

Addressing Least Learned Competencies in Foreign Language Learning Through 5E-Based Instructional Materials

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ABSTRACT

This study aims to address students' least learned competencies in learning a foreign language by developing, implementing, and evaluating instructional materials using the 5E Learning Cycle approach. Through a quasi-experimental research design involving two sections of second-year AB-English Language (ABEL) students from Agusan del Sur State University, results showed that neither group showed any significant difference during the pretest. They have little to no mastery of the learned foreign language. Yet, significant differences were revealed after both groups took the posttest examination, suggesting that using instructional materials helps students improve their performance. Further, the experts and students rated the effectiveness of the instructional material as Very

Acceptable in all indicators. With this, the developed instructional material is recommended for use in classroom settings for independent and guided learning and future research.

Keywords: *Instructional material, Foreign Language, Japanese, 5E Learning Cycle, Least Learned Competencies*

INTRODUCTION

Foreign language education has become an essential component of higher education curricula in the Philippines, driven by the growing demand for multilingual competence, intercultural communication, and global movement. Japanese has become increasingly popular among foreign languages offered in higher education institutions due to the growing educational, cultural, and employment opportunities between the Philippines and Japan (Delvin, 2018; Aziz et al., 2019; Quintos, 2021). Despite its relevance, many learners continue to experience significant difficulties in acquiring Japanese language skills, resulting in low academic performance and limited language proficiency (Lightbown & Spada, 2019; Gil, 2020; Quintos, 2021; Galve, 2022; Arbolado, 2023). To address this, the teacher can use different tools to guide or facilitate students' learning.

Several studies emphasized the relevance of instructional materials in foreign language learning. Research has shown that well-designed instructional materials enhance learner engagement, facilitate language acquisition, and support mastery of difficult competencies (Edubalad, 2019; Tumibay, 2019; Harrison, 2023). In Japanese language education specifically, enhanced learning materials have been found to improve students' understanding of linguistic concepts and promote better learning outcomes (Arbolado, 2023).

However, Malik et al. (2021) revealed the inadequacy of materials in teaching foreign languages. As a foreign language teacher, the researcher observed a significant failure in students' assessments. During the second semester of the academic year 2021-2022, only 0.84% or one (1) of 118 students passed the midterm examination, and only 7.83% or nine (9) of 115 students passed the final term examination. Meanwhile, during the second semester of the 2022-2023 academic year, only 10.67% (nineteen out of 178) of students passed the midterm examination, and only 8.05% (fourteen out of 174) passed the final term examination. During these times, the instructional materials in foreign language learning are scarce, even in school libraries.

While previous studies have examined enhanced learning plans, multimedia resources, and instructional materials in foreign language learning, limited research has focused on the development of instructional materials grounded in the 5E Learning Cycle and specifically designed to address learners' least learned competencies in Japanese language instruction. Moreover, evidence regarding the effectiveness of such materials among Filipino university students remains scarce.

The present study was anchored on the 5E Learning Cycle Model (Myton Atkin and Robert Karplus, 1962), which posits that meaningful learning occurs through the phases of engagement, exploration, explanation, elaboration, and evaluation. The model emphasizes active learner participation and knowledge construction, making it suitable for foreign language instruction. In developing the instructional material, the principles of the ADDIE model (Sahaat & Bakar, 2020) were likewise considered to ensure a systematic process of analysis, design, development, implementation, and evaluation. Together, these frameworks guided the development and validation of instructional materials aimed at addressing the least learned competencies in Foreign Language.

Therefore, this study developed and evaluated a 5E Learning Cycle-based instructional material designed to address the least learned competencies of learners in Foreign Language. Specifically, it examined students' learning performance, identified the least learned competencies, assessed the effectiveness of the developed material, and determined its acceptability as perceived by experts and learners. The findings are expected to contribute to instructional material development and foreign language pedagogy in higher education. Beyond its contribution to foreign language pedagogy, this study contributes to Sustainable Development Goal 4 by promoting quality language education through the development of context-responsive instructional resources that support improved learning outcomes in higher education.

METHODS

Research Design

This study employed a quasi-experimental pretest–posttest control group design to evaluate the effectiveness of a 5E Learning Cycle-based instructional material in Foreign Language, particularly in Japanese to address the students' least learned competencies. The design enabled the comparison of students' performance before and after the intervention and between the experimental and control groups.

Research Locale

The study was conducted at Agusan del Sur State University (ADSSU), San Teodoro, Bunawan, Agusan del Sur. The institution offers Foreign Language (Japanese) as part of the Bachelor of Arts in English Language curriculum, making it an appropriate setting for the implementation and evaluation of the developed instructional material.

Sampling Technique

The participants were second-year Bachelor of Arts in English Language students enrolled in Foreign Language 1 during the second semester of academic year 2023–2024 at Agusan del Sur State University. Purposive sampling was employed in selecting the participants because they were officially enrolled in the target course. Two existing class sections were utilized as intact groups. One section served

as the experimental group (n = 41) and received instruction using the developed 5E Learning Cycle-based instructional material, while the other section served as the control group (n = 41) and received regular instruction. The use of intact classes was deemed appropriate because random assignment of students was not feasible within the institutional setting.

Table 1. *Distribution of Respondents*

Group	Pretest	Post Test
Experimental Group	41	41
Control Group	41	41
TOTAL	82	82

Research Instrument

Data were gathered using researcher-developed pretest and posttest instruments aligned with the course competencies in Foreign Language. The pretest was administered to identify students' least learned competencies. Based on the results, a 5E Learning Cycle-based instructional material was developed and validated by the experts. The material was then implemented among students in the experimental group, while the control group received regular instruction. After the intervention, both groups completed the posttest. Validation questionnaires were subsequently administered to students and experts to determine the perceived effectiveness of the material in terms of content, instructional quality, technical quality, presentation and organization, accuracy, up-to-datedness, and assessment.

Data Analysis

Mean and standard deviation were used to describe students' pretest and posttest performance and identify the least learned competencies in Foreign Language, specifically Japanese. A paired-samples t-test was employed to determine significant differences between pretest and posttest scores. Weighted mean analysis was used to assess the effectiveness of the developed instructional material as perceived by experts and students across six dimensions: content, instructional quality, technical quality, presentation and organization, accuracy and up-to-datedness of information, and assessment.

RESULTS AND DISCUSSION

Pretest Performance of the Students in Foreign Language

Table 2 presents the pretest result of the students in Foreign Language 1 before the implementation of the developed instructional material. The control group has a mean score of 18.17 (SD = 8.08), while the experimental group has a mean score of 18.03 (SD = 10.88).

The minimal difference between the two groups indicates that both groups had similar levels of prior knowledge in Japanese before the intervention. The low mean scores further suggest that the students had limited mastery of the competencies covered in Foreign Language, particularly in reading, writing, and vocabulary-related skills. These findings imply that the participants entered the course with insufficient proficiency in Japanese, thereby justifying the need for instructional intervention.

The results support previous studies, which reported that learners often encounter difficulties in acquiring Japanese as a foreign language due to unfamiliar writing systems (Arbolado, 2023), vocabulary limitations (Quintos, 2021), and language complexity (Gil, 2020). Consequently, establishing baseline performance through a pretest was necessary to identify learning gaps and guide the development of appropriate instructional materials.

Table 2. *Pretest Results of the Students in Foreign Language in Both the Control and Experimental Groups*

Group	Mean	Standard Deviation
Experimental Group	18.03	10.88
Control Group	18.17	8.08

Least Learned Competencies in Foreign Language

The pretest results revealed several competencies that students found particularly difficult. The least learned competencies included Reading Calendar (M = 26.61), Reading Clock-Time (M = 27.72), Counting Numbers (M = 34.92), Body Parts (M = 35.85), and Hiragana Writing (な-わ series) (M = 49.51). Conversely, students demonstrated relatively higher performance in Introduction, Greetings and Classroom Expressions, Self-Introduction, and selected Hiragana writing competencies.

The results indicate that students faced greater challenges with tasks requiring numerical interpretation, understanding temporal expressions, and adhering to specific writing conventions. These competencies require not only the acquisition of vocabulary but also the application of Japanese writing and language conventions, which can be challenging for beginner learners (Gil, 2020). The average weighted mean of 34.92 among the least learned competencies indicates a significant learning gap that needs focused instructional support.

The identification of these competencies formed the basis for developing instructional material. By focusing on areas where learners demonstrated the greatest difficulty, the intervention was designed to address instructional needs and maximize learning gains effectively.

Table 3. *Least Learned Competencies of the Students in Foreign Language Based on the Pretest Result*

Topic	Competency	Mean Score	Interpretation
Introduction, Greetings, & Classroom Expressions	1. Appreciate the Japanese culture.	61.28	Average
Self-Introduction / Jikoshoukai	1. Introduce oneself to the class in Japanese.	52.59	Average
Hiragana Writing - あ、かさ、た、until ん.	1. Write with proper stroking of Hiragana characters from あ、かさ、た、until ん. 2. Pronounce correctly the Hiragana characters from あ、かさ、た、until ん. 3. Familiarize words under under the characters あ、かさ、た、until ん.	59.45	Average
Hiragana Writing - きや、しゃ、ちや、にや、ひや、みや、りや、ぎや、じゃ、びや、until ぴや.	1. Write with proper stroking of Hiragana characters from きや、しゃ、ちや、にや、ひや、みや、りや、ぎや、じゃ、びや、until ぴや. 2. Pronounce correctly the Hiragana characters from きや、しゃ、ちや、にや、ひや、みや、りや、ぎや、じゃ、びや、until ぴや. 3. Familiarize words under the characters きや、しゃ、ちや、にや、ひや、みや、りや、ぎや、じゃ、びや、until ぴや.	51.22	Average
Hiragana Writing - が、ぎ、だ、ば、until ぱ.	1. Write with proper stroking of Hiragana characters from が、ぎ、だ、ば、until ぱ.	55.79	Average

	2. Pronounce correctly the Hiragana characters from が、ざ、だ、ば、 until ば.		
	3. Familiarize words under under the characters が、ざ、だ、ば、 until ば.		
AVERAGE WEIGHTED MEAN		56.07	Average
Hiragana Writing	1. Write with proper stroking of Hiragana characters from な、は、ま、や、ら、 until わ.		
- な、は、ま、や、ら、 until わ.	2. Pronounce correctly the Hiragana characters from な、は、ま、や、ら、 until わ.	49.51	Least Learned
	3. Familiarize words under under the characters な、は、ま、や、ら、 until わ.		
Body Parts / Karada no Bubun	1. Distinguish the body parts.		
	2. Recite human parts of the body and face in Japanese.	35.85	Least Learned
Counting Numbers	1. Identify Japanese numbers from 1 to 10000.		
	2. Count and write Japanese numbers.	34.92	Least Learned
Reading Calendar	1. Ask and answer questions by reading the calendar, including days, weeks, and months.		
	2. Memorize the days, weeks, and months in Japanese.	26.61	Least Learned
Reading Clock-time	1. Write the time in Japanese based on the clock.		
	2. Ask and answer questions on reading clock time.	27.72	Least Learned
AVERAGE WEIGHTED MEAN		34.92	Least Learned

Posttest Performance of the Students in Foreign Language

Following the implementation of the instructional material, improvements were observed in both groups. The control group obtained a mean posttest score of 34.47 (SD = 12.00), while the experimental group achieved a substantially higher mean score of 48.45 (SD = 8.09).

The results indicate that both groups learned; however, students exposed to the 5E Learning Cycle-based instructional material showed significantly greater improvement. The higher mean score obtained by the experimental group indicates that the developed material effectively enhanced students' understanding of Japanese language concepts and competencies. Moreover, the lower standard deviation in the experimental group suggests more consistent learning outcomes among participants (Aborlado, 2023; Ramdani et al., 2021).

The findings support the argument that structured instructional materials can facilitate learning by providing organized content, guided practice, and opportunities for reinforcement (Tomlinson, 2023). The

integration of the 5E Learning Cycle may have contributed to learner engagement through its sequential phases of engagement, exploration, explanation, elaboration, and evaluation, thereby promoting deeper understanding and retention of concepts.

Table 4. *Posttest Results of the Students in Foreign Language in Both the Control and Experimental Groups*

Group	Mean	Standard Deviation
Experimental Group	48.45	8.09
Control Group	34.47	12.00

Significant Difference Between the Pretest and Posttest Results

To determine whether the instructional intervention had a significant influence on student performance, the pretest and posttest scores of both groups were compared. Results showed that the pretest scores did not significantly differ between groups ($t = 0.90$, $p = 0.928$), indicating comparability before the intervention. In contrast, the posttest scores revealed a statistically significant difference ($t = 6.328$, $p = 0.000$).

The fact that there were no significant differences in the pretest scores shows that both groups began on equal terms in terms of proficiency. This is important because it adds to the credibility of the study. It suggests that any changes noticed after the intervention are unlikely to be caused by differences that existed before. On the other hand, the noticeable difference in test results indicates that the instructional material had a significant impact on the students' performance.

The results indicate that the instructional materials developed had a meaningful impact on students' learning. Students who used the materials showed greater progress compared to those who followed traditional instruction. This supports the idea that the 5E Learning Cycle approach can be very effective for teaching foreign languages. These findings align with earlier research that also highlighted significant improvements in student performance when materials based on the 5E model are used (Hariyanto et al., 2019; Hasnidar et al., 2019; Setiomono et al., 2023)

Table 5. *Significant Difference Between the Pretest and Posttest Results Before and After the Use of Instructional Material in Foreign Language in Both the Control and Experimental Groups*

Variable	Computed t- Value	p-value	Conclusion
Pre-test in both groups	0.90	0.928	Not significant
Post-test in both groups	6.328	.000	Significant

Effectiveness of the Developed Instructional Material

The effectiveness of the developed instructional material was evaluated by experts and students across six dimensions: content, instructional quality, technical quality, presentation and organization, accuracy and up-to-datedness of information, and assessment. Results showed that all dimensions received a rating of *Very Acceptable* from both groups of evaluators. The experts reported a grand mean of 3.79, while the students reported a slightly higher grand mean of 3.87.

The consistently high ratings show that the instructional material met established standards for educational quality and usability. The high ratings in the instructional quality indicate that the activities, exercises, and learning tasks were suitable for helping learners achieve the learning outcomes. Similarly, strong ratings in technical quality and presentation indicate that the material was well-designed, organized, and user-friendly.

The positive evaluations further validate the effectiveness of integrating the 5E Learning Cycle into instructional material development. The favorable perceptions of both experts and students imply that the material was not only pedagogically sound but also engaging and supportive of learning. These findings reinforce the quantitative results demonstrating improved student performance after exposure to the instructional material.

Table 6. *Level of Effectiveness of Instructional Material in Teaching Foreign Language as Perceived by the Experts and Students*

	Experts		Students	
	Weighted Mean	Adjectival Rating	Weighted Mean	Adjectival Rating
Content	3.67	Very Acceptable	3.85	Very Acceptable
Instructional Quality	3.83	Very Acceptable	3.88	Very Acceptable
Technical Quality	3.92	Very Acceptable	3.91	Very Acceptable
Presentation and Organization	3.80	Very Acceptable	3.83	Very Acceptable
Accuracy and Up-To-Datedness of Information	3.75	Very Acceptable	3.82	Very Acceptable
Assessment	3.78	Very Acceptable	3.91	Very Acceptable
GRAND MEAN	3.79	Very Acceptable	3.87	Very Acceptable

CONCLUSION

This study developed and evaluated a 5E Learning Cycle-based instructional material designed to address the least learned competencies in Foreign Language (Japanese) among Bachelor of Arts in English Language students. The findings revealed that students initially demonstrated limited mastery of several competencies, particularly those involving numerical expressions, time-related concepts, and selected Hiragana writing skills. These identified learning gaps served as the basis for the development of the instructional material.

The implementation of the developed material resulted in improved student performance, with the experimental group demonstrating greater learning gains than the control group. The significant difference between the pretest and posttest scores suggests that the 5E Learning Cycle-based instructional material effectively enhanced students' learning outcomes. The structured learning experiences provided through the phases of engagement, exploration, explanation, elaboration, and evaluation may have contributed to deeper understanding and retention of Japanese language concepts.

Furthermore, the instructional material received *very acceptable* evaluations from both experts and students across the components of content, instructional quality, technical quality, presentation and organization, accuracy, and up-to-datedness of information, and assessment. The validation results confirmed the material's pedagogical reliability, usability, and appropriateness for Foreign Language instruction. Based on evaluator recommendations, revisions and enhancements were made to the final version of the instructional material to improve its quality and effectiveness.

Overall, the study demonstrates that a 5E Learning Cycle-based instructional material can serve as an effective pedagogical resource for addressing learning difficulties and improving student achievement in Japanese language instruction. The findings contribute to the growing body of literature on instructional material development and provide practical insights for foreign language educators seeking learner-centered approaches to language teaching. Future studies may explore the long-term effects of the material across different educational contexts and language learning environments.

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