STRUCTURAL-RESPONSE INSTRUCTION WORKSHEET AND GRADE 10 STUDENTS' STRUCTURE OF OBSERVED LEARNING OUTCOME IN WRITING

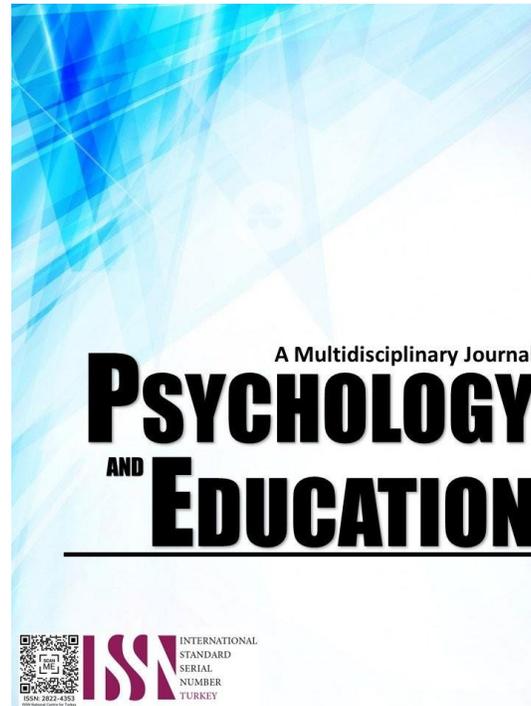# Structural-Response Instruction Worksheet and Grade 10 Students' Structure of Observed Learning Outcome in Writing

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Abstract

Eliciting higher-order thinking skills in students' essays has been a known struggle for language teachers, especially those in last-mile schools, where digital learning is hardly feasible due to difficulty in internet access, hindering both learners and educators in finding an alternative way to address this issue. Hence, this study, employing a quasi-experimental pretest and posttest design, focused on the structural-response instruction worksheet sought to elevate the Structure of Observed Learning Outcome (SOLO) in the writing of Grade 10 students from Sumilil National High School. The researcher-made instructional worksheet dubbed as Structural-Response Instruction (SRI) was validated by language experts, who found it to be of exemplary quality. The data were gathered through a total enumeration sampling where all 36 Grade 10 students of said school were the respondents and were assessed with pretest, posttest, and lesson-based assessments. Meanwhile, the level of respondents in the pretest is categorized as "Multi-structural," which means that students were able to provide multiple responses to each question but failed to discuss the relationships of their given answers. The level of structured responses of the students had improved in the posttest, transitioning to "Relational". It shows that the respondents had improved their written responses after the intervention of the worksheet. The overall mean gain score of the respondents showed a significant difference between their pretest and posttest.

Keywords: *structure of observed learning outcome (SOLO), writing, worksheet, high-order thinking skills*

Introduction

Writing is a fundamental skill that allows individuals to express ideas, communicate effectively, and demonstrate critical thinking. However, many students struggle with constructing well-structured written responses due to lack of guided instruction. This issue is particularly evident in academic settings, where writing proficiency plays a crucial role in students' overall success. The challenge of developing coherent and well-organized written outputs calls for innovative teaching strategies that support students in enhancing their writing skills.

Globally, writing proficiency remains a concern among students. The EF English Proficiency Index (2022) reports that only 20–30% of students worldwide met the expected proficiency levels in writing. Moreover, research suggests that many learners fail to progress beyond surface-level writing due to inadequate instructional support. Zhang, et al (2021) found that explicit instructional scaffolding significantly enhances students' writing quality by providing clear feedback and structured frameworks. Similarly, Koh and Chiu (2020) emphasize that structured instructional methods improve students' ability to organize and articulate ideas effectively.

Despite global efforts to improve writing instruction, the Philippines continues to struggle with low literacy and writing competency among students. Garcia and Mendoza (2020) found that Filipino students often lack analytical writing skills, resulting in difficulties in articulating well-developed arguments. Additionally, Aquino (2021) reports that students struggle with complex writing tasks due to limited exposure to structured writing approaches. Santos and Cruz (2022) highlight that traditional writing instruction in Philippine schools does not adequately prepare students to engage in critical and analytical writing, leading to poor writing performance in national assessments. These challenges align with the findings of Delos Reyes (2023), who emphasized that the lack of structured writing instruction hinders students' ability to develop higher-order thinking skills.

The significance of guided instruction has been highlighted as effective tool to improve students' writing proficiency. Despite existing interventions, there remains a significant research gap in the development of structured, locally designed instructional materials that integrate SOLO Taxonomy and scaffolding principles to enhance students' writing skills. While previous studies have demonstrated the effectiveness of scaffolding techniques, limited research focuses on instructional materials specifically developed to Filipino secondary students.

This study aimed to address these gaps by designing and implementing a Structural-Response Instruction Worksheet. This intervention specifically targeted students' responses using the Structure of Observed Learning Outcome (SOLO) Taxonomy as rubric, ensuring a more systematic approach to developing writing proficiency. Guided by Vygotsky's scaffolding theory, this study sought to elevate students' writing performance by providing structured support that enhanced their ability to produce well-developed, logical, and critically sound written responses.

In 2022, Sumilil National High School was one of the only 188 schools that participated in the Program for International Assessment (PISA), to which Sen. Sherwin Gatchalian confirmed that Benigno Aquino Ninoy High School in Makati City was the only public school that passed the 2022 PISA Test, while the other 187 did not. Based on the result, almost no Filipino students scored Level 5 or

higher in reading, whereas the Organisation for Economic Co-operation and Development (OECD) average is at 7%. This demonstrated students' poor critical thinking skills, especially in situational assessment. Sumilil National High School's contribution to the Philippines' underperformance has become a wake-up call to develop alternative instructional tools to improve students' higher-order thinking skills, specifically those Grade 10 students, typically aged 15 to 16, who were the exact age bracket chosen to take the PISA Test.

This study aimed to improve students' level of responses based on SOLO Taxonomy through a researcher-made worksheet developed to elicit more complex ideas from the learners.

Research Questions

This study aimed to improve Grade 10 students' writing skills, particularly in achieving higher levels in the SOLO taxonomy. Specifically, it sought to address the following questions:

1. What is the level of validation of Structural-Response Instruction Material in terms of:
   1.1 content;
   1.2 organization;
   1.3 mechanics; and
   1.4 overall package?
2. What is the level of structured learning outcomes in the writing responses of Grade 10 students in terms of:
   2.1 lesson 1 assessment;
   2.2 lesson 2 assessment;
   2.3 lesson 3 assessment;
   2.4 lesson 4 assessment;
   2.5 lesson 5 assessment; and
   2.6 lesson 6 assessment?
3. What is the level of structure of observed learning outcomes in the writing responses of Grade 10 students in their pretest and posttest?
4. Is there a significant difference between the pre-test and post-test of Grade 10 students?

Literature Review

Structural-Response Instruction

Structural-Response Instruction provides students with a step-by-step framework to help them organize ideas and develop logical written responses (Johnson & Lee, 2022). Research shows that structured approaches reduce writing anxiety and improve coherence in students' compositions (Stevens et al., 2021).

Scaffolded instruction helps students transition from fragmented responses to well-structured essays (Saito, 2020). By receiving explicit models and structured exercises, learners gradually develop independence in writing (Graham & Perin, 2021).

The Structural-Response Instruction Worksheet in this study aligns with these principles by offering a clear guide for students to construct organized responses. This approach supports the development of higher-order thinking skills by reinforcing structured reasoning in writing (Koh & Chiu, 2020).

In this connection, the Structural-Response Instruction Worksheet used in this study was validated by language experts to which results showed that the worksheet is highly effective in elevating students' written responses.

Vygotsky's Scaffolding Theory in Writing

The theory of Vygotsky (1978) states that interactivity is an aspect on which learning outcomes depend on the role of guided instruction is paramount. Modeling writing strategies effectively may considerably enhance students' facilitated work products (Miller & McNaughton, 2018).

Similarly, interactive feedback provided with explicit instruction enhances students' overall writing quality (Zhang, Wang, & Chen, 2021). Johnson & Lee (2019) expressed that scaffolding creates a more positive environment for delivery and also improves students' self-organization in their texts.

Contrarily, Smith et al. (2020) revealed that under-resourced classrooms are characterized more often by inconsistent scaffolding which causes various patterns of educational outcomes among students educated there. Chan et al. (2018) warned against institutionalizing an undue degree of dependence on teacher help because it creates a barrier to independence and growth inability over time while learning to act as writers.

Besides this, Park & Lim (2022) confirmed that, indeed, peer scaffolding works when learning within cooperation improves capabilities to compose written work.

Anchor to this, Scaffolding functioned as an aid in gradually increasing the writing proficiency of Grade 10 students in Sumilil National High School as results showed that constant use of scaffolded instruction consistently improved students' structured responses kicking off from Uni-structural level from lesson 1 and eventually reaching Relational level during the sixth (6th) lesson.

Writing Instruction

Effective writing instruction focuses on more than grammar and mechanics; it also teaches students how to structure ideas logically (Anderson & Krathwohl, 2021). Many students struggle not due to a lack of ideas but because they do not know how to organize their thoughts into coherent arguments (Tan & Silva, 2022).

In the Philippines, studies highlight that traditional writing instruction often lacks emphasis on critical thinking and logical structuring (Cruz & Martinez, 2022). The absence of explicit writing frameworks results in students producing unstructured and underdeveloped responses (Gonzalez & Rivera, 2021).

Structured writing approaches, such as the one used in this study, help address these challenges. By providing a clear format for organizing thoughts, students gain the ability to produce well-developed and logically sound compositions (Park & Lim, 2022).

With these readings and as the researcher has first-hand experience with the present writing instruction mainly focusing on grammar and mechanics, he came up with the development of this worksheet that instead of focusing on said writing standards, the instruction was designed to target students' depth of understanding and eliciting a more critical and dimensional essay.

Instructional Materials

Instructional materials play a crucial role in reinforcing writing skills by offering structured exercises and model responses (Bennett & Dunne, 2019). Studies confirm that well-designed instructional materials help students develop confidence and clarity in their written work (Miller & McNaughton, 2022).

Printed worksheets remain valuable in schools with limited digital access, ensuring all students receive structured writing support (Santos & Liu, 2023). Research highlights that instructional materials should not only provide practice activities but also offer guided instruction in structuring ideas (Koh et al., 2021).

This study's Structural-Response Instruction Worksheet aligns with these findings by serving as a print-based instructional tool that helps students refine their writing. With structured guidance, learners improve coherence and organization in their responses (Garcia & Mendoza, 2020).

Challenges and Limitations of Structured-Response Instruction

Although structured-response strategies have repeatedly been demonstrated to be effective, in certain spheres, there may be limitations affecting their success. This might account for the fact that not all schools are able to implement this technique; sometimes the needs of students, preparedness of the teacher, or engagement of the institution might stand in the way. Bennett and Dunne (2019) attributed a degree of success to structured approaches on one hand, while they emphasized the extensive training that teachers must undertake for proper delivery; a lack of preparedness could further lead to varied applications in the classroom.

Again, student motivation is very much a participant in this context as well. Hattie and Timperley's (2007) findings suggest that students without intrinsic motivation will not benefit from maximum participation from structured instructional approaches to the learning process; therefore, their impact on learning outcomes weakens. In contrast, Meyer et al. (2021) presented evidence for properly delivered structured instruction regarding enhanced student engagement while positively affecting overall academic performance.

Koh et al. (2020) also indicated the various kinds of diversity in classrooms that impede efforts since not all learners can equally benefit from standard approaches, lending credence to the importance of differentiated teaching methodologies. Some students demonstrated resistance to the overly rigid structures; many expressed a desire for more creative leeway in their writing activities, Daniels et al. (2022) reported. Similar sentiments were shared by Wilson and Clark (2021), who noted that advanced students mostly viewed stringent constructions as restrictive rather than a boost.

During the conduct of this study, the researcher encountered similar challenges as stated in the above literature, where some respondents showed little motivation in answering their essays, not minding the given scaffolded instructions in the worksheet, making it more challenging to achieve the objective of this study.

Writing Proficiency Among Grade 10 Students

Writing proficiency is an important functional skill needed for academic achievement; however, to develop this ability, many students face severe challenges. Inadequate training and resources within educational institutions are the biggest barriers to students' writing progress (Santiago & Garcia, 2019).

Morales (2020) expressed that socio-economic settings create disparities in writing skills, negatively affecting students from lower-income families and those who are disadvantaged and often lack proper learning materials. Delos Santos and Reyes (2018) voiced their agreement against rote learning, reasoning that they dampens creativity and critical thinking in writing assignments.

Also worthy of consideration are Tan and Silva's (2021) findings, which have shown that issues stemming from academic English prevent the effective articulation of ideas by students. Cruz and Martinez (2022) observed that junior high school learners also experienced coherence problems due to the limited feedback provided during writing instruction.

Digital literacy has a significant impact on writing competence, with students generally performing better in written assignments if they use such digital resources (Anderson & Bloom, 2023). The empirical association between reading comprehension skills and writing proficiency has been illustrated by Brown and others (2021) with students who are good at reading writing more cohesive compositions.

Conversely, Gonzalez and Rivera (2021) identified significant differences in writing competencies between rural and urban students: urban learners have typically enjoyed greater access to organized writing programs.

In fact, based on the pre-test result of this study, the writing proficiency of Grade 10 students of Sumilil National High School based on the Structure of Observed Learning Outcome (SOLO) Taxonomy is at Multi-Structural level which means that the respondents were able to provide multiple answers based on the given question but can hardly discuss the relationships of their enumerated answers.

SOLO Taxonomy

Developed by Biggs and Collis (1982), the SOLO taxonomy serves as a tool for evaluating cognitive development through five distinct levels based on student responses. Recent studies have demonstrated its effectiveness in assessing written work concerning either quality or depth of understanding (Biggs & Collis, 2019; Meyer et al., 2021).

In addition, Love (2014) claims that the Structure of Observed Learning Outcome (SOLO) Taxonomy is a tool for assessing students' cognitive development and learning achievement as far superior to Bloom's. It categorizes understanding into five hierarchical levels, ranging from missing the point to abstract generalization. The framework progresses from the pre-structural level, where students lack any grasp of the concepts, to unistructural and multistructural levels, where they may somehow identify and list some points in an isolated manner, then to relational and extended abstract levels, where students can not only synthesize knowledge into a coherent whole but apply that knowledge across other contexts.

Likewise, Hattie suggests that this thoughtfully crafted taxonomy offers valuable insights into higher-order thinking displayed within written assignments (Hattie & Timperley, 2007). However, Meyer and Land (2014) note that some learners may struggle with transitions between levels without appropriate guidance from instructors.

Saito (2020) emphasized the need for teachers' training courses on the SCM for its successful introduction. Wilson and Clark (2023) advocate for using technology-enhanced learning media to help students gain rank in the SOLO taxonomy more uniformly, as suggested in a recent study.

Methodology

Research Design

This study used a quasi-experimental research design. Quasi-experimental design was used to evaluate the effect of the structural-response instruction worksheet on Grade 10 students' Structure of Observed Learning Outcome in writing. Quasi-experimental design applies when random assignment is not practically feasible, using existing groups to assess the effects of intervention (Campbell & Stanley, 1963; Cook & Campbell, 1979)

Participants

The respondents of this study were 36 Grade 10 students of Sumilil National High School in the municipality of Bagumbayan, Sultan Kudarat, who were enrolled for School Year 2024- 2025. The English teachers who were graduates with a master's degree in their own field of expertise were the evaluators of the developed worksheet for its validity and quality in terms of content, organization, and mechanics.

Instrument

To acquire data from the respondents, the researcher directly compiled essay questions from the English 10 Book used in public schools. The instrument was personally administered by the researcher during the pretest and posttest, and used the original Structural-Response Instruction Worksheet.

Procedure

The researcher developed a worksheet anchored to Vygotsky's Scaffolding theory. Whereas, in the context of this study, the said tool served as the guided instruction which helped students increase the levels of their written responses over time and as lessons progress, scaffolded instruction gradually diminishes until such time that students become independent in their writing.

Moreover, prior to the actual conduct of the study, the researcher secured approval and permission letters from Sultan Kudarat State University- Graduate School and Department of Education (DepEd) Division of Sultan Kudarat authorities respectively. Further, both

pilot testing schools, which were the Gapok National High School and the locale of the study, which was the Sumilil National High School, received letters of permission and were then signed for approval. Meanwhile, to ensure the ethical standard of the study since it will include minors as its respondents, informed consent and assent to parents and students were sent correspondingly. Likewise, content validators were sent letters of request to participate in evaluating the developed SRI worksheet. Following these, the researcher consulted six (6) various experts to validate the worksheet, and after thorough consolidations of feedback and affirmation, the worksheet was reproduced to be utilized for the conduct.

Thereafter, pilot testing was conducted in Gapok National High School with 35 Grade 10 respondents, to which the researcher used the test-retest method to assess the reliability of the essay questions as well as the rubric used to score students' answers. After ensuring that the instruments were reliable and valid, the researcher conducted a pretest to all 36 Grade 10 students of Sumilil National High School. The result was gathered and analyzed from 36 Grade 10 respondents. Consequently, the intervention, which was the use of the SRI worksheet, was done in the entire second quarter of the school year 2024-2025. At the end of the grading period, a posttest was administered to the Grade 10 respondents.

Finally, after the administration of the posttest, the researcher started to consolidate the data and applied the statistical treatment made for the study.

Ethical Considerations

Informed consent and assent to the parents and respondents were provided prior to the actual conduct due to the consideration that said respondents were minors aged 15-16. They were also informed that they are free to withdraw from participation at any time. Students' anonymity was preserved, and the data gathered from them were generalized to ensure the privacy of each individual who participated in the study. Moreover, personal information and documented photographs involving the students were covered.

Results and Discussion

This section presents the results, analysis, and interpretation of the research according to the order in which the problem statements were presented in this study.

Quality of the Structural-Response Instruction (SRI) Worksheet in terms of content, organization, mechanics, and overall package.

The Structural-Response Instruction (SRI) Worksheet was evaluated in terms of its content, organization, mechanics, and overall package.

Table 1 presents a summary of the results of the experts' assessment of the SRI Worksheet.

Table 1. *Summary of the Grand Mean Ratings on the Content, Organization, Mechanics, and Overall Package of the "Structural-Response Instruction Worksheet"*

Indicators	Mean	Verbal Description
Content	4.67	Excellent
Organization	4.80	Excellent
Mechanics	4.78	Excellent
Overall Package	4.78	Excellent
Mean	4.76	Excellent

Generally, the results showed that the Structural-Response Instruction Worksheet received consistently high ratings across all evaluated criteria, with an overall grand mean of 4.76, interpreted as "Excellent." This means that the developed worksheet can serve as a tool to improve the level of students' writing responses. Specifically, it can be claimed that the worksheet's content, organization, mechanics, and overall package are of *exemplary* quality.

The findings confirmed the idea of Stevens et al. (2021), who highlighted that structured writing interventions can significantly increase students' ability to transition from surface-level ideas to cohesive arguments, which aligns with the observed improvements in students' structured responses in this study. Fuchs et al. (2018) emphasized that instructional materials incorporating scaffolding techniques lead to better writing proficiency, a finding that supports the effectiveness of the Structural-Response Instruction Worksheet used in this research. Johnson & Lee (2019) found that explicit instruction in writing frameworks helps students systematically organize their thoughts, reinforcing the importance of the structured-response instruction applied in this study to enhance Grade 10 students' writing skills. Moreover, worksheets help students gather and generate ideas and organize them logically to come up with a more advanced and logical response.

The results show a clear trend of improvement, with students benefiting from structured response instruction. However, the plateau at the relational level suggests that further refinement of instructional strategies is necessary to push students toward the extended abstract level. The findings reinforce the effectiveness of the instructional intervention but also highlight areas for growth. Additional strategies, such as peer review and self-assessment, could be incorporated to deepen students' engagement with writing.

Table 2. *Summary of Grade 10 Students' Structure of Observed Learning Outcome in Writing Across Lessons*

Indicators	Percentage	Verbal Description
Lesson 1: Finding Common Ground	35%	Uni-structural
Lesson 2: Building Ties	47%	Uni-structural
Lesson 3: Being Sensitive to Others	54%	Multi-structural
Lesson 4: Empathizing with Others	65%	Relational
Lesson 5: Accepting Individual Differences	67%	Relational
Lesson 6: Embodying Solidarity	67%	Relational
Overall	53%	Multi-structural

The findings confirm the study of Santos and Cruz (2022) that structured writing instruction leads to sustained improvements in student performance, supporting the long-term benefits observed in this study. Koh et al. (2021) highlighted the importance of guided feedback, which was a central component of this intervention. Tan and Silva (2021) emphasized that structured instruction must evolve to address higher-order thinking skills, which aligns with the need for further refinement in this study.

Table 3. *Level of Structure of Observed Learning Outcome in Writing of Students in their pretest and Posttest*

Indicator	Percentage	Verbal Description
Pretest	54%	Multi-structural
Posttest	72%	Relational

The summary indicates a clear progression from the pre-test (34%) to the post-test (67%), demonstrating substantial improvement in students' writing skills. The data confirm that structured-response instruction had a positive impact on student performance, validating the effectiveness of this instructional method. These findings suggest that similar structured writing interventions should be implemented in broader educational contexts to enhance students' writing proficiency.

Saito (2020) emphasized that structured pre- and post-testing reveals significant learning gains, reinforcing this study's findings. Meyer and Land (2021) found that structured interventions promote higher-order thinking, supporting the effectiveness of this approach. Koh et al. (2021) highlighted that explicit scaffolding leads to long-term writing improvements, aligning with the study's outcomes.

Table 4 presents the z-test analysis of the pretest and posttest results of the respondents.

Table 4. *Analysis of the Pretest of the Control Group and Experimental Group*

Indicator	N	Mean	Sd	z-comp	p-value	Interpretation
Pretest	36	32.3	5.52	-8.55	0.001	significant
Posttest	36	43.09	5.18			

p=.05 level of significance

The results of the Z-Test analysis indicate a significant difference between the pretest and posttest scores of the participants. The pretest mean score of 32.3 with a standard deviation of 5.52 increased to a post-test mean of 43.09, with a standard deviation of 5.18. The computed Z-value of -8.55 is notably large, and the corresponding p-value of 0.001 is much lower than the 0.05 significance level. This result confirmed that the observed difference is statistically significant. Therefore, the findings suggest that the intervention or instructional approach applied had a positive impact on the participants' performance, resulting in a notable improvement in their posttest scores.

The statistical findings suggest that the implementation of the SRI Worksheet had a measurable impact on the writing proficiency of Grade 10 students. Before the intervention, students demonstrated fragmented and disorganized responses, indicative of the uni-structural level. However, after receiving structured guidance, their writing improved significantly, showcasing better coherence, logical connections, and idea integration at the relational level. This result reinforces the idea that explicit and structured instructional approaches contribute to better writing outcomes, allowing students to transition from surface-level responses to more developed arguments.

The significant increase in posttest scores has strong implications for writing instruction in secondary education. First, it highlights the necessity of structured scaffolding in helping students organize their thoughts and construct logical arguments. Second, it suggests that structured-response instruction should be systematically integrated into the curriculum to support students' cognitive development in writing. Lastly, it indicates that without structured interventions, students may struggle to progress beyond basic levels of writing, reinforcing the need for pedagogical strategies that provide explicit writing frameworks.

This finding affirmed the study of Santos and Cruz (2022) which found that students who undergo structured writing instruction demonstrate significant gains in writing coherence and argumentation, aligning with the improvements observed in this study. Similarly, Garcia and Mendoza (2020) highlighted that explicit scaffolding in writing exercises allows students to develop a more

organized approach to structuring their responses, which explains the shift from uni-structural to relational levels in this research. Additionally, Wilson and Clark (2023) emphasized that structured instructional interventions, combined with guided practice and feedback, lead to long-term writing proficiency improvements, reinforcing the effectiveness of the Structural-Response Instruction Worksheet in facilitating sustained learning gains.

Overall, the Z-Test results provide strong empirical evidence that structured-response instruction significantly enhances students' writing proficiency. The findings support the continued use and refinement of structured instructional approaches to help students develop the necessary skills to produce well-organized, logical, and cohesive written responses, ultimately preparing them for more complex academic writing tasks in higher education.

Conclusions

Based on the findings of the study, the assessment of the experts, which was interpreted as "Excellent," proved the acceptability and usability of the SRI Worksheet. The overall mean gain scores of Grade 10 students showed that there was a significant positive difference following the intervention that had been employed. Thus, the developed worksheet that is of exemplary quality helped improve students' written outcomes, especially on the basis of using SOLO Taxonomy as a rubric.

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