge building through meaningful, strong engagement with authentic tasks that connect to students' real-life experiences and global issues (Johnson et al., 2019). Nghiem et al. (2025) discuss how PBI Global takes both project-based and inquiry-based learning theories, and mention its unique blend of student-centered, authentic, and inquiry-driven frameworks with constructivist learning theory and principles.

In addition, Spires et al. (2022) placed the PBI Global model within larger theoretical frameworks, such as problem-based learning and new learning theory. This problem-solving orientation permeates the PBI Global cycle, from initial identification of a driving question or challenge, through investigation and research phases, to the creation and revision of final products addressing real-world audiences and purposes (Boss & Krauss, 2018). As a result, its focus on collaboration, real audiences, and multimodal production highlights different views of learning in digitally mediated, internationally connected settings. Furthermore, Spires et al. (2022) discuss integrating the global awareness that aligns with the United Nations Sustainable Development Goals (SDGs), which differentiate PBI Global from traditional project-based approaches. This framework provides authentic contexts for inquiry that unlike the traditional project frameworks which we used through our classes. Studies show that global themes increase student' motivation and engagement and help develop the critical thinking skills which is an important part for the 21st-century citizenship (Banks, 2019; Zhao, 2020).

One study, Himes et al. (2023), presented a qualitative investigation study to explore student and teacher experiences with PBI Global during the COVID-19 pandemic. They identified three themes: (1) worldwide knowledge of water issues, (2) collaboration in remote locations, and (3)

greater self-efficacy was gained through continuous learning. Spires et al (2022), addressed both the benefits and problems of PBL during this period, with limitations and offering potential for more research.

Additionally, Spires et al. (2022) utilized a mixed-methods research design study that investigate the impact of PBI Global on students' science knowledge, motivation, and views on inquiry in a cross-school collaboration. This study involved quantitative data from pre post-tests on science content and motivation, a study sample of 75 participants, and qualitative data from focus groups (n = 26), and multimodal learning products from student teams (n = 18). In this study the researcher conducted a thematic analysis of focus group discussions; also, in this study, three main themes and principles were mentioned: building empathy, learning for impact, and navigating challenges. Examining the complex relationships was part of the study among student experiences, motivations, and content knowledge, also they emphasize the importance of relationship building and mutual respect in cross-school collaboration.

Five-Phase Implementation Structure and Evidence:

Spires et al. (2022) emphasize a systematic five-phase model highlighted in many of their contemporary research on PBI Global. This structure offers scaffolding for the inquiry processes while remaining adaptable to various educational settings and learning goals. The five phases outlined in recent studies are: (1) developing compelling questions, (2) planning and gathering and analyzing sources, (3) creatively synthesizing claims and evidence, (4) revising and reflecting, and (5) sharing, publishing, and acting. educators Interested in inquiry-based learning. (Johnson et al. 2019).

Integration with UN Sustainable Development Goals:

This integration serves several educational purposes: it offers real-world contexts for inquiry, links local issues to global challenges, and enhances students' global citizenship skills (Himes et al., 2023). The SDGs framework presents 17 goals that tackle complex global issues, including poverty, inequality, climate change, sustainable development, education, and health (Carlsen & Brüggemann, 2021).

Spires et al. (2018) examined the importance of globalized education through a collective case study of students from China and the United States participating in a cross-cultural collaborative project using PBI Global. Data

were collected from student focus groups, written observations, and the outputs of their final projects. The findings indicated that collaborative inquiry improves students' abilities for educational globalization.

Another study by Chen & Tippett (2022) explores the use of project-based inquiry (PBI) in STEM education for preschool children. Using a qualitative case study approach within an action research framework, the researchers collected data through classroom observations, interviews with teachers, and document analysis. The study was conducted in Taiwan and sampled 11 preschool teachers and approximately 300 children. The findings for this study show that project-based inquiry can be successfully integrated into the preschool curriculum.

Creative Writing:

Types of Writing Skills:

Ibrahim et al., 2023, explain that writing is categorized into two types: functional writing and creative writing.

Functional Writing:

Functional writing is all about communicating a specific, straightforward message to a particular audience. It covers a variety of formats, such as instructions, letterhead, notes, invitations, reports, and advertisements, helping you get your message across clearly and effectively. (Ibrahim et al., 2023).

Creative Writing:

The concept of creative writing: According to Al-Khudari (2020), creative writing is "a language activity that a learner employs to express thinking, feelings, and emotions in responses to a stimulus to attain a strong effect, provoke emotions, and achieve emotional participation with the writer to be convinced with the case in an original, flexible, accurate, and aesthetic writing". Also, Pawliczak (2015, p.347) define creative writing as "The study of writing including poetry, fiction, drama, and creative non-fiction).

Creative writing is closely linked to creativity. It means expressing one's feelings and ideas about a specific topic on paper, using imagination freely (Jurayeva, 2024). Creative writing involves going beyond the ordinary without straying from normal values, generating ideas that differ from others' by using one's imagination, achieving originality, and writing smoothly while enjoying the process of creating (Diab, 2019).

Creative Writing Genres in EFL Education:

Several researchers, including Herawati (2021), Qatrinada and Apoko (2024), Viana and Zyngier (2019), claim that the teaching of creative writing in EFL classrooms usually includes key genres and instructional approaches. These keys include writing stories, poems, plays, creative nonfiction.

Alshuaifan's (2024) research highlighted the importance of incorporating different pedagogical methods to foster an inclusive and engaging environment for young writers. The study used a gamification-based enrichment program concerned with developing fluency, flexibility, originality, and elaboration among third-grade intermediate students at Princess Nourah Bint Abdulrahman University. Alshuaifan (2024) used a quasi-experimental pre-/post-test design with a sample of 20 students; findings revealed statistically significant improvements in all creative writing skills.

Alhassan (2023) examined the influence of learning EFL on the creative writing skills of gifted female secondary students in Saudi Arabia. Using questionnaires and written text analysis supported by SPSS statistical tests. The study found no significant performance difference between national and international program of students. However, in this study, participants expressed a clear preference for writing in English, suggesting that second-language learning positively affects creative writing motivation and engagement.

In another study, Ibrahim et al. (2023) evaluated the impact of a Facebook-facilitated social learning program on enhancing creative writing skills and motivation among secondary students. Seventy students were assigned to an experimental and a control group in a two-group quasi-experimental design. The results indicated significant improvements in both writing performance and motivation in favor of the experimental group, demonstrating the value of social learning theory (SLT)-based online instruction.

Ahmed (2021) examined the impact of brainstorming and problem-solving strategies on improving EFL creative writing among first-year preparatory students in Egypt. Conducted with 30 participants, the study applied pre-/post-testing and a structured rubric. Findings showed significant enhancement in students' creative writing performance, validating the effectiveness of cognitive engagement techniques in EFL classrooms. (Ahmed 2021).

Seleim et al. (2019) focused on the role of small learning communities in developing creative writing among secondary students. A total of 200 students were divided into experimental and control groups, with the experimental group receiving instruction through collaborative small-group learning. Post-test results showed that the experimental group significantly outperformed the control group, highlighting the benefits of cooperative learning structures. (Seleim et al. 2019)

Creative Writing Skills in EFL Contexts:

Creative Writing Skills:

Many researchers as, (AbdelFattah et al., 2020; et al., 2020; Al-Ahwal, 2018; Alshuaifan, 2024; Avramenko et al., 2018; Bedaiwy, 2021; El-Sawi, 2020; El-Sweedy, 2019; Jameel & Mohamood, 2017; Al-Ostaz, 2022). Agree that creative writing skills can be defined and classified into four main dimensions that collectively represent the essential characteristics of creativity in written expression. These dimensions are fluency, flexibility, originality, and elaboration, each contributing uniquely to the creative writing process. The researchers agree on defining these four main skills as follows:

Fluency: The learner's ability to generate many relevant and meaningful ideas easily and repeatedly, which shows their ability to flow with ideas and be productive with language

Flexibility: The ability to look at ideas from different angles and switch between different ways of thinking or expressing yourself, showing that you can adapt and be open-minded in your creative reasoning.

Originality: The ability to think in a way that is different from everyone else and come up with new, unexpected, or unusual ideas and ways of speaking that show creativity and individuality.

Elaboration: The skill to make ideas better, longer, and more precise by giving them more detail, organizing them logically, and using more advanced language.

The current study employs fluency and flexibility skills in creative writing.

Relationship Between Creative Writing and PBI Global Model:

Theoretical Connections and Pedagogical Synergies:

The relationship between Project-Based Inquiry (PBI) Global and creative writing instruction shows a natural pedagogical agreement based on shared

constructivist theoretical foundations and complementary learning processes that emphasize authentic contexts, student agency, process-oriented development, and meaningful communication with real audiences (Dewey, 2011; Vygotsky, 1987).

Studies show that the global awareness component of PBI Global can enhance creative writing by providing rich thematic content, cross-cultural perspectives, and international connections that expand students' creative resources and cultural competence while developing global citizenship attitudes and skills (Al-Jarf, 2022).

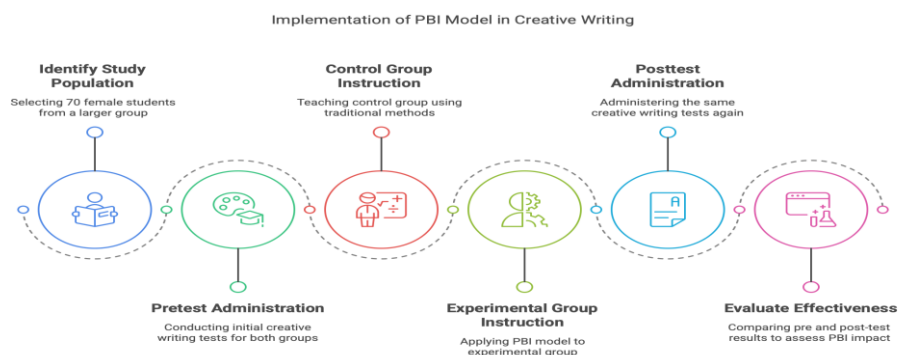


Figure (1) Study Design

Research Design:

The participants were selected using a purposive convenience sampling technique. Because the random assignment of individual students was not feasible in the real-world school setting, two intact classes were used and assigned to an experimental group and a control group. The target population consisted of second-year secondary female students (aged 16-17) in public schools in the Al-Rass region, Qassim, during the 2024-2025 academic year. These two classes were selected because the researcher was teaching at one of these schools, which provided access to two comparable intact classes; the initial sample comprised 70 students (35 per group), and the final analytic sample included 69 students.

As shown in Figure (1), the study employed a quasi-experimental pretest-posttest control-group design. In the current research, two intact classes were selected as an experimental group (PBI Global model) and a control group (Traditional instruction). In this research, both groups were administered the same test prior to and post the intervention in order to analyze the patterns of

improvement in both groups.

Study Population:

The target population consisted of all second-year secondary female students (ages 16-17) enrolled in public schools in the Al-Rass region, Qassim Province, Saudi Arabia, during the 2024-2025 academic year. According to regional educational statistics, approximately (1209) students met these demographic criteria across multiple schools in the district.

Data collection tools:

Data collection tools and supporting materials:

Data were collected using four complementary sources: (a) a pre- and post-creative writing test, (b) rubric aligned with fluency and flexibility sub-skills, (c) structured instructional resources and materials used during the intervention.

1-Creative Writing Test (Pre/Post): A criterion-referenced creative writing assessment was developed by the researcher. The researcher reviewed some previous studies that employed pre-post experimental designs to measure creative writing development (Abu Hussein, 2020; Al-Ostaz, 2022; Ibrahim & Marouny, 2023) to elicit performance across creative genres and to choose suitable questions that match the student level and are appropriate for the intervention

2- Rubric (Fluency and Flexibility): The researcher used an analytic rubric to evaluate the students' results from the pre-posttest. This rubric was constructed by reviewing multiple literature sources and previous studies related to EFL creative skills (Abu Hussein, 2020; Al-Ostaz, 2022; Al-Mahdawi, 2019; Ibrahim, 2023). Then, the initial skills and sub-skills were prepared and presented to operationalize creative writing **fluency** (e.g., cohesion/coherence, vocabulary, variety of ideas) and **flexibility** (e.g., creativity/originality, unexpected elements, adaptability).

Overview of the PBI Global Model intervention:



Figure (2) The PBI Global Cycle

Project-Based Inquiry (PBI) Global diagram

Note. Adapted from *Disciplinary Literacy and Inquiry: Teaching for Deeper Learning*, by H. A. Spire, S. N. Kerkhoff, and A. C. K. Graham, 2016, *Journal of Adolescent & Adult Literacy*, 60(2), pp. 151–161. Copyright.

Intervention duration and implementation timeline:

This intervention was delivered over a 16-session period at a rate of two sessions per week. Each session was 50 minutes long. Table (1) provides the authoritative overview of session sequencing and project focus.

Table (1)

Intervention Timeline and Session Focus (Weeks 1–9)

Week	Sessions	Focus	Main learning products
Week 1	Pre-test + Sessions 1–2	Project 1 launch: justice narratives, inquiry question, group roles	Planning artifacts; initial drafting
Week 2	Sessions 3–4	Project 1 research and text analysis (mentor texts, vocabulary banks)	Notes, word banks, portfolios
Week 3	Sessions 5–6	Project 1 drafting, organizer, cards	Justice story drafts
Week 4	Sessions 7–8	Project 1 presentation and reflection	Final story, feedback, reflection
Week 5	Sessions 9–10	Project 2 launch: eco-tourism, place-based inquiry and genre shift	Letter plan; genre modeling
Week 6	Sessions 11–12	Project 2 analysis of informational texts and vocabulary extraction	Categorized vocabulary resources
Week 7	Sessions 13–14	Project 2 drafting: personified persuasive letters	Letter drafts
Week 8	Sessions 15–16	Project 2 sharing, reflection, and exhibition	Final letters, public sharing
Week 9	Post-test	Parallel creative writing prompts under identical conditions	Post-test scripts

Across two PBI Global model creative writing projects, instructional tools structured the learning process and mediated student work through role cards, Case File Folder organizers, higher-order thinking cards, digital portfolios, model texts, and structured organizers that supported moving from text analysis to creative synthesis. In the justice narrative unit, students planned narrative elements, organized themes, and tracked vocabulary, while in the eco-tourism project they categorized descriptive language, environmental terminology, and cultural details from informational essays. Both projects concluded with presentations and exhibitions in which students presented collaboratively crafted justice stories and personified persuasive letters about regions such as Al-Ula and Riyadh, describing their identities, natural features, and environmental concerns. In addition to creating innovative inventions to solve regional problems. The researcher also organized a presentation for visiting English language teachers to demonstrate how the PBI Global Model could foster flexibility and fluency in creative writing through a course-style explanation and dramatized student performances adapted from literary material and they evaluate their project.

Validity and reliability procedures:

Expert review of the assessment tasks, prompt wording, administration instructions, and rubric descriptors addressed content validity. Also, the researcher used different indicators that were useful for rubric-based performance assessment to check reliability. Internal consistency was assessed using Cronbach's alpha across the rubric dimensions to determine the coherence of the criteria as a measurement system (Cronbach, 1951). Second, score stability was assessed via a test-retest methodology utilizing a subsample, where the correlation between two administrations indicates that scores remain stable when performance is anticipated to be relatively consistent over a brief period. Third, since scoring creative writing requires expert judgment, inter-rater reliability was assessed by having two trained raters double score a subset of scripts, employing Cohen's kappa for categorical agreement and the intraclass correlation coefficient (ICC) for continuous agreement (Cohen, 1960). Table (2) provides the format for reliability reporting that should be used this research.

Table (2)

Reliability indicators for the creative writing assessment and rubric

Reliability type	Data basis	Statistic	Reported value	Interpretation (brief)
Internal consistency	Rubric dimension scores (pre-test, N = 69)	Cronbach's α	0.86	Indicates good internal consistency across the six rubric dimensions; the criteria function coherently as a unified measurement system.
Test-retest stability	Total score at Time 1 & Time 2 (pilot subsample, n = 15)	Pearson r	0.91	Indicates excellent score stability over a short interval; students' scores remained highly consistent across administrations.
Inter-rater agreement (categorical)	Double-scored scripts (subset, n = 20)	Cohen's κ	0.82	Indicates substantial agreement beyond chance; raters assigned the same performance level in the large majority of cases.
Inter-rater agreement (continuous)	Double-scored scripts (subset, n = 20)	ICC	0.88	Indicates good to excellent consistency of numeric scoring between raters; continuous scores were highly comparable.

Note. The Cronbach α was calculated for the six dimensions of the rubric using the pre-test data set for all participants (N = 69). The test-retest stability was also examined for a pilot test subgroup who were retested after a two-week interval. The inter-rater agreement was examined through the double scoring of a randomly selected set of anonymized scripts by two trained raters after calibration. ICC = intraclass correlation coefficient, two-way random, absolute agreement, single measures.

Results and discussion related to study First Question:

Research Question 1: What sub-skills are required to improve creative writing fluency among second-year secondary students?

To answer the study's first question, the researcher reviewed the educational literature and previous studies related to EFL students and prepared a list of sub-skills for creative writing fluency, then created the pre-post tests and a rubric under these skills as discussed in the methodology. This list was judged by 10 experts in English teaching methods and linguistics. See Table (3).

Based on an extensive review of the literature and expert validation, the creative writing fluency rubric included three major sub-skills: vocabulary richness, cohesion

and coherence, and variety of ideas. These sub-skills served as the assessment dimensions used to evaluate students' creative writing performance.

Table (3)

Rubric dimensions, operational definitions, and subscale membership (used to define fluency and flexibility sub-skills)

Dimension (1–4 each)	Operational definition (summarized performance focus)	Subscale membership
Cohesion & Coherence	Logical flow, organization, clarity of beginning-middle-end	Fluency
Vocabulary	Range, precision, appropriateness, descriptive language	Fluency
Variety of Ideas	Breadth and diversity of ideas and perspectives	Fluency
Creativity & Originality	Novelty of ideas, distinctive voice, imaginative elements	Flexibility
Unexpected Elements	Surprising developments, creative turns, innovative language use	Flexibility
Adaptability	Ability to shift tone/structure, respond to task constraints	Flexibility

Note. Fluency composite = sum of the three fluency dimensions (range 3–12). Flexibility composite = sum of the three flexibility dimensions (range 3–12). Overall creative writing = sum of all six dimensions (range 6-24).

Results and discussion related to study Second question:

What sub-skills are required to improve creative writing flexibility among second-year secondary students?

Finding (RQ2).

To answer the study's second question, the researcher reviewed the educational literature and previous studies related to EFL students and prepared a list of sub-skills for creative writing flexibility, then created the pre-post tests, and rubric under these skills as discussed in chapter 3. In this study, creative writing flexibility was operationalized through three rubric dimensions: Creativity & Originality, Unexpected Elements, and Adaptability (Table 4.1).

Results and discussion related to study Third question:

What is the effectiveness of the Project-Based Inquiry (PBI) Global model in improving creative writing fluency among second-year secondary students?

To answer this question, the researcher reports pre- and post-test descriptive statistics for each fluency dimension and the fluency composite

score, by group (Table 4.2). Across the intervention period, the experimental group demonstrated consistent improvement on all three fluency dimensions, while the control group showed little change.

Table (4)

Pre-test and post-test descriptive statistics by group

Outcome	Experimental Pre M (SD)	Experimental Post M (SD)	Gain (Exp)	Control Pre M (SD)	Control Post M (SD)	Gain (Ctrl)
Cohesion & Coherence	2.38 (1.18)	2.97 (1.00)	+0.59	2.79 (1.11)	2.74 (1.14)	-0.05
Vocabulary	2.68 (1.07)	3.06 (0.95)	+0.38	2.76 (1.00)	2.76 (0.92)	0.00
Variety of Ideas	2.47 (1.05)	3.24 (0.99)	+0.76	2.88 (1.11)	2.88 (1.15)	0.00
Fluency composite (3 dims)	7.53	9.27	+1.74	8.43	8.38	-0.05
Creativity & Originality	2.21 (1.23)	2.85 (1.28)	+0.65	2.55 (1.12)	2.65 (1.18)	+0.10
Unexpected Elements	2.65 (1.20)	3.12 (1.07)	+0.47	2.42 (1.09)	2.44 (1.08)	+0.03
Adaptability	1.91 (1.19)	2.88 (1.30)	+0.97	2.15 (1.20)	2.38 (1.10)	+0.24
Flexibility composite (3 dims)	6.77	8.85	+2.08	7.12	7.47	+0.35
Overall creative writing (6 dims)	14.30	18.12	+3.82	15.55	15.85	+0.30

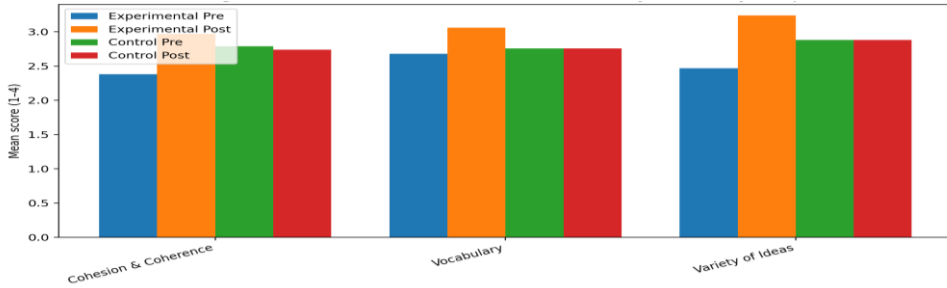


Figure (3) Pre- and Post-test Mean Scores for Fluency Subskills by Group

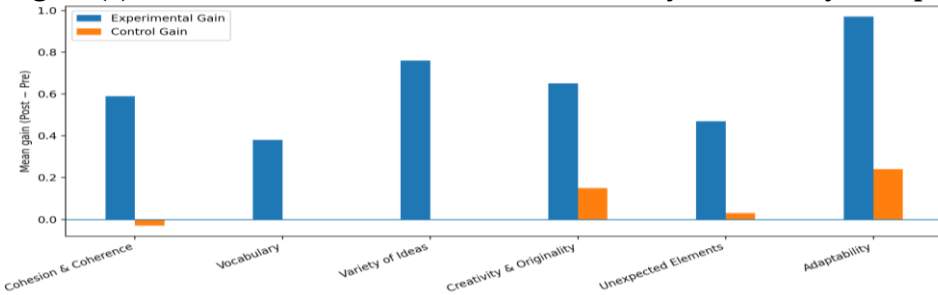


Figure (4) Mean Learning Gains by Rubric Dimension

To evaluate the intervention effect on fluency, between-group differences in learning gains (post-test minus pre-test) were examined (**Table 5**). The results favored the experimental group across all fluency dimensions, with medium to large effect sizes.

Table (5)

Between-group comparisons of learning gains (post-test minus pre-test)

Outcome	Experimental Gain M (SD)	Control Gain M (SD)	Welch t (df)	p	Cohen's d
Cohesion & Coherence	0.59 (0.86)	-0.03 (0.30)	3.98 (40.7)	<.001	0.97
Vocabulary	0.38 (0.82)	0.00 (0.25)	2.59 (38.9)	.014	0.63
Variety of Ideas	0.76 (0.99)	0.00 (0.35)	4.23 (40.9)	<.001	1.03
Creativity & Originality	0.65 (0.95)	0.15 (0.67)	2.52 (59.2)	.014	0.61
Unexpected Elements	0.47 (0.93)	0.03 (0.39)	2.55 (44.0)	.014	0.62
Adaptability	0.97 (1.24)	0.24 (0.50)	3.19 (43.2)	.003	0.78
Flexibility composite (3 dims)	2.09 (2.48)	0.42 (0.97)	3.66 (42.6)	<.001	0.89
Overall creative writing (6 dims)	3.82 (3.69)	0.30 (0.88)	5.41 (36.6)	<.001	1.32

Taken together, Table (5) and Table 4.3 show that PBI Global was linked to significantly greater improvements in creative writing fluency than traditional teaching. The most significant enhancement in fluency was recorded in Variety of Ideas ($d = 1.03$), followed by Cohesion & Coherence ($d = 0.97$). This indicates that inquiry-based project work particularly assisted learners in producing deeper content and organizing it into more coherent texts.

Results and discussion related to study Fourth Question:

Research Question 4: What is the effectiveness of the Project-Based Inquiry (PBI) Global model in improving creative writing flexibility among second-year secondary students?

To answer this question, the researcher presented descriptive results in Table (4) and inferential results in Table (5) Analysis of the data revealed that, the experimental group improved on all three flexibility dimensions and the flexibility composite score, while the control group only made small changes. At the inferential level, gain comparisons revealed statistically significant advantages for the experimental group across all dimensions of flexibility and for the overall flexibility composite score.

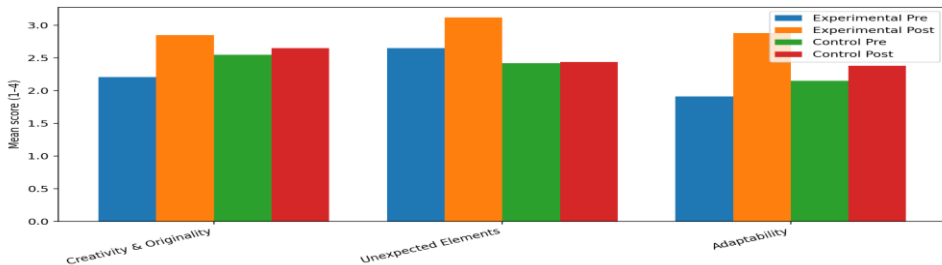


Figure (5) Pre- and Post-test Mean Scores for Flexibility Subskills by Group

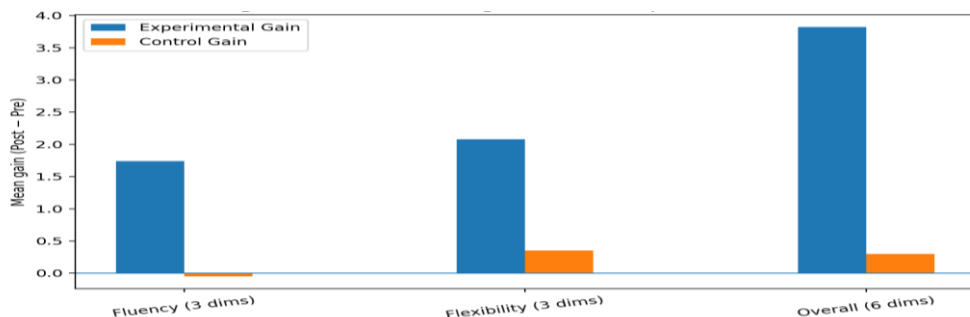


Figure (6) Mean Learning Gains for Composite Outcomes

From Table 4.3, the experimental group achieved significantly larger learning gains than the control group in: Creativity & Originality ($d = 0.61$), Unexpected Elements ($d = 0.62$), and Adaptability ($d = 0.78$). Moreover, the flexibility composite gain was significantly higher for the experimental group (Welch $t(42.6) = 3.66$, $p < .001$, $d = 0.89$), indicating an overall improvement in flexible creative performance rather than isolated improvement in a single sub-skill.

Conclusion:

The findings of the current study suggested that the PBI Global model significantly improves creative writing fluency among second-year secondary EFL students. The experimental group showed significant gains in cohesion and coherence, vocabulary, and variety of ideas through questioning, exploration, synthesis, revision, and reflection before producing written outputs. The results were consistent with several studies conducted in EFL contexts, including Alshuaifan (2024), Ibrahim et al. (2023), and Türkben and Karaca (2023), which revealed the effectiveness of instructional methodologies, social learning, and inquiry-oriented approaches in improving idea development, vocabulary use, fluency, and discourse control in creative writing.

The researcher observed that students gradually overcame hesitation toward the PBI Global model and demonstrated cohesion, coherence, and vocabulary through historical fiction narratives and Victorian detective mysteries that included imaginative descriptions, genre-appropriate language, and poetic expressions. Students also showed improvement in variety of ideas through investigative manga stories that contained multiple plot threads, diverse character perspectives, and rich characterization.

The results also suggested that the PBI Global model significantly improves creative writing flexibility among second-year secondary EFL students. The experimental group achieved significant improvements in creativity and originality, unexpected elements, and adaptability, with effect sizes ranging from very large to exceptionally large. The analysis of student work samples revealed that successful students demonstrated strength in all flexibility dimensions simultaneously. The findings aligned with previous studies by Ahmed (2021), Alshuaifan (2024), Seleim et al. (2019), and studies on inquiry-based learning and PBI Global by Spires et al. (2018, 2022), which

emphasized adaptive thinking, empathy, perspective-taking, and creative divergence.

The researcher also observed that students experimented with drawings, scary elements, art, sound effects, dramatic performances, and innovative eco-tourism solutions, demonstrating willingness to adapt their creative outputs to different modes and audiences. The cross-genre nature of the intervention, moving from justice narratives to eco-tourism letters, further supported adaptability, transfer, and genre awareness, while scaffolding tools such as graphic organizers, model texts, and guided questioning established inquiry routines.

In contrast, the control group demonstrated minimal progress, no improvement in vocabulary or variety of ideas, and a slight decline in cohesion and coherence. These findings were consistent with previous studies comparing traditional teacher-centered instruction with student-centered approaches in EFL writing contexts. The researcher suggested that the slight decline in the control group's post-test scores may be related to repeated testing effects, reduced motivation, boredom, and disengagement during the nine-week period without any new or stimulating instructional approach. Research by Wise and DeMars (2005), Eklöf (2010), Penk and Richter (2017), and Sachse et al. (2023) supported the interpretation that lower post-test performance may reflect reduced effort, careless errors, unanswered items, and diminished test-taking motivation rather than an actual decline in writing ability. Overall, the findings of the current study contributed to the research literature on PBI Global and creative writing instruction by demonstrating the effectiveness of the PBI Global model in fostering fluency, flexibility, creativity, adaptability, collaboration, and student

Recommendation:

- 1- Teachers are encouraged to use the PBI Global framework by creating real-world projects for each subject that go through the five stages of inquiry.
- 2- Each writing class encourages to have collaboration so that students are responsible, involved, and exposed to different points of view on writing.
- 3- Teachers are encouraged to use an organizer, a multidimensional assessment, and rubrics to grade both the writing process and the final product.

- 4- The curriculum supervisor could offer programs to teach teachers how to design inquiries, work together, assess students, along with assessment practices, and a global perspective.

Suggestion for future studies:

- 1- Future research suggested investigating the effectiveness of PBI Global across different academic subjects to see if its effects vary in each one.
- 2- Comparative studies are recommended to examine PBI Global in relation to different pedagogical strategies, including the process writing approach, genre-based instruction, cooperative learning, flipped classrooms, and blended learning models.
- 3- Future studies are recommended to explore how combining PBI Global with different subjects influences student learning outcomes, motivation, and engagement.

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