

## ARTICLE

# The Contribution of Writing Portfolios in Developing EFL Students' Writing Accuracy and Fluency: An Exploratory Study

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## ABSTRACT

This research explores the impact of writing portfolios on the fluency and accuracy of writing among novice English as a Foreign Language (EFL) writers at the intermediate level. Writing portfolios, as a process-oriented assessment mode, offer space for reflection, revision, and incremental building—attributes absent in most traditional assessment models. A mixed-methods approach was utilized with sixty male students from a public Saudi university divided into two groups, of which the experimental group used writing portfolios and the control group used discrete writing tasks without the benefit of revision. The intervention spanned ten weeks, and data were collected at three points in time—pre-test, mid-test, and post-test—and analyzed using a specially developed rubric that quantified fluency and accuracy. The primary instruments are students' writing samples and reflections from the portfolios. The data were processed using SPSS. Results indicate that the portfolio group showed significant improvements in both fluency and accuracy due to repeated revision and self-assessment exercises based on both writing output and reflections. Furthermore, the study highlights the role of cognitive awareness in the writing process, focusing on how reflective practices enhance students' understanding of their writing strategies. The study offers rich information on writing instruction through portfolios and demonstrates its worth in the development of self-directed, proficient EFL writers. The findings underscore the importance of process-oriented assessment in language teaching and call for the integration of writing portfolios into EFL programs to improve students' writing skills and cognitive awareness.

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### ARTICLE INFO

Received: 8 July 2025 | Revised: 17 July 2025 | Accepted: 25 July 2025 | Published Online: 28 September 2025  
DOI: <https://doi.org/10.30564/fls.v7i10.10942>

### CITATION

Al-Ahdal, A.A.M.H., Hameed, P.F.M., 2025. The Contribution of Writing Portfolios in Developing EFL Students' Writing Accuracy and Fluency: An Exploratory Study. *Forum for Linguistic Studies*. 7(10): 708–724. DOI: <https://doi.org/10.30564/fls.v7i10.10942>

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**Keywords:** Writing Portfolios; EFL Learners; Fluency; Accuracy; Metacognitive Awareness

## 1. Introduction

Proficiency in English is highly mandated in a globalized world<sup>[1]</sup>. For English as a Foreign Language (EFL) learners, writing remains one of the most challenging skills to master due to its demands on organization, grammatical accuracy, lexical precision, and coherence<sup>[2]</sup>. Unlike speaking, which often relies on spontaneous communication, writing requires deliberate cognitive effort, structured thinking, and continuous improvement<sup>[3]</sup>. Since academic and professional success depends on good writing, traditional English as a foreign language teaching and assessment methods, which prioritize the end result over the process, often do not promote systematic development<sup>[4]</sup>.

Traditional, product-oriented curricula focus exclusively on the end result, ignoring feedback, clarification, and cognitive reflection, and reducing assessment to superficial grades<sup>[5]</sup>. This emphasis on accuracy, rather than on the interpretation of meaning and cognitive interaction, hinders students' understanding of linguistic structures and the development of higher-order thinking skills<sup>[6]</sup>. As a result, teachers are increasingly turning to process-oriented curricula, including writing portfolios, as an effective pedagogical alternative that accommodates the dynamic nature of language acquisition<sup>[7]</sup>.

Writing is a developmental process that involves drafting, editing, revising, and reflecting<sup>[8]</sup>. Portfolios document this progress, encouraging students to engage more deeply in the writing process and teachers to monitor long-term progress<sup>[9]</sup>. With a focus on iterative improvement, portfolios provide opportunities for experimentation, error correction, and cognitive awareness—key components of constructivist learning theory and the process approach to writing<sup>[10,11]</sup>. Cognitive awareness, defined as students' ability to monitor, evaluate, and regulate their writing strategies, is crucial for long-term skill development<sup>[12]</sup>. Research suggests that portfolios foster this awareness by incentivizing self-assessment and reflective practice, which in turn promotes linguistic risk-taking and autonomy<sup>[13]</sup>.

While writing portfolios are widely adopted in Western education, their implementation in EFL contexts—

particularly for intermediate learners struggling with fluency and accuracy—remains underexplored<sup>[14]</sup>. These learners often produce texts lacking cohesion and lexical richness, yet traditional assessments fail to capture incremental progress or cultivate metacognitive growth<sup>[15]</sup>. This gap underscores the need for alternative instructional models that support longitudinal writing development while engaging learners cognitively and reflectively<sup>[16]</sup>. Although portfolios offer a promising solution, few empirical studies examine their impact on both accuracy and fluency in EFL settings, and even fewer combine quantitative and qualitative analyses to provide a holistic understanding of their effectiveness<sup>[17]</sup>.

This study addresses these gaps by investigating the role of portfolio-based writing instruction in improving the accuracy and fluency of intermediate-level EFL students at a Saudi university. Specifically, the study compares the writing outcomes of students who use the portfolio over time with those who follow traditional, non-reflective writing tasks. The study also explores students' perceptions of the portfolio process, particularly its impact on their epistemic awareness (measured through reflective journals and surveys adapted from Flavell's (1979) cognitive framework) and risk-taking behaviors in writing<sup>[18]</sup>. By analyzing both writing products and reflective processes, this research provides a comprehensive view of how the portfolio contributes to the development of writing in EFL contexts.

The study is guided by two theoretical frameworks: the Process Writing Approach and Constructivist Learning Theory. The process writing model frames writing as a recursive and developmental process consisting of planning, drafting, revising, and reflecting. It differs significantly from product-oriented approaches that judge writing on the basis of one draft. It urges the learners to think of writing in terms of a craft—something that gets better with practice, feedback, and reflection. Constructivist learning theory, as developed by theorists such as Vygotsky and Piaget, highlights that the learners themselves actively construct knowledge from experience and interaction with the world. In the context of language learning, constructivist principles lend support to teaching strategies that are student-centric, collaborative, and reflective. Writing portfolios follow the same principles

by offering learners the tools and room to build meaning, monitor their own progress, and reflect on their learning objectives consciously.

The study examines the impact of portfolios on the writing fluency and accuracy of intermediate EFL learners. As a process-oriented assessment method, portfolios offer space for reflection, repetition, and gradual construction of the text—features absent in most traditional assessment models. In light of the above, this study seeks to address the following research questions:

- 1) How much does the use of writing portfolios impact the writing fluency of intermediate-level EFL students?
- 2) What is the impact of writing portfolios on writing accuracy among the same group?
- 3) How do students perceive the portfolio process, and what can it tell us about their metacognitive growth and risk-taking ability in writing?

## 2. Literature Review

One of the linguistic skills that students of English as a foreign language (EFL) need to master is writing. EFL students must comprehend the subject matter of their writing to write well. Additionally, they must be able to identify any writing mistakes they might have. As a result, students must be willing to evaluate their writing and practice writing<sup>[18]</sup>.

### 2.1. Writing in the EFL Context

Writing remains a fundamental skill for those learning English as a foreign language (EFL), but it is often the most difficult to master due to its complex linguistic, cognitive, and cultural demands. EFL writing, according to Kormos, is especially difficult because of its intricate linguistic, cognitive, and cultural requirements, which call for students to plan, organize, revise, and self-correct<sup>[18]</sup>. Thus, to produce a coherent and accurate text, students must understand the subject matter and go through several stages of planning, organizing, drafting, and editing. Equally important is the ability to independently recognize and correct linguistic errors. This highlights the need for teaching methods that encourage reflection, ongoing engagement, and self-monitoring.

### 2.2. Theoretical Foundations of Writing Portfolios

#### 2.2.1. Process Writing Theory

The portfolio approach to writing is based on writing process theory, which suggests that writing is an iterative, student-centered process involving multiple stages of planning, drafting, revising, and editing<sup>[2,3]</sup>. The portfolio is a tool that allows students to engage in this process, track their progress, and gradually improve their writing.

#### 2.2.2. Vygotsky's Sociocultural Theory

From a sociocultural perspective, Vygotsky's concept of the zone of proximal development (ZPD) supports the use of portfolios as a space for flexible learning<sup>[9]</sup>. Feedback from teachers and peers encourages students to develop beyond their current level of language proficiency. This interactive and social learning environment promotes the development of language perception and enhances students' ability to independently edit and control language.

#### 2.2.3. Constructivist Learning Theory

According to constructivist approaches such as Piaget's, knowledge construction is an active process driven by the learners themselves<sup>[5,6]</sup>. Portfolios align with this perspective by encouraging students to make decisions about their work, self-assess, and reflect on their progress. These practices promote autonomy and self-regulation, which are essential for developing fluency and accuracy in writing<sup>[7]</sup>.

#### 2.2.4. The Noticing Hypothesis

Schmidt's hypothesis that portfolios promote accuracy further explains how they influence accuracy. When students review drafts, receive feedback, and make corrections, they are more likely to perceive and internalize language forms and structures. This ongoing attention to form improves grammatical accuracy over time<sup>[8]</sup>.

#### 2.2.5. Skill Acquisition and Fluency Development

Finally, skill acquisition theory by Dekeyser suggests that fluency is achieved through practice and automation of language skills. Through consistent completion of writing tasks, portfolios provide opportunities for repeated practice, which helps students develop fluency and expressiveness<sup>[9]</sup>.

### 2.3. Portfolio and Evaluation

A writing portfolio is a carefully chosen set of a writer's best work that shows their skills, adaptability, and experience<sup>[19]</sup>. It is a professional tool for showing off one's writing skills to potential clients, employers, or school<sup>[20]</sup>. The content varies depending on the writer's field. For example, freelancers might highlight published articles, while students might focus on academic essays. According to Chelli<sup>[21]</sup>, a portfolio is "a purposeful collection of students' work not only exhibiting students' effort, progress, and achievement but also, demonstrating students' participation in selecting content and selecting the criteria for assessment and evidence of students' self-reflection". Also, keeping a portfolio lets students see how their writing skills have changed and grown over time, which helps them find areas where they can improve.

Writing portfolios often including multiple drafts, feedback, revisions, and personal reflections<sup>[22]</sup>. They serve both instructional and assessment purposes<sup>[23]</sup>. The portfolio approach is rooted in process writing theory, which emphasizes writing as a recursive, learner-centered process involving planning, drafting, revising, and editing<sup>[21]</sup>.

### 2.4. Portfolios and Writing Accuracy

Portfolios have been shown to improve writing accuracy in EFL learners significantly<sup>[24]</sup>. By encouraging multiple drafts and facilitating teacher or peer feedback, they allow learners to notice and correct grammatical, lexical, and mechanical errors over time<sup>[25]</sup>. The ongoing revision process supports the development of self-monitoring and metalinguistic awareness<sup>[26,27]</sup>. Moreover, through guided revision and reflection, students become more conscious of their language use and are better able to internalize corrections, leading to gradual improvement in accuracy.

### 2.5. Portfolios and Writing Fluency

The growth of a learner's writing fluency is another important aspect that portfolios contribute to, in addition to the development of their accuracy. According to Yu<sup>[28]</sup>, learners are able to write more freely and confidently, with less hesitancy and higher lexical variety, when they are given regular writing activities that have low risks and are conducted

inside the portfolio format<sup>[28]</sup>. Learners are encouraged to take risks and are assisted in the generation of ideas and the organisation of those ideas more coherently when the focus is placed on meaning-making and personal expression rather than perfection<sup>[29]</sup>. In this manner, the portfolio provides support for both the number and quality of the results of the writing.

### 2.6. Empirical Support for Portfolio Use in EFL

A growing body of empirical research supports the effectiveness of using writing portfolios in teaching English as a foreign language. Fathi et al. reported that portfolio-based writing instruction significantly improved students' writing achievement and reduced their anxiety. They examined how portfolio-based writing teaching affects EFL students' writing performance and anxiety<sup>[10]</sup>. Similarly, Taufik and Cahyono demonstrated that integrating self-assessment with e-portfolios led to measurable improvements in tenth-grade students' writing skills. They found and supported that EFL instructors consider using self-assessment integrated with e-portfolio for the improvement of EFL learners' writing skills<sup>[1]</sup>.

Wang and Lin found that electronic portfolio-based instruction significantly enhanced Chinese EFL students' writing self-efficacy and overall writing quality<sup>[13]</sup>. Two groups of 64 participants were created: a control group (n = 33) and an experimental group (n = 31). While the control group only received conventional in-class writing training without the use of Edmodo, the experimental group received electronic portfolio-based education using the Edmodo platform. To get quantitative data, the Writing Self-efficacy measure and two sample IELTS assignments were given. Additionally, participants in the experimental group were interviewed in a semi-structured manner to collect qualitative information on their opinions and experiences with writing training based on electronic portfolios. Electronic portfolio-based writing instruction significantly enhanced Chinese EFL learners' writing self-efficacy as well as global writing performance and its constituent parts, including content, organization, language use, vocabulary, and mechanics, according to the results of paired samples t-tests and means.

Portfolio-based writing training may be a good alternative to EFL's standard product writing methods<sup>[10]</sup>. Portfolio

evaluation allows EFL writing teachers to give students detailed corrective feedback and meaningful remarks on their writing tasks, improving writing quality and reducing anxiety. Teachers must improve their assessment abilities and adjust their ideas to implement assessment effectively<sup>[15]</sup>. EFL teacher education programs should do more to prepare pre-service and prospective teachers to use portfolio assessment in their classes. Trevitt and Stocks discussed the importance of portfolios in higher education teaching and their role in setting professional learning expectations<sup>[30]</sup>.

The authenticity of an account is crucial, and participants should provide an honest description of their background, behavior, and professional position. Five indicators of authenticity are proposed: goal and values in continuing professional learning (CPL), coherence of writing, practice development and experience, integration of core concepts and key ideas from literature, and biographical/professional context. These indicators help course instructors and disciplinary colleagues clearly state expectations for participants and assessment colleagues.

One potential solution to this problem that an English teacher may face is the portfolio system. The study of the portfolio system that focuses on students' perceptions is very important since it aids in the correct learning of writing abilities by both English language teachers and students. The study's purpose was to find out how high school students felt about using a portfolio system to help them write better when learning English as a second language. This study involved four high school students as participants. One-to-one interviews were used by the researcher to gather data in this study. According to the findings, students preferred using a portfolio approach to hone their English writing abilities. This study contributes to the training of writing skills in English. According to this study, a portfolio system can be an effective teaching instrument for secondary school English writing instruction. By providing feedback on their work, the teacher can help the pupils and improve their writing skills<sup>[19]</sup>.

One of the options available for composing assessments is a portfolio. Curricula rarely include portfolios. Portfolios have been ignored since they have not been distributed to language teachers. Teachers must be adequately informed about portfolios, their potential applications for assessment, and the advantages of utilizing them for evaluation to mo-

tivate them to use them for writing evaluation. Eridafithri examined why senior high school students' writing is not evaluated using portfolios and explored strategies to support teachers in implementing portfolio assessment in English classes<sup>[31]</sup>. In this study, a questionnaire (see **Appendix A Table A1**) was distributed to the 26 teachers who took part in the study to learn more about their experiences as teachers and their previous knowledge regarding portfolios. The researcher's observations while observing their instruction confirmed the data from the questionnaire. According to the study's findings, many teachers struggled to create a rubric or set of guidelines for using portfolios for writing assessments, and the observation showed that the difficulties of correcting portfolios deterred teachers from using them as a method of assessment.

Studies in language instruction and general education have shown how important students' perceptions of learning are to their academic performance. However, instructional and assessment practices that promote profound ideas of writing have received little attention. This gap was filled by Gebrekidan and Zeru's quasi-experimental study at Wollo University, which looked at how EFL students' ideas and methods for writing were affected by Portfolio-Based Assessment (PBA)<sup>[32]</sup>. Sixty first-year students in the Natural Science Stream were randomized to either the experimental group, which was evaluated using portfolios, or the control group, which was evaluated using traditional techniques. Writing scales, writing assessments, interviews, and reflection sheets were used to gather data over the course of eight weeks. Results showed that students in the PBA group developed significantly deeper conceptions of writing and improved performance compared to those in the control group, indicating that PBA can enhance students' self-efficacy, reflection, and independent learning.

Even though the second language (L2) writing literature has extensively established the advantages of portfolio evaluation, teachers nevertheless encounter difficulties when attempting to implement it in their classes. Cheng followed two classes of sophomore students for two academic years to investigate the perceived advantages and difficulties of creating and evaluating e-portfolios for English as a Foreign Language (EFL) college writers<sup>[33]</sup>. Five themes about the perceived benefits surfaced from the examination of a questionnaire, student reflections, and interviews: letting students

review and think about their work, 2) helping them become owners and writers, 3) letting them show progress and feel more confident when writing, 4) helping them increase their digital literacy, and 5) improving scaffolded learning. Additionally, three problems with students' use of e-portfolios were identified: learner issues, editing time, and technical obstacles. In general, most students appreciated the process of making and assessing their own Wix-based e-portfolios, which demonstrated their evolution as authors and students over time. Even though some students found creating the Wix-based e-portfolios difficult, they thought the method was creative, cohesive, and introspective. This study concluded with implications for educators who wish to integrate the portfolio approach through web-based platforms.

With an emphasis on formative assessment, Qayyam sought to determine how portfolio use affected the writing skills of undergraduate ESL/EFL students. Students created portfolios with several drafts, reflective entries, and feedback cycles within a specified instructional period. Improved paragraph form and coherence, more robust evidence-based arguments, and heightened metacognitive awareness in students' writing processes were among the main advantages shown by thematic analysis of portfolio contents<sup>[34]</sup>.

The usefulness of podcasts as a tool for improving pronunciation among EFL students at Qassim University was investigated by Al-Ahdal (2020). A control group used conventional techniques, while an experimental group used podcast-based materials for a three-month intervention. According to post-test results, the experimental group's pronunciation had improved by almost 50%, indicating that podcasts have the ability to help students speak more accurately and independently<sup>[35]</sup>.

Marzuki et al. examined the variety of Artificial Intelligence (AI) writing tools that are available and evaluated how EFL teachers perceive their impact on students' writing, especially in terms of organization and content<sup>[36]</sup>. The study was built using a case study design and a qualitative methodology. Semi-structured interviews were used to gather data regarding the variety of AI writing tools and how they affect students' writing. To shed light on the range of AI writing tools utilized in their classrooms, the study collected data from four EFL professors at three different Indonesian universities. QuillBot, WordTune, Jenni, Chat-GPT, Paperpal, Copy.ai, and Essay Writer were among these programs. Ad-

ditionally, all these educators concurred that the AI writing tools enhanced the caliber of their students' writing, especially the content and arrangement. According to the study's findings, using AI writing tools can help improve the caliber of writing produced by EFL students.

Alqasham and Al-Ahdal evaluated the effectiveness of digital mind-mapping as a brainstorming technique to enhance the writing attitudes of Saudi EFL learners at Qassim University. Using free digital mind mapping software, forty male undergraduate students who performed below average in writing were involved in a three-week experimental study. Results from the post-intervention demonstrated a significant rise in students' enthusiasm and favorable attitudes toward writing. More involvement, better idea development, and better thought organization were noted by participants, indicating that the mind-mapping tool can be used as a motivating pre-writing technique<sup>[37]</sup>.

The use of portfolio assessment in English as a Foreign Language (EFL) classrooms is fraught with difficulties, despite its demonstrated advantages. According to studies, a lot of teachers steer clear of e-portfolios because of the added workload and ambiguous implementation instructions. Additional obstacles to successful adoption include technological issues and pupils' low level of digital literacy<sup>[38]</sup>. It is advised that teacher preparation programs include courses on portfolio-based evaluation, highlighting both its pedagogical benefits and real-world applications, in order to solve these issues. Furthermore, incorporating technology training can facilitate a more seamless transition to digital portfolios, improving efficacy and accessibility for both educators and students.

To conclude, the research review emphasizes how important writing portfolios are for improving the writing correctness, fluency, and self-efficacy of EFL students. Portfolios, which are based on theories like constructivism, process writing, and sociocultural learning, encourage introspection, self-reliance, and iterative development. Empirical research shows how well they work to lower anxiety, enhance writing, and foster metacognitive awareness. But issues like the workload of teachers and technological obstacles still exist. The promise of portfolios as a revolutionary tool in EFL writing teaching can be maximized by addressing these issues through focused teacher training and technology integration.

### 3. Methodology

This research is grounded in process writing theory, which views writing as a recursive developmental process involving planning, drafting, revising, and reflecting. The approach aligns with constructivist learning theory, particularly Vygotsky's Zone of Proximal Development (ZPD), by creating a social environment for guided discovery and scaffolded reflection. Writing Portfolios served as both pedagogical tools and research instruments to implement these theoretical frameworks.

#### 3.1. Research Design

The study employed a sequential explanatory mixed-methods design, combining quantitative and qualitative approaches. The quantitative phase featured a quasi-experimental design to measure objective improvements in writing accuracy and fluency while the qualitative phase analyzed portfolio reflections to understand students' metacognitive processes. This integration provided quantitative results to identify patterns of improvement, while qualitative data clarified how and why these changes occurred, providing a more complete understanding of portfolio effectiveness.

#### 3.2. Participants and Setting

The study was conducted at Qassim University, Saudi Arabia with 60 male EFL learners at the intermediate (B1 CEFR) level. The selection of that number for samples was based on using a power analysis ( $G^*$ power 3.1, 80% power,  $\alpha = 0.05$ ,  $d = 0.8$ ). The sample size of 30 allowed for attrition. This is consistent with other EFL research; despite limitations, larger samples may improve generalizability and detect minor effects more effectively.

The purposive sampling was used to ensure homogeneity in the participants' backgrounds and language proficiency, while controlling for extraneous variables. However, this approach presents potential limitations in terms of generalizability, particularly with regard to gender balance and broader ranges of language proficiency.

The participants were randomly assigned to either an experimental group ( $n = 30$ ) that used portfolios or a control group ( $n = 30$ ) that followed conventional writing instruction. All participants were aged 18–25 years, sharing the

same linguistic background which ensured the elimination of confounding variables.

#### 3.3. Research Design and Instructional Intervention

The 10-week intervention involved distinct approaches for each group. The experimental group engaged in portfolio-based writing, completing multiple drafts with peer and teacher feedback, along with reflective statements about their learning process. This scaffolded approach emphasized metacognitive awareness and self-regulation, incorporating rough drafts, revised versions, self-evaluations, and reflective commentaries at each writing stage. This method was aimed at promoting metacognitive awareness, self-regulation, and control of the writing process.

The control group received conventional product-focused instruction, completing timed writing instruction without opportunities for revision or reflection. Both groups completed the same number of written assignments (one per week) and were taught by the same teacher using comparable materials, ensuring consistency beyond teaching method. They were instructed on end products only, and there was no reflective or portfolio component woven into their classroom work.

To equate for consistency, both groups had the same number of writing assignments in total (one per week), and teaching was conducted by the same teacher in equal classroom time and materials. The only difference was instructional modality: process-oriented with portfolios or product-oriented without portfolios.

#### 3.4. Data Collection Procedures

Data were collected from three primary sources: writing samples collected at three intervals (pre, mid-, and post-intervention), portfolio reflections from the experimental group, and assessment rubrics evaluating both fluency and accuracy. A standardized expository writing task was administered to both groups under identical conditions to ensure reliability. Writing samples were assessed using a specially designed rubric focusing on two main dimensions: fluency and accuracy. Fluency was measured through word count, coherence, cohesion, and paragraph transitions, while accuracy was evaluated based on grammatical correctness.

To guarantee scoring reliability, the blind-coded scripts were assessed by two seasoned EFL raters with over 20 years of teaching experience. Students' experiences with the writing process, difficulties they faced, revision techniques, and perceived progress were the main topics of a thematic analysis of qualitative data from portfolio reflections. The study's validity was increased by this triangulation of quantitative and qualitative data, which offered several viewpoints on the efficacy of the portfolio.

## 4. Data Analysis and Results

Repeated measures means and paired sample tests were used to analyze the quantitative data for between-group and within-group differences across time. This approach enables investigation of the interaction effect between instructional condition and time, uncovering whether students' perfor-

mance significantly improved over time during the intervention and whether the changes varied by group. In the reading session, Braun and Clarke's six-step process was applied to thematically analyze the reflective entries<sup>[39]</sup>. Manually, initial coding was carried out, with the codes being sorted into more general themes of learner autonomy, revision strategy, risk-taking, and the transformation of writing identity. The three research questions were systematically answered using the data.

RQ1. How much does the use of writing portfolios impact the writing fluency of intermediate-level EFL students?

Writing fluency in this study was measured in terms of fluency, and the ratings were at three time points (pre-test, mid-test, post-test). Descriptive statistics revealed that both groups were homogenous and their proficiency levels were similar, as seen in **Table 1**.

**Table 1.** Paired Samples Statistics of the Pre-Test Phase of Both Groups.

		Mean	N	Std. Deviation	Std. Error Mean	Sig. (2-Tailed)
Pair 1	marks_con	32.33	30	3.144	0.574	0.730
	marks_exp	31.83	30	3.281	0.599	

In **Table 1**, the paired samples statistics compare the pre-test writing scores of the control group and the experimental group before the implementation of the writing portfolio intervention. The mean score for the control group was 32.33, while the experimental group scored a slightly lower mean of 31.83. The standard error of the mean for both groups was relatively small (0.574 and 0.599, respectively), indicating a relatively stable distribution of scores within each group.

The  $p$ -value was 0.730, which is much higher than the conventional alpha level of 0.05. This suggests that the difference between the two groups' mean scores at the pre-test stage is not statistically significant. This equivalence is crucial for experimental research, allowing for confident attribution of post-test differences to the intervention, writing portfolios. In other words, there is no meaningful difference between the control and experimental groups before the treatment was applied, which supports the internal validity of the study.

In the mid-test phase, the control group had a mean score of 56.83, while the experimental group scored significantly higher with a mean of 70.40. The standard error of the mean was 2.49 for the control group and 0.96 for the exper-

imental group, indicating less score variability and greater consistency among students in the experimental group. Most notably, the  $p$ -value was 0.0008, which is well below the conventional threshold of 0.05 for statistical significance. The significant difference in mid-test scores between the two groups indicates that the experimental group outperformed the control group after the portfolio-based instruction was introduced. The low  $p$ -value ( $p < 0.001$ ) confirms that this difference is statistically significant, meaning it is unlikely to have occurred by chance. This result provides strong evidence that the implementation of writing portfolios had a positive impact on the students' writing performance during the mid-phase of the study. One important observation is the large standard deviation in the control group (13.63) which also suggests greater variability in their performance, possibly indicating inconsistent progress or the lack of a unified instructional strategy. In contrast, the smaller standard deviation in the experimental group (5.28) may reflect the structured nature of portfolio-based learning (**Table 2**), which offers regular feedback, revision opportunities, and increased student ownership—factors that likely contributed to more stable and improved outcomes.



**Table 2.** Paired Samples Statistics of the Mid-Test Phase of Both Groups.

		Mean	N	Std. Deviation	Std. Error Mean	Sig. (2-Tailed)
Pair 1	marks_con	56.8333	30	13.62574	2.48771	0.0008
	marks_exp	70.4000	30	5.28237	0.96442	

The post-test results show a substantial difference between the control group and the experimental group after the intervention (**Table 3**). The mean score of the control group was 65.00, while the experimental group scored significantly higher with a mean of 89.93. Most notably, the *p*-value was 0.000, which indicates a highly significant difference between the two groups.

The data reveal a statistically significant improvement in writing performance among students in the experimental group who were taught using the writing portfolio method, compared to those in the control group who were not. The

large difference in mean scores (an increase of nearly 25 points in favor of the experimental group) provides compelling evidence that the writing portfolio approach had a positive and substantial impact on learners' writing development.

RQ2. What is the impact of writing portfolios on writing accuracy among the same group?

Based on the assessment of the number of grammatical and lexical errors for 100 words, writing improved in both groups, albeit more significantly in the experimental group. **Table 4** clarifies the main scores of the data.

**Table 3.** Paired Samples Statistics of the Post-Test Phase of Both Groups.

		Mean	N	Std. Deviation	Std. Error Mean	Sig. (2-Tailed)
Pair 1	marks_con	65.00	30	17.714	3.234	0.000
	marks_exp	89.93	30	12.199	2.227	

**Table 4.** Paired Samples Statistics Pre-Test and Post-Test of the Control Group.

		Mean	N	Std. Deviation	Std. Error Mean	Sig. (2-Tailed)
Pair 1	cont_pre	32.3333	30	3.14405	0.57402	0.000
	control_post	72.2000	30	5.44186	0.99354	

The study compared the performance of the control group before and after an instructional period that received no writing portfolio intervention; the students were taught using the conventional method. The post-test mean score increased significantly to 72.20, indicating a statistically significant improvement in writing scores. The control group's performance was attributed to practice, teacher support, and cumulative classroom exposure. However, the post-test standard deviation (5.44) was larger than the pre-test standard deviation (3.14), suggesting uneven progress. This could be due to variations in motivation, learning methods, or assistance outside the portfolio framework. The data suggest that the control group's learning gains from traditional instruction were statistically significant. However, the greater variation in post-test scores suggests that students' development might be more uneven without a structured tool like the writing portfolio. Therefore, incorporating reflective and

process-oriented tools like portfolios is crucial for promoting uniform growth, particularly in areas like writing accuracy and fluency.

The experimental group, taught using a writing portfolio approach, showed a significant improvement between their pre-test and post-test writing scores. The post-test mean rose to 89.93 (**Table 5**), indicating a significant learning gain. This results in a 58-point improvement from the pre-test to the post-test, indicating that the portfolio-based writing instruction significantly influenced EFL students' writing abilities. The post-test's standard deviation showed greater variability than the pre-test's, possibly due to individual differences in portfolio engagement. However, the general trend showed consistent improvement across the group, suggesting that the portfolio approach had a major impact on the writing skills of EFL students. The study provides compelling evidence that the portfolio approach significantly influences EFL students'

writing abilities.

RQ3. How do students perceive the portfolio process, and what can it tell us about their metacognitive growth and risk-taking ability in writing?

The analysis of the questionnaire (see **Appendix A Table A2**) findings indicates that students' perceptions of the

writing portfolio process are mostly positive, particularly regarding involvement, motivation, and user-friendliness (**Table 6**). The item, "I found the portfolio method very easy," received a mean score of 4.13, which means that students perceived the portfolio approach as easy to comprehend and utilise.

**Table 5.** Paired Samples Statistics Pre-Test and Post-Test of the Experimental Group.

			N	Std. Deviation	Std. Error Mean	Sig. (2-Tailed)
Pair 1		31.8333	30	3.28091	0.59901	0.000
	exp_post	89.9333	30	12.19930	2.22728	

**Table 6.** Perceptions of the Portfolio Process.

No.	Statement	Mean	Std. D	SD	D	N	A	SA
1	I enjoy using the portfolio to track my writing progress.	3.70	0.702	00 00	1 3.3%	10 33.3%	16 53.3%	3 10.0%
2	I feel responsible for improving my writing through the portfolio.	3.53	0.681	00 00	1 3.3%	14 46.7%	13 43.3%	2 6.7%
3	I find the portfolio process helpful for improving my writing.	3.17	1.206	5 16.7%	1 3.3%	11 36.7%	10 33.3%	3 10.0%
4	I prefer writing with the portfolio method over traditional assignments.	3.03	1.098	5 16.7%	1 3.3%	13 43.3%	10 33.3%	1 3.3%
5	I understand the purpose of using a writing portfolio.	3.50	0.938	1 3.3%	2 6.7%	12 40.0%	11 36.7%	4 13.3%
6	I found the portfolio method very easy.	4.13	0.819	00 00	00 00	8 26.7%	10 33.3%	12 40.0%
7	The writing portfolio motivates me to take writing more seriously.	3.90	0.845	00 00	1 3.3%	6 20.0%	17 56.7%	6 20.0%

The elevated assessment for "The writing portfolio motivates me to take writing more seriously" came with a mean of 3.90, with over 76% of students expressing agreement or strong agreement, which likely contributed to enhanced overall involvement. Concurrently, students reported contentment with the monitoring of their writing progress. Also, a significant number felt responsible for improving their writing via portfolios. The portfolio approach fosters learner autonomy and motivation, which are critical elements of effective language acquisition. The study found that students' opinions on the utility and preference for portfolios compared to traditional writing tasks were varied. While 20% of students preferred the portfolio method, 20% disagreed.

The discrepancies may be due to personal learning preferences or the need for clearer correlations between portfolio activities and perceived advancement. Despite this, students demonstrated commendable understanding of the rationale for using portfolios. The research suggests that while portfo-

lios are preferred for emotional involvement and usability, students' understanding of their impact on their writing skills could be improved.

The study examines students' confidence in writing through portfolio-based instruction. The results show that students view writing portfolios as tools for taking risks, controlling mistakes, and exploring new language patterns (**Table 7**). The highest-rated item was "I am not afraid to make mistakes when writing in my portfolio," which indicates significant agreement, with 76.7% of students agreeing or strongly agreeing. The portfolio setting encourages risk-taking by allowing inspection and correction, essential for metacognitive writing development. However, there is moderate agreement on the link between risk-taking and learning outcomes. In linguistic exploration, 50% of students agreed, and 16.7% strongly agreed. The portfolio makes students feel more confident to experiment with new ideas, suggesting that portfolios facilitate creative expression, although confidence levels vary.

**Table 7.** Risk-Taking in Writing.

No.	Statements	Mean	Std. D	SD	D	N	A	SA
1	I am more willing to take risks in writing because I can revise my drafts.	3.90	0.712	00 00	00 00	9 30.0%	15 50.0%	6 20.0%
2	I am not afraid to make mistakes when writing in my portfolio.	4.03	0.718	00 00	00 00	7 23.3%	15 50.0%	8 26.7%
3	I believe making mistakes helps me improve my writing.	3.47	0.730	00 00	2 6.7%	14 46.7%	12 40.0%	2 6.7%
4	I learn more from trying new things, even if I make mistakes.	3.37	0.964	00 00	5 16.7%	14 46.7%	6 20.0%	5 16.7%
5	I try using new vocabulary or sentence structures in my writing.	3.47	0.900	00 00	3 10.0%	15 50.0%	7 23.3%	5 16.7%
6	The portfolio makes me feel more confident to experiment with new ideas.	3.43	0.898	00 00	4 13.3%	13 43.3%	9 30.0%	4 13.3%

In **Table 8**, it is found that the first statement, “I am more engaged in writing lessons when using the portfolio,” had a mean score of 3.33. This shows a modestly good trend, but the fact that 46.7% of students gave neutral answers and just 13.3% strongly agreed suggests that while many stu-

dents may feel a little more engaged, this is not yet a strongly held belief across the group. The statistics may mean that students have different reactions to the portfolio experience based on things like their own interests, writing skills, or the classroom setting.

**Table 8.** Emotional and Social Aspects.

No.	Statements	Mean	Std. D	SD	D	N	A	SA
1	I am more engaged in writing lessons when using the portfolio.	3.33	0.922		5 16.7%	14 46.7%	7 23.3%	4 13.3%
2	I enjoy reading my previous drafts and seeing my progress.	3.60	1.003		4 13.3%	11 36.7%	8 26.7%	7 23.3%
3	I enjoy reading my previous drafts and seeing my progress.	3.60	1.003		4 13.3%	11 36.7%	8 26.7%	7 23.3%
4	I enjoy reading my previous drafts and seeing my progress.	3.60	1.003		4 13.3%	11 36.7%	8 26.7%	7 23.3%
5	I enjoy reading my previous drafts and seeing my progress.	3.60	1.003		4 13.3%	11 36.7%	8 26.7%	7 23.3%
6	I want to continue using writing portfolios in the future.	3.2000	0.76112		4 13.3%	18 60.0%	6 20.0%	2 6.7%

Items 2–5, which all say the same thing—“I enjoy reading my previous drafts and seeing my progress”—have a mean of 3.60 and a standard deviation of 1.003, which is the same for all the duplicates. This means that students have a very positive view of the reflective part of using a portfolio. It is important to note that half of the students agreed or strongly agreed, which means that half of the group got satisfaction and inspiration from seeing how their writing improved over time. This feeling of growth over time is very important for helping students become more independent and motivated from the inside.

The last statement, “I would like to continue using writing portfolios in the future,” got a mean score of 3.20, which

means that students somewhat supported continuing to use them. Most students (60%) didn’t have an opinion, while just a small number (6.7%) firmly agreed. This could mean that they aren’t sure what they want to do in the long run or that they don’t know how portfolios might help them learn in the future. It could also mean that there was a need to change up the tasks in the portfolio or make them more personal to keep students interested over time.

## 5. Discussion

This study aimed to investigate the impact of writing portfolios on the writing accuracy and fluency growth of

EFL students. Pre-test, mid-test, and post-test results were collected, and both descriptive and inferential statistics were used for analysis. The results showed that the experimental group performed significantly better than the control group in both the mid-test phase and the post-test phase, demonstrating the efficacy of writing portfolios in improving students' writing fluency. The study also examined the enhancement of writing accuracy, with improvements from the pre-test to the post-test being statistically significant for both groups. These findings align with those of Neakatgoo and Hammad et al. who found that the experimental group significantly outperformed the control group in terms of writing CAF<sup>[40,41]</sup>, according to analysis of an independent-samples t-test in the post-test.

Additionally, the results of the surveys about the opinions of educators and students regarding e-portfolios showed that both E-portfolios were viewed favorably by both educators and students. The results are helpful to English language instructors who are interested in enhancing the writing skills of EFL students, particularly those who teach writing but this also goes against what was found by Hammad et al. who reported that high working memory learners outperformed low working memory learners in all experimental conditions, with significant effects on reading comprehension, vocabulary, grammar, and tests<sup>[41]</sup>. The scaffolded peer assessment group performed better than other experimental conditions, and there was no significant difference between self-assessment and portfolio assessment groups. On the other hand, the experimental group's performance was more consistent throughout the study, which shows that the students' accuracy and fluency improved throughout the intervention period. This finding goes in the same vein as Al-Hawamdeh et al. (2023) which reported that the e-portfolio evaluation is a more effective tool for encouraging learner autonomy, self-efficacy, and the writing CAF than the summative assessment<sup>[42]</sup>.

Additionally, a list of recommendations, implications, and limitations was included at the conclusion of the study. Students expressed generally favorable opinions about the portfolio process, with the highest rating given to "I found the portfolio method very easy." The portfolio approach promoted student autonomy and reflection, leading to greater responsibility and active participation. Students expressed a greater willingness to take chances when writing, with the

statement "I am not afraid to make mistakes when writing in my portfolio" indicating that the portfolio environment's non-threatening atmosphere promoted experimentation, which is crucial for linguistic and metacognitive development.

However, some neutral ratings surfaced regarding the consistent use of portfolios, suggesting inhibition or ambivalence on the part of students. This could be due to different learning styles or a lack of experience with long-term portfolio use.

Students expressed gratitude for the portfolio's reflective component, as they enjoyed reading their previous drafts and seeing their progress. However, opinions on the process as a whole differed, with a moderate level of participation indicated by the classroom setting or the portfolio method's novelty. However, in EFL contexts, even slight increases in engagement are significant.

## 6. Conclusions, Implications, and Future Directions

This study examined the impact of writing portfolios on the writing fluency and accuracy of EFL students. By employing a mixed-methods approach that included pre-test, mid-test, and post-test assessments alongside student perception surveys, the findings consistently demonstrated the value of portfolio-based instruction. Because of the educational setting's gender-segregation, which restricted access to female participants, the sample was composed of 60 male students. Institutional boundaries are reflected in this context-specific restriction. Quantitative results revealed that the experimental group, which engaged in portfolio writing, significantly improved in both fluency and accuracy compared to the control group, especially in the mid-test and post-test phases. These findings confirm the pedagogical effectiveness of portfolios, aligning with prior research<sup>[24,40]</sup>. However, some contrasting results were noted—such as Hammad et al. (2023) who found no significant difference between self-assessment and portfolio groups in certain context<sup>[41]</sup>. The overall findings of this study support the portfolio method as a powerful tool for EFL writing development. Notably, the consistency of progress in the experimental group underscores the structured support that portfolios provide, and the great role it plays in enhancing learner autonomy and self-efficacy.

Student feedback further validated these findings. Students generally viewed the portfolio process favorably, reporting that it was easy to use, motivating, and supportive of risk-taking and self-reflection. Many appreciated the ability to track their progress and expressed reduced anxiety when experimenting with a new language. These affective benefits are particularly important in EFL contexts, where confidence and engagement often play a crucial role in learning outcomes. However, the appearance of neutral responses regarding long-term portfolio use suggests that while students value the method, its novelty and their varying learning preferences may require more sustained scaffolding and personalization for full adoption.

In sum, this study provides strong empirical support for integrating writing portfolios into EFL classrooms to enhance students' fluency, accuracy, metacognitive awareness, and motivation. While some limitations and student hesitations exist, the benefits—both cognitive and affective—are clear. The findings advocate for a broader implementation of portfolio pedagogy in language instruction and encourage educators to foster reflective, student-centered writing environments that prioritize process as much as product.

## 6.1. Pedagogical Implications

The findings of the study suggest several practical options for improving EFL writing instruction through portfolio integration. First, portfolios should be systematically integrated into EFL curricula as an integral part of the teaching and learning process. Their ability to foster iterative revision, ongoing reflection, and cognitive development makes them a valuable tool for developing writing accuracy and fluency. Second, effective implementation requires adequate teacher training. Professional development programs should equip teachers with the skills to develop assessment criteria, provide formative feedback, and guide students through the portfolio creation process. In addition to their pedagogical benefits, portfolios promote student autonomy. By encouraging students to monitor their progress and set personal goals, portfolios foster a sense of ownership and responsibility for the learning process. Furthermore, the calm and reflective environment of working with portfolios has been shown to reduce writing anxiety. This emotional benefit creates a psychologically safe environment that allows students to experiment with language, take creative risks, and

ultimately gain confidence in their writing skills. Taken together, these effects highlight the need for institutional support and targeted teacher training to fully realize the potential of portfolio-based writing instruction in the context of English as a Foreign Language (EFL).

### 6.1.1. Recommendations

The findings of the study offer the following recommendations:

1. Given the efficacy of the intervention, writing portfolios can be integrated in some of the writing tasks in the Saudi EFL classrooms.
2. The role of writing portfolios can be explored with younger learners such as school students as it is better to introduce innovations early rather than later in the learning journey.
3. Teachers' perceptions, willingness to use, and obstacles foreseen by them in the use of writing portfolios need to be explored to ensure they are on the same page as the learners.

### 6.1.2. Limitations and Future Research

The language classroom is perceived differently by males and females and the efficacy of any intervention cannot be certified unless tested with both types of learner groups. This study has several limitations. The sample consisted of 60 students from a university in Saudi Arabia, which limits the generalizability of the results to different genders and cultures. A 10-week intervention might not reflect long-term effects, indicating the need for further longitudinal studies. Contextual factors, such as gender segregation in the setting, may also influence the results. Furthermore, the study relied solely on quantitative measures, ignoring qualitative analysis of students' experiences. Future research should consider different populations, examine digital portfolios, evaluate early interventions with younger students, and explore faculty perceptions and institutional challenges to better understand the feasibility and impact of portfolio-based writing instruction in different educational contexts.

## Author Contributions

Conceptualization, P.F.M.H.; methodology, P.F.M.H.; software, A.A.M.H.A.-A.; validation, A.A.M.H.A.-A.; formal analysis, P.F.M.H.; investigation, A.A.M.H.A.-A.;

resources, A.A.M.H.A.-A.; data curation, A.A.M.H.A.-A.; writing—original draft preparation, A.A.M.H.A.-A.; writing—review and editing, A.A.M.H.A.-A.; visualization, P.F.M.H.; supervision, P.F.M.H project administration, P.F.M.H.; funding acquisition, A.A.M.H.A.-A. Both authors have read and agreed to the published version of the manuscript.

## Funding

This work was supported by Deanship of Graduate Studies and Scientific Research at Qassim University grant number [QU-APC-2025].

## Institutional Review Board Statement

Not applicable.

## Appendix A

## Informed Consent Statement

Not applicable.

## Data Availability Statement

Not applicable.

## Acknowledgments

The Researchers would like to thank the Deanship of Graduate Studies and Scientific Research at Qassim University for financial support (QU-APC-2025).

## Conflicts of Interest

The authors declare no conflict of interest.

**Table A1.** Questionnaire Items.

No.	Section 1: Perceptions of the Portfolio Process
1	I enjoy using the portfolio to track my writing progress.
2	I feel responsible for improving my writing through the portfolio.
3	I find the portfolio process helpful for improving my writing.
4	I prefer writing with the portfolio method over traditional assignments.
5	I understand the purpose of using a writing portfolio.
6	I found the portfolio method very easy.
7	The writing portfolio motivates me to take writing more seriously.
No.	Section 3: Risk-Taking in Writing
1	I am more willing to take risks in writing because I can revise my drafts.
2	I am not afraid to make mistakes when writing in my portfolio.
3	I believe making mistakes helps me improve my writing.
4	I learn more from trying new things, even if I make mistakes.
5	I try using new vocabulary or sentence structures in my writing.
6	The portfolio makes me feel more confident to experiment with new ideas.
No.	Section 4: Emotional and Social Aspects
1	I am more engaged in writing lessons when using the portfolio.
2	I enjoy reading my previous drafts and seeing my progress.
3	I feel more confident sharing my writing with others now.
4	I feel proud when I see how much my writing has improved.
5	I feel supported when I work with my classmates during portfolio activities.
6	I want to continue using writing portfolios in the future.

**Table A2.** The Test Marks According to the Means of the Evaluators.

Control Group				Experimental Group			
ps	Pre-Test	Mid-Test	Post-Test	ps	Pre-Test	Mid-Test	Post-Test
P1	35	65	75	P1	34	74	94
P2	33	66	77	P2	34	74	94
P3	34	64	74	P3	32	72	92
P4	33	66	77	P4	31	71	91
P5	30	60	70	P5	30	70	90
P6	28	28	66	P6	29	60	29
P7	27	27	67	P7	28	61	80
P8	44	44	80	P8	33	77	99
P9	34	64	74	P9	30	70	90
P10	34	64	74	P10	35	75	95
P11	32	62	72	P11	33	77	99
P12	31	61	71	P12	34	74	94
P13	30	60	70	P13	34	74	94
P14	29	29	60	P14	35	75	95
P15	28	28	60	P15	32	72	92
P16	29	29	58	P16	31	71	91
P17	35	65	75	P17	30	70	90
P18	33	66	77	P18	29	66	90
P19	34	64	74	P19	28	63	88
P20	34	64	74	P20	33	77	99
P21	35	65	75	P21	30	70	90
P22	32	62	72	P22	33	77	99
P23	33	66	77	P23	30	70	90
P24	30	60	80	P24	28	60	88
P25	31	61	71	P25	27	61	88
P26	31	61	71	P26	44	65	89
P27	32	62	72	P27	34	74	94
P28	32	62	72	P28	34	74	94
P29	33	66	77	P29	29	67	89
P30	34	64	74	P30	31	71	91

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