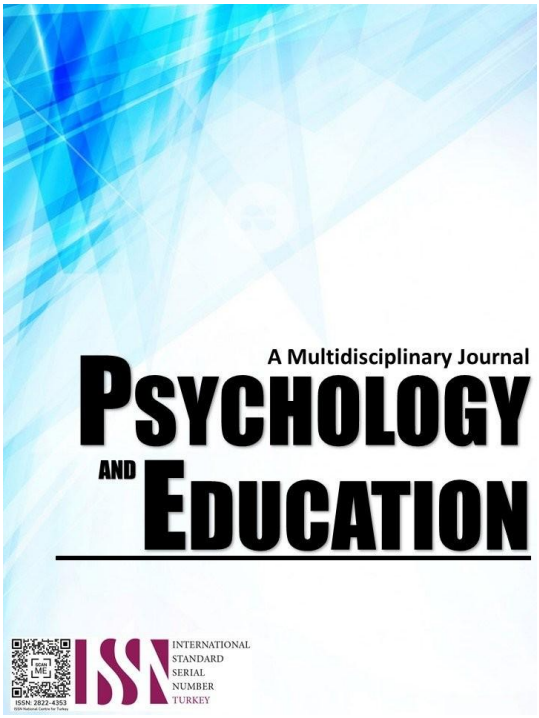
WRITING SKILLS OF ELEMENTARY PUPILS IN RESEARCH



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Research Article

Writing Skills of Elementary Pupils in Research

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Abstract

Despite the global emphasis on foundational literacy, early academic writing—particularly research-based writing—remains underdeveloped in multilingual, under-resourced primary education systems. This study aimed to determine the level of competency in research writing skills among Grade 5 pupils at Surigao City Special Science Elementary School. A quasi-experimental method was employed, using the mean, paired sample t-test, and independent sample t-test to analyze the data. Findings revealed that pupils significantly improved their level of competency in writing after using the developed instructional worksheets. It is concluded that these worksheets were effective in increasing learners' level of competency in writing. Therefore, it is recommended that such instructional worksheets be integrated into the elementary research curriculum, particularly within the Special Science Elementary School (SSES) Program. Furthermore, the study advocates for the adoption of process-oriented instructional methods, the training of teachers in scaffolded writing instruction, and the involvement of parents and counselors in supporting learners' academic development. These efforts can collectively promote writing fluency, academic self-efficacy, and early research literacy in foundational education.

Keywords: *writing development, elementary research writing, quasi-experimental study*

Introduction

Despite significant global progress in foundational literacy, a persistent and troubling gap remains in the development of higher-order writing skills among elementary learners, particularly in the domain of academic and research-based writing. Recent scholarship underscores the increasing emphasis on early research literacy and academic writing competence among elementary learners. According to Graham et al. (2020), explicit instruction in writing processes—when embedded within inquiry-driven learning environments—improves learners' capacity to organize, justify, and communicate knowledge. In the Southeast Asian context, Bautista and Bernardo (2021) highlight how writing instruction in basic education remains heavily focused on mechanics and grammar, often neglecting composition, textual organization, and audience awareness. Meanwhile, international assessments such as PIRLS 2021 reveal concerning disparities in writing proficiency across socioeconomic and linguistic groups (Mullis et al., 2022). Other scholars argue for culturally responsive writing pedagogies that integrate learners' linguistic backgrounds into instruction (Garcia & Orellana, 2022), while contrasting views maintain that academic English should be standardized early to prepare learners for global discourse participation (Schleppegrell, 2019). These debates reveal not only pedagogical tensions but also ideological contestations over whose literacy practices are legitimized in formal schooling. Yet, few studies have systematically examined how young learners in under-resourced, multilingual contexts navigate the demands of writing in research, particularly at the intersection of cognitive development, language acquisition, and academic genre exposure.

Writing is not only a vehicle of communication but also a tool of epistemic cognition—integral to knowledge construction, argumentation, and problem-solving. In the Philippine basic education context, the introduction of research elements in the curriculum through inquiry-based learning frameworks aims to cultivate critical thinking and reflective articulation from early grades. However, elementary pupils often struggle to translate their ideas into coherent, purpose-driven texts, especially in academic writing tasks that involve research elements such as formulating questions, describing processes, and reporting findings. This study seeks to examine the writing skills of elementary pupils in research, guided by the central research question: How effective are the developed worksheets in improving the essay writing skills of elementary pupils, as measured by the differences in pre-test and post-test essay ratings between and within the control and experimental groups? By exploring the micro-skills (e.g., grammar, coherence, structure) and macro-processes (e.g., prewriting, drafting, revising) involved in the pupils' research writing tasks, the study situates itself within current concerns on literacy equity, curriculum responsiveness, and learner-centered pedagogy in the global South.

While numerous studies have examined writing instruction in elementary education, there remains a paucity of research specifically focused on how pupils develop research-oriented writing skills at the primary level, especially in linguistically diverse and low-resource settings such as public schools in the Philippines. Most existing literature either isolates writing as a mechanical skill or frames it in the context of narrative and descriptive genres, thereby overlooking the analytical and expository demands inherent in research writing. Furthermore, policy-driven programs such as the Department of Education's Most Essential Learning Competencies (MELCs) have yet to be critically examined for their actual impact on pupils' readiness to engage in structured research writing. This gap is both theoretical and practical: theoretically, there is limited understanding of the cognitive scaffolding needed for early research writing; practically, teachers are often left without adequate tools, exemplars, or benchmarks to guide instruction. Addressing this gap is urgent not only for improving instructional design but also for aligning early writing curricula with the demands of 21st-century literacies, especially in post-pandemic learning recovery contexts.

This study offers critical contributions to both theory and practice. Theoretically, it seeks to extend writing development models by integrating Vygotskian socio-constructivist views of learning with genre-based approaches to academic literacy. By investigating how elementary pupils engage with research writing, the study foregrounds the interrelation between linguistic scaffolding, cognitive development, and genre socialization. Methodologically, it pioneers a locally grounded yet globally informed framework for assessing and describing research writing performance in primary learners. Practically, the findings aim to inform teacher training, curriculum refinement, and assessment practices in early-grade writing. More broadly, the research has implications for educational policy formulation, particularly in integrating research-oriented skills in basic education without exacerbating cognitive overload or language barriers. By illuminating the nuanced challenges and potentials of developing research writing skills at an early age, the study contributes to the global discourse on equitable literacy, learner agency, and culturally situated pedagogies in multilingual educational systems.

Research Questions

This study aimed to assess the effectiveness of the developed worksheets in enhancing the essay writing skills of elementary pupils.

Specifically, it sought to answer the following questions:

1. What is the level of competency in writing of the pupils in the experimental and control groups before using the worksheets in teaching the writing skills based on their pre-test scores?
2. How are the worksheets used in teaching the writing skills?
3. What is the level of competency in writing of the pupils in the experimental and control groups after using the worksheets in teaching the writing skills based on their post-test scores?
4. Is there a significant difference between the pre-test and post-test scores of the pupils in the experimental group?
5. Is there a significant difference in the post-test scores of the pupils in the control group and in the experimental group?

Literature Review

This review presents a synthesis of recent and relevant scholarly works that inform and support the present study. The literature reviewed covers key themes such as the writing skills of elementary pupils, the challenges they face in research writing, the use of worksheets as instructional interventions, and the core components of writing—namely content, organization, language use, and mechanics. These studies provide the theoretical and empirical grounding necessary to contextualize and justify the focus of the current research, particularly in enhancing elementary pupils' writing skills through process-based, worksheet-driven interventions.

Writing Skills of Elementary Pupils

Cole & Feng (2015) in their study "Effective Strategies for Improving Writing Skills of Elementary English Language Learners" said that reaching proficient levels of literacy is a universal goal for all children in the elementary classroom. This objective is especially challenging for English language learners particularly in the domain of writing. They added that writing has been identified as one of the most essential skills because the world has become so text-oriented.

When a child writes, thoughts and knowledge are blended together creating a unique meaning (Jones, Reutzel, & Fargo, 2010). Consequently, students identify the skill of writing, as more difficult than listening and reading (Berman & Cheng, 2010). Furthermore, writing is the skill that most students are least proficient in when acquiring a new language (Nesamalar, Saratha & Teh, 2001).

Challenges of Elementary Pupils in Writing and Research Writing

Mose and Moham (2019) stated on their study "Challenges Faced by Students and Teachers on Writing Skills in ESL Contexts: A Literature Review" that writing has always been a major difficulty faced by pupils in English language learning, especially in elementary schools. Not only that, teachers are also facing some challenges in teaching writing skills for pupils in elementary schools.

Lack of vocabulary has caused the pupils to face challenges in acquiring writing skills claimed Misbah et al. (2017). According to Muhammad Fareed et al. (2016) pupils make mistakes in subject-verb agreement, pronouns, tenses, articles, prepositions and basic sentence structures. Poor spelling is another cause of anxiety for students in learning writing skill and this is supported by Nyang'au Benard (2014). The pupils have the habit to spell according to their pronunciation and this will lead to wrong spelling as mentioned by Afrin (2016). Pupils' readiness is another challenge in learning writing and this was supported by Foster (2015). He also added that lack of exposure to books and reading materials are other challenges for elementary school pupils in learning writing.

In the context of research writing, Dubicki (2015) revealed in her study "Writing a research paper: Students Explain their Process," that pupils likewise have trouble in writing long research papers and identifying relevant materials for inclusion. Furthermore, same study revealed, that students experience struggle in terms of poor writing skills; inability to make a good argument; summarizing, rather than synthesizing sources; lack of critical thinking skills and defining a topic.

Campilan (2019) in her study "Difficulties in research writing among communication students in a private university" revealed that students identified the following as their academic difficulties: 1) idea to study, 2) writing the literature review, 3)

unavailability/finding of respondents, 4)crafting of research instruments, 5) transcribing of interviews, and 5) delay and conflicts in video production. In addition, the participants, also shared their external challenges. These are: 1) coordination, 2) low plagiarism results, 3) printing schedules and 4) availability of binding slots. Furthermore, aside from academic and external difficulties, they likewise experience personal struggles. These are: 1) time constraints, 2) absence of research partner, 3) personal problems, and 4) other activities and conflicts.

Elementary Pupils Writing Skills in Research

The development of writing skills among elementary pupils has long been recognized as a foundational component of academic success, yet its integration into research-oriented tasks remains underexplored in both theory and practice. The ability to engage in research writing—defined here as the process of gathering, organizing, and presenting information with coherence, critical thought, and structured composition—requires the convergence of multiple writing sub-skills. Recent studies emphasize that elementary pupils, when appropriately scaffolded, are capable of engaging in rudimentary forms of research writing that involve questioning, idea development, text synthesis, and evidence-based composition (Puranik et al., 2019; Limpo & Alves, 2021).

Writing is a cognitively demanding process that integrates conceptual development, language proficiency, and metacognitive awareness (Graham et al., 2020). Among elementary pupils, especially in Grades 4 to 6, writing skills are still in a formative stage. At this level, learners must negotiate grammar, spelling, punctuation, structure, coherence, and vocabulary, while simultaneously attempting to convey ideas clearly and purposefully. According to Puranik et al. (2019), writing development during this stage is multifaceted, encompassing productivity (text length), syntactic complexity, and compositional quality.

Research by McKeown et al. (2021) shows that younger students often struggle with maintaining topic relevance, using transitions, and elaborating on their ideas—challenges that are magnified when writing in academic or research genres. This complexity underscores the importance of pedagogical interventions that break down the writing process into manageable phases, supported by continuous feedback and modeling.

Although research writing is more commonly associated with secondary and tertiary education, scholars argue for its early introduction through developmentally appropriate strategies. Van der Veen et al. (2020) advocate for inquiry-based writing tasks as a means to cultivate critical thinking, textual engagement, and epistemic curiosity in children. In such settings, research writing may not involve advanced citation or data analysis but may include guided projects where pupils investigate a topic, gather ideas, and write structured explanations.

Moreover, Limpo and Alves (2021) stress the importance of genre-specific instruction, especially when transitioning pupils from narrative to expository or informational writing, which are often the building blocks of research-based communication. Their findings indicate that explicit instruction in text planning and organization significantly enhances the quality of elementary pupils' informational writing—a genre closely aligned with basic research writing.

Recent pedagogical trends highlight the value of process-based writing instruction, where writing is treated as a recursive cycle involving prewriting, drafting, revising, and editing. Graham et al. (2020), in a large-scale meta-analysis, found that writing instruction that included modeling, peer feedback, and revision opportunities yielded significant gains in writing quality among elementary students. These findings validate the use of instructional materials, such as guided worksheets and writing templates, which provide structured support across various writing phases.

In a classroom-based study, Cabell et al. (2022) observed that students who received scaffolded writing tasks within a project-based learning framework demonstrated improved ability to structure arguments, support claims with evidence, and revise their work effectively. The integration of collaborative tasks and teacher-facilitated discussions further helped students engage more deeply with content, an essential skill in research writing.

Reliable and formative assessment tools are critical in identifying the strengths and challenges in pupils' writing. The analytic rubric developed by Jacobs et al. (1981), although older, continues to be relevant when adapted for contemporary classrooms, as it evaluates discrete components of writing—content, organization, language use, mechanics, and style. More recent studies advocate for dynamic assessment models that incorporate both summative scores and formative feedback to promote student growth (Sandilos et al., 2020).

Peer feedback and teacher conferencing have been identified as effective strategies in the context of research-oriented writing. Lin et al. (2020) demonstrate that pupils who received iterative feedback during the writing process showed greater improvement in argument structure, use of transitions, and topic adherence compared to those who only received final comments.

In the Philippine context and similar multilingual settings, learners face additional challenges due to linguistic diversity, limited access to instructional materials, and lack of teacher training in writing pedagogy (Bautista & Bernardo, 2021). Research conducted by Tarrayo et al. (2022) points out that many public school teachers feel underprepared to teach higher-order writing tasks, especially those involving research or academic writing genres. These contextual barriers call for localized interventions—materials and strategies that respond to learners' linguistic, cognitive, and socio-cultural realities.

Furthermore, the Department of Education's Most Essential Learning Competencies (MELCs) encourage integration of writing tasks with research and inquiry skills even at the elementary level, though practical implementation varies widely across schools. As such, there is a pressing need for evidence-based instructional designs that bridge curriculum mandates with effective classroom practice.

Worksheets as Intervention

The use of worksheets as instructional interventions has garnered renewed interest in recent years, particularly as educators seek efficient, scalable, and learner-centered tools to support individualized learning. In educational contexts, worksheets are commonly defined as structured learning materials designed to guide students through specific tasks or concepts, often incorporating elements of scaffolding, practice, and self-assessment. As intervention tools, worksheets serve dual functions: they consolidate instructional content and provide formative data on learner progress (Al-Mekhlafi & Al-Mekhlafy, 2020). In this review, recent literature is examined across four interconnected dimensions: the pedagogical value of worksheets, their use as cognitive scaffolds, their role in differentiated instruction, and their effectiveness as interventions in literacy and writing development.

Recent empirical work affirms that well-designed worksheets contribute to meaningful learning by offering structured opportunities for practice and reinforcement. According to Kagan et al. (2021), worksheets, when embedded within a sound instructional sequence, enhance learners' engagement, promote mastery of foundational skills, and increase time-on-task. These effects are particularly salient in contexts where direct teacher interaction may be limited, such as large classrooms or remote learning setups.

In their study on task-based learning in primary education, Jones and Brand (2020) found that worksheets, especially those aligned with specific learning competencies, helped learners internalize lesson content by encouraging repeated retrieval, guided problem-solving, and metacognitive reflection. However, they caution against the use of generic, low-cognitive-demand worksheets, which may foster rote memorization rather than conceptual understanding.

Worksheets function effectively as instructional scaffolds, supporting learners through complex cognitive tasks by breaking them into manageable, sequenced steps. When rooted in Vygotskian principles of the Zone of Proximal Development (ZPD), worksheets can mediate between current learner ability and potential performance through prompts, models, cues, and structured tasks (Hamdan & Ismail, 2022).

Chen and Tsai (2021) demonstrated that process-oriented worksheets improved metacognitive awareness in elementary science learners, particularly when paired with teacher feedback. The structure of the worksheet guided students in setting goals, monitoring their progress, and evaluating outcomes—skills transferable to literacy and writing development. Similarly, Lo et al. (2020) showed that worksheets with visual organizers and reflective prompts significantly enhanced learners' ability to plan and revise their written work.

In diverse classrooms, worksheets have been successfully deployed as tools for differentiated instruction, enabling teachers to tailor content to varied learning needs, readiness levels, and language proficiencies. Worksheets designed with tiered difficulty levels, optional supports, or open-ended response formats empower learners to work at their own pace while still engaging with core content (Yelland & Masters, 2021).

Al-Dersi (2020) reports that differentiated worksheets used in English language teaching contexts allowed learners with different proficiency levels to achieve success in grammar and writing tasks. The intervention led to improved learner confidence and increased willingness to engage with more challenging writing tasks. The adaptability of worksheets makes them particularly useful in multilingual and inclusive classrooms, such as those found in public elementary schools in the Global South.

A growing body of literature highlights the positive impact of worksheets on learners' writing skills, particularly when the materials are designed using process-based writing frameworks. In their quasi-experimental study, Cabell et al. (2022) found that first- and second-grade pupils who used structured writing worksheets within project-based units performed significantly better in organization, idea development, and language use compared to those in traditional instruction settings.

Furthermore, process-oriented worksheets that emphasize prewriting, drafting, revising, and editing stages have been shown to improve compositional fluency and text quality (Graham et al., 2020). These worksheets support not just surface-level correctness but also deeper aspects of writing such as coherence, logic, and elaboration. Wu and Wang (2023) observed that young learners who were guided through iterative worksheet-based writing tasks developed greater independence and control over their writing process.

In the Philippine setting, where classrooms often contend with limited resources and large student-teacher ratios, worksheets serve as pragmatic tools to individualize writing instruction and provide structured practice opportunities. Tarrayo and Potestades (2021) recommend locally developed worksheets that are culturally responsive and linguistically accessible to enhance learner engagement and achievement in writing tasks.

Content, Organization, Language Use, and Mechanics in Writing

Writing is a complex and multidimensional skill that requires the simultaneous orchestration of cognitive, linguistic, and mechanical processes. Among the most widely accepted analytic components used to assess writing proficiency are Content, Organization, Language Use, and Mechanics—each playing a distinct yet interrelated role in determining the quality of a written composition.

These components are foundational to numerous writing rubrics, including the Jacobs et al. (1981) model, and remain relevant across contemporary research in writing assessment and pedagogy (Graham et al., 2020; McNamara et al., 2022). This review synthesizes recent literature on each of these four components to highlight their theoretical grounding, instructional implications, and interconnections.

Content: Idea Development, Relevance, and Depth

Content refers to the richness, clarity, relevance, and originality of ideas presented in a written text. It encompasses the writer's ability to generate meaningful arguments or narratives, supported by logical reasoning or descriptive detail. According to Puranik et al. (2019), content development is strongly associated with higher-order thinking skills, including analysis, synthesis, and evaluation.

Recent studies emphasize the importance of content scaffolding through techniques such as prewriting, brainstorming, and the use of prompts. Graham et al. (2020) found that when elementary pupils were guided to plan their ideas before writing, their essays demonstrated more focused and elaborated content. Similarly, research by Troia and Olinghouse (2021) shows that genre-specific instruction—such as teaching exposition or argument—helps students develop ideas appropriate to purpose and audience.

In multilingual settings, content expression may also be influenced by linguistic limitations, requiring targeted support to help learners articulate their ideas fully (Uccelli et al., 2019). Thus, content cannot be evaluated in isolation but must be considered in relation to language proficiency and background knowledge.

Language Use: Grammar, Syntax, and Lexical Choice

Language Use encompasses the writer's control of grammar, sentence structure, verb tense consistency, subject–verb agreement, article usage, and word order. It also includes appropriate lexical choices and syntactic variation. Errors in language use can hinder comprehension, obscure meaning, or distract the reader from the writer's message.

Studies show that language accuracy is closely tied to the writer's overall language proficiency and familiarity with academic or formal registers. Kim and Park (2020) demonstrated that focused grammar instruction improved learners' ability to construct syntactically complex sentences in academic writing. Similarly, Coyle et al. (2022) advocate for integrating grammar and vocabulary instruction within writing tasks, rather than teaching them as decontextualized skills.

Moreover, Uccelli and Páez (2021) highlight that vocabulary depth and syntactic maturity are strong predictors of writing quality among bilingual learners. Language use, therefore, requires both form-based accuracy and context-sensitive appropriateness—balancing correctness with stylistic flexibility.

Mechanics: Spelling, Punctuation, Capitalization, and Formatting

Mechanics refer to the technical conventions of writing, including spelling, punctuation, capitalization, indentation, and paragraphing. While sometimes viewed as lower-order skills, mechanics are critical for clarity and readability. Errors in mechanics may not always alter meaning, but they often reduce the perceived quality and credibility of the text.

Puranik and Otaiba (2020) emphasize that attention to mechanics must be integrated into instruction from the early grades, as mechanical proficiency predicts later writing fluency and confidence. Automated writing evaluation tools, such as those analyzed by Crossley et al. (2021), often place significant weight on mechanical features when generating holistic scores—highlighting their continued importance in both classroom and high-stakes assessments.

Instructionally, feedback on mechanical errors must be balanced and formative. As Graham and Santangelo (2021) note, overemphasis on mechanics at the expense of content or organization may inhibit writing development, particularly among struggling writers. Therefore, a balanced approach that treats mechanics as integral—but not dominant—is advocated in recent pedagogical models.

Synthesis. The reviewed literature shared strong alignment with the present study in emphasizing the complex, multidimensional nature of writing skills—particularly the components of content, organization, language use, and mechanics. Similar to the present study, previous researchers (e.g., Graham et al., 2020; Puranik et al., 2019; Limpo & Alves, 2021) have highlighted that writing is a cognitively demanding process that requires scaffolding, structured guidance, and instructional materials that support learners throughout the various stages of writing. Both the literature and the current study underscore the necessity of introducing writing instruction early in elementary education and acknowledge the role of worksheets or guided tasks in helping pupils develop their writing performance, particularly in research-based writing tasks. Moreover, the literature consistently supports process-oriented approaches—such as drafting, revising, and editing—as critical to building writing competence, which is the pedagogical strategy adopted in this study through the use of worksheets as intervention tools.

However, the current study departs from prior research in several notable ways. While much of the existing literature explores writing skills in general or in broader literacy contexts, this study narrows its focus specifically to the improvement of essay writing in research tasks among Grade 5 pupils using locally developed worksheets. In contrast, many prior studies (e.g., Cabell et al., 2022; Kim & Park, 2020) primarily examined interventions at a general writing level or within secondary and tertiary academic

environments. Additionally, this study uniquely integrates both the Jacobs et al. (1981) writing rubric and the Cognitive Process Theory of Writing (Flower & Hayes, 1981) as conceptual tools, applying them within a localized Philippine public school context—something that is underrepresented in the international literature. Furthermore, the worksheets developed in this research are explicitly aligned with the Department of Education's curriculum and tailored to respond to learners' cultural and linguistic needs—addressing contextual gaps often overlooked in broader studies. Hence, the present study not only confirms insights from previous literature but also extends the academic discourse by providing empirical evidence of worksheet-based interventions in research writing within a multilingual, resource-constrained elementary classroom setting.

Methodology

Research Design

This study employed a quasi-experimental research design, specifically a non-equivalent groups pretest-posttest design, to investigate the effectiveness of developed instructional worksheets in enhancing the essay writing performance of elementary pupils. This design was deemed appropriate as it enables systematic comparison between a treatment (experimental) group and a control group, despite the non-random assignment of participants—a pragmatic reality in educational settings where intact classes are often utilized (Creswell & Guetterman, 2019).

To ensure validity and ethical compliance, formal permissions were obtained from relevant authorities, and informed consent and assent were secured from parents and participants. Both groups were initially administered a pretest, consisting of two writing prompts assessing their baseline writing competencies in research. The outputs were rated independently by two master teachers using a rubric adapted from Jacobs et al. (1981), covering the four key components of writing: content, organization, language use, and mechanics.

The intervention phase lasted for two months and was conducted over eight Fridays. Both groups received writing instruction on the same topics and learning competencies, but only the experimental group engaged with the custom-developed instructional worksheets. These worksheets were designed after analyzing pupils' pretest results and following the Department of Education's Most Essential Learning Competencies (MELCs) and integrated principles of effective writing instruction from relevant literature (Graham & Perin, 2007; Limpo & Alves, 2017). The construction process was guided by three main objectives: (1) to enhance content development and relevance, (2) to improve organization and logical flow of ideas, and (3) to strengthen grammar, mechanics, and data interpretation.

Respondents

The subjects in this study were the selected Grades 5 of Surigao City Special Science Elementary School. Grade 5 class has a total of 25 pupils. The sample of the subjects was selected from among the grade levels, shown in Table 1. The sample size was set at 50% plus 1, as the least, and randomly selected with the aid of systematic sampling and grouped as the experimental group.

On the other hand, the unselected pupils were automatically belonging to the controlled group.

Table 1. *Distribution of Participants*

Grade Level and Section	*Population*	*Sample*	
		Control	*Experimental*
Grade 5 Migullas	25	12	13
Total	25	12	13

Instrument

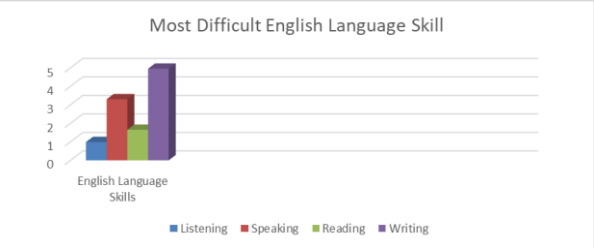
The instrument of this research was a writing test. The researcher asked the pupils to write a paragraph.

The items were:

1. Describe how you decided on the topic for your project and why it is important?

2. Make a brief interpretation about the diagram shown.

Diagram. Most Difficult English Language Skill



The researcher asked assistance from experts for instrument validation and a dry run was conducted to test the validity and reliability.

Validity. To ensure the content validity of the research instrument, the researcher developed the tool based on the components of writing as identified by Jacob et al. (1981). The initial draft was presented during the pre-oral defense and underwent rigorous evaluation by the panel members, who are recognized experts in the field. Additionally, the instrument was reviewed by the research adviser and the statistician to assess its clarity, relevance, and alignment with the study objectives. Following this, the researcher implemented all necessary revisions based on the expert recommendations provided by the panel. These steps ensured that the instrument adequately and accurately measured the intended constructs, establishing strong content validity.

Reliability. To establish the reliability of the research instrument, a pilot test was conducted among 30 Grade 5 elementary pupils enrolled from the other section in Special Science Elementary School. The original instrument, based on the five components of writing outlined by Jacob et al. (1981), underwent item analysis. Based on the recommendation of the statistician and the results of the reliability testing, the "vocabulary" component was removed due to its negative correlation with the overall scale and its adverse effect on the instrument's internal consistency. The removal of this component resulted in a substantial improvement in the reliability coefficient. The final version of the instrument yielded a Cronbach's alpha value of 0.80, which exceeds the acceptable threshold of 0.70, indicating good internal consistency. Supporting data are presented in Appendix E.

Procedure

This study followed a systematic, ethical, and data-driven approach to ensure the reliability and validity of its findings on the effectiveness of instructional materials in improving the writing skills of elementary pupils.

Preparation and Ethical Considerations. A letter of request to conduct the study sent to the school principal of Surigao City Special Science Elementary School (SCSSES), to the public schools district supervisor of Surigao City District IV, and to the advisers of Grade 5. The researcher gave parental consent and assent to all participants. Upon the approval of the request, the researcher administered the test questionnaire (pretest) to the respondents; to control group and to the experimental group to identify the competencies where the pupils will have the least score.

Pre-test Administration. Before any intervention, both groups were administered a pretest designed to assess their baseline writing skills in research. The pretest consisted of two writing prompts: A reflective question about how the student chose their research topic and its importance; and an interpretation of a diagram representing difficulties in English language skills. There were two raters evaluated the writing outputs using the identical rubric, ensuring consistency in assessment across testing periods.

Interrater Scoring. To ensure objectivity and reliability in evaluating student outputs, two Master Teachers from Special Science Elementary School- the first one is a Master Teacher who is teaching English, and the other one is a Master Teacher who is teaching Research- who served as independent raters were engaged. These raters used the rubric adapted from Jacobs et al., which included four key writing components: Content; Organization; Language Use; and Mechanics. Each pupil's work was scored separately by both raters for both the pretest and posttest, and the average of the two raters' scores was used as the final score for each component. Discrepancies were reviewed and resolved through moderation discussions to strengthen interrater reliability.

Development of Instructional Worksheets. The worksheets underwent several stages of development:(1) Pretest results revealed deficiencies in pupils' ability to write research-based content with logical flow and proper grammar. Common issues included poor idea sequencing, limited vocabulary, and weak grammatical structures. These findings, along with insights from teachers, guided the creation of targeted worksheet themes and activities.; (2) The worksheets were organized into thematic clusters:

Evaluating Content (Worksheets 1–3): Tasks included topic selection, research paragraph writing, and factual accuracy assessment.

Organization of Ideas (Worksheets 4–6): Pupils practiced sequencing sentences and forming cohesive paragraphs.

Language Usage (Worksheets 7–8): Activities focused on grammar correction, sentence construction, and word usage.

Mechanics (Worksheets 9–11): Emphasis was placed on punctuation, capitalization, spelling, and paragraphing.

Interpreting Data (Worksheets 12–13): Learners interpreted bar graphs and formulated analytical paragraphs based on visual data.;

(3) The worksheets were reviewed and validated by content and language experts- still the two Master Teachers of Special Science Elementary School. Revisions were made based on their feedback to ensure age-appropriateness, clarity of instructions, and alignment with curriculum goals. The final set incorporated scaffolded instruction and progression from simpler to more complex tasks.; (4) The worksheets were pilot tested among a group of 30 pupils from a comparable section. Feedback on clarity, difficulty level, and engagement was collected. Modifications were made to improve instructional design and ease of use.; and (5) The finalized worksheets were administered over a structured intervention period. Pupils completed the activities with teacher guidance, and outputs were assessed using rubrics based on content relevance, organization, grammar, and mechanics.

These instructional worksheets, as used in this study, are locally contextualized, process-oriented materials aligned with the Department of Education curriculum. These worksheets scaffold each stage of the writing process, integrating metacognitive prompts, vocabulary building, and organization tools. The conceptual relationship assumed in this study suggests a pathway where

instructional design → scaffolded writing process → enhancement of writing performance across the four analytic components.

Intervention Phase. Over 2 months, both groups participated in writing instruction: The Control Group was taught using traditional instructional approach in which the teacher was the only source of facts. The Experimental Group received instruction integrated with developed instructional worksheets. After every session, the worksheets were given to each participant. During the writing activities, process-based approach was implemented to support the development of research writing skills among pupils. Sessions were conducted in eight Fridays from 8:00 AM to 12:00 NN. 8:00 to 10:00 for Controlled Group, while 10:00 to 12:00 NN for Experimental Group. Both groups covered the same content, but only the experimental group engaged with the developed instructional worksheets.

Post-test Administration. After the intervention, both groups took a posttest that mirrored the pretest in structure and scoring criteria. The same two raters evaluated these writing outputs using the identical rubric, ensuring consistency in assessment across testing periods.

Data Analysis

The following statistical tools were used in analysis and interpretation of the data.

Mean. This was used in analyzing the essay ratings of the pupils in the control and experimental groups in the pre-test and posttest rated from the two raters.

Paired Sample t-Test. This was used to compare the pretest and posttest scores within the experimental group, in order to assess whether there was a statistically significant improvement in writing performance after the intervention. This test was appropriate as it examined the mean difference between two related samples—the same group of learners assessed before and after the use of the developed worksheets.

Independent Sample t-Test. This was used to compare the posttest scores between the control and experimental groups, thereby determining whether the difference in writing performance was statistically significant and attributable to the instructional intervention. This test was selected to examine the differences in means between two independent groups that were not randomly assigned but matched in baseline characteristics.

Results and Discussion

This section presented the data gathered, the results of the statistical analysis done and interpretation of the findings. These are presented in tables following the sequence of the statement of the problem.

Level of Competency in Writing of the Pupils in the Experimental Group and Control Group

The data presented in Table 2 illustrates the pre-test writing competency levels of pupils from both the experimental and control groups across four domains: content, organization, language use, and mechanics.

The results showed uniformly low performance for both groups, with mean scores ranging from 1.15 to 1.42. All scores fall within the "Very Poor" (VP) ranging 1.00 to 1.7, and are further classified as "Not Competent" (NC) in qualitative terms. Specifically, the experimental group recorded the lowest mean score in mechanics with a mean score of 1.15, while the control group recorded the lowest score in both organization and language use with a mean score of 1.25.

Table 2. *Level of Competency in Writing of the Pupils in the Experimental Group and Control Group Based on the Pre-test Results*

Competency	*Experimental*			*Control*		
	Mean	*Verbal Interpretation*	*Qualitative Description*	*Mean*	*Verbal Interpretation*	*Qualitative Description*
Content	1.31	VP	NC	1.42	VP	NC
Organization	1.23	VP	NC	1.25	VP	NC
Language Use	1.31	VP	NC	1.25	VP	NC
Mechanics	1.15	VP	NC	1.33	VP	NC

Legend: Scale/Parameter: 3.26–4.00 = Excellent to Very Good (EVG) – Very Competent (VC); 2.51–3.25 = Good to Average (GA) – Competent (C); 1.76–2.50 = Fair to Poor (FP) – Less Competent (LC); 1.00–1.75 = Very Poor (VP) – Not Competent (NC)

This similarity in pre-test results confirmed that the experimental and control groups began at an equivalent level of writing ability, fulfilling a key requirement for a valid quasi-experimental design. As emphasized by Fraenkel, Wallen, and Hyun (2020), establishing baseline equivalence is essential to ensure that any observed changes in post-test results can be confidently attributed to the intervention.

The results justified the need for targeted instructional interventions to enhance writing competencies.

The data in Table 3 presented the post-test writing competency levels of pupils in both the experimental and control groups across

four writing domains: content, organization, language use, and mechanics.

Table 3. *Level of Competency in Writing of the Pupils in the Experimental Group and Control Group Based on the Post-test Results*

Skills	*Experimental*			*Control*		
	Mean	*Verbal Interpretation*	*Qualitative Description*	*Mean*	*Verbal Interpretation*	*Qualitative Description*
Content	3.54	EVG	VC	1.83	F	LC
Organization	3.69	EVG	VC	1.83	F	LC
Language of Use	3.69	EVG	VC	1.92	F	LC
Mechanics	3.77	EVG	VC	2	F	LC

Legend: Scale/Parameter: 3.26–4.00 = Excellent to Very Good (EVG) – Very Competent (VC); 2.51–3.25 = Good to Average (GA) – Competent (C); 1.76–2.50 = Fair to Poor (FP) – Less Competent (LC); 1.00–1.75 = Very Poor (VP) – Not Competent (NC)

The experimental group demonstrated substantial improvement, with mean scores ranging from 3.54 to 3.77, all falling under the "Excellent to Very Good" (EVG) category. Correspondingly, their qualitative descriptions across all domains were rated as "Very Competent" (VC). In contrast, the control group's scores ranged only from 1.83 to 2.00, verbally interpreted as "Fair" (F) and qualitatively classified as "Less Competent" (LC).

These findings suggest that the developed instructional worksheet applied to the experimental group was highly effective in enhancing the pupils' writing skills. The stark contrast between the two groups' post-test results indicates not only significant progress in the experimental group but also highlights the limited improvement among those in the control group who did not receive the targeted instructional treatment.

This outcome is supported by recent literature emphasizing the efficacy of structured, explicit writing interventions. Graham et al. (2023) assert that when pupils engage with systematic instruction focused on planning, revising, and organizing their writing, marked improvements in writing quality are consistently observed.

Implementation of Worksheets in Teaching the Writing Skills

The worksheets were used as core instructional tools in a structured and sequential manner, integrated into each phase of the teaching and learning process to develop the writing skills of the pupils. After every discussion, the teacher provided worksheets aligned with specific themes based on the pupils' identified needs and the targeted writing domains—content, organization, language use, and mechanics. Each worksheet was carefully crafted following a process-based writing approach, which emphasizes writing as a recursive and developmental process involving multiple stages.

In practice, this approach began with prewriting activities, where pupils were guided through brainstorming, idea clustering, and vocabulary building tasks embedded in the worksheets. Next, during the drafting stage, learners constructed their initial written outputs with the support of sentence starters, graphic organizers, and guiding questions provided in the materials. As pupils progressed, the revising and editing stages were facilitated by peer and teacher feedback, encouraging learners to reflect, refine, and reorganize their ideas for clarity and coherence. The final stage involved proofreading, where pupils corrected errors in grammar, punctuation, spelling, and formatting, aided by checklist prompts in the worksheets.

To ensure learning was measured and improved, the teacher used an analytical rubric adapted from Jacobs et al. (1981) to assess each output. This rubric allowed the teacher to evaluate progress in key areas and provide specific, formative feedback that guided pupils' revisions. This feedback loop not only helped pupils understand their strengths and areas for improvement but also supported their development of metacognitive awareness and academic writing confidence.

This process continued consistently until all the worksheets were completed. Through this cyclical, scaffolded instruction, the worksheets transformed writing into an engaging and developmental experience. As demonstrated by the significant improvements in post-test results among the experimental group, the worksheets were not merely supplemental tools but instrumental in building writing fluency, coherence, and competence—thereby affirming their effectiveness in teaching writing skills in a realistic classroom setting (Graham & Harris, 2019; Cabell et al., 2022).

Significant Difference Between the Pre-Test and Post-Test Scores of the Pupils in Experimental Group

The data presented in Table 4 illustrates a significant improvement in the level of competency in writing of participants in the experimental group after undergoing the intervention, as evidenced by the comparison of their pre-test and post-test scores.

Table 4. *Significant Difference Between the Pre-Test and Post-Test Scores of Participants in the Experimental Group*

Experimental Group	*Mean*	*t-statistic*	*df*	*Cohen's d*	*p-value*	*Decision*
Pretest Posttest	1.18 3.53	28	12	-7.75	<0.001	Do not Accept Ho

Statistical Tool Used: Paired t-test

The mean score increased substantially from 1.18 (pre-test) to 3.53 (post-test), suggesting a marked enhancement in their essay ratings. The statistical analysis, using a paired t-test, yielded a t-statistic of 28 with a p-value less than 0.001, indicating that the observed improvement is statistically significant and not due to random chance (Field, 2022).

Moreover, the Cohen's d value of -7.75 signifies a very large effect size which further reinforces the practical significance of the intervention. The negative sign reflects the direction of difference (post-test being higher than pre-test), and the magnitude far exceeds the threshold for a large effect. This suggests that the intervention had a powerful influence on students' writing skills.

The decision to reject the null hypothesis (Ho) implied that there was enough evidence to conclude that the intervention had a statistically and practically significant impact on improving essay writing among the experimental group. This finding is consistent with current research indicating that structured writing interventions, particularly those incorporating feedback and guided practice, significantly enhance learners' performance (Graham & Harris, 2019; Saddler, 2020).

In summary, the data supported the effectiveness of the implemented developed instructional worksheets in increasing the level of competency in writing among elementary learners. This result aligns with Yelland & Masters, 2021) that worksheets designed with tiered difficulty levels, optional supports, or open-ended response formats empower learners to work at their own pace while still engaging with core content

Significant Difference in the Post-Test Scores of the Pupils in the Control Group and Experimental Group

Table 5 showed a statistically significant difference in the post-test scores between the control and experimental groups of pupils' level of competency in writing in research.

Table 5. *Significant difference in the post-test scores of the control and experimental groups*

Group Comparison	*Mean*	*t-statistic*	*df*	*Cohen's d*	*p-value*	*Decision*
Experimental	3.53	15.9	23	6.37	<0.001	Do not Accept Ho
Control	1.77					

Statistical Tool Used: Independent Sample T-Test

The experimental group, which utilized the developed instructional worksheets, achieved a higher mean score (M = 3.53) compared to the control group (M = 1.77). The obtained t-statistic of 15.9 and a p-value of <0.001 confirm that this difference is highly significant, leading to the rejection of the null hypothesis (Ho). Moreover, the Cohen's d of 6.37 suggests a very large effect size, indicating that the instructional worksheets had a strong positive impact on the writing skills of the learners.

This result is consistent with recent studies highlighting the effectiveness of instructional materials in improving level of competency in writing. Chen and Tsai (2021) demonstrated that process-oriented worksheets improved metacognitive awareness in elementary science learners, particularly when paired with teacher feedback. The structure of the worksheet guided students in setting goals, monitoring their progress, and evaluating outcomes—skills transferable to literacy and writing development. Similarly, Lo et al. (2020) showed that worksheets with visual organizers and reflective prompts significantly enhanced learners' ability to plan and revise their written work.

Conclusion

Based from the findings of the study, the following conclusions were drawn.

The pre-test findings confirmed that both the experimental and control groups had very poor writing competency across all assessed domains, with mean scores indicating a common baseline of low performance.

The structured implementation of the developed instructional worksheets effectively enhanced pupils' writing level of competency.

The experimental group reached a "Very Competent" level, while the control group showed only minimal gains and remained "Less Competent."

The significant improvement in the experimental group's scores from pre-test to post-test confirmed that the instructional worksheets were effective in developing learners' level of competency in writing.

The superior performance of the experimental group over the control group in the post-test demonstrated the strong impact of the instructional worksheets.

Based on the findings and conclusions, the following recommendations are proposed:

Department of Education. Incorporate the use of structured, process-based worksheets in the Special Science Elementary School (SSES) curriculum to enhance pupils' research writing skills.

Teachers. Adapt and integrate localized, worksheet-based instructional materials in their teaching to provide scaffolded support for pupils, particularly in writing-intensive subjects. Training on the use of process-based writing instruction is also recommended.

Pupils. Encourage pupils' continuous use of the developed worksheets not only during classroom instruction but also as take-home reinforcement tools to help learners improve their level of competency in writing independently.

Curriculum Developers and Implementers. Prioritize the development and integration of instructional materials—such as structured worksheets—particularly in the area of research writing. Given their proven effectiveness, such tools can bridge learning gaps and provide scaffolded instruction that enhances pupils' writing performance in realistic classroom settings.

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