

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

Jeric Z. Romero¹, Chester M. Derequito²

¹Calayan Educational Foundation, Inc. Lucena City, 4301, Philippines

²Laguna State Polytechnic University, San Pablo Campus, 4000, Philippines

ABSTRACT: Grammatical competence plays a vital role in effective communication, particularly among Medical Technology students who are expected to use accurate language in academic and professional contexts. This study aimed to develop and evaluate an English for Specific Purposes (ESP)-based grammar worktext designed to enhance the grammatical competence of Medical Technology students in terms of subject–verb agreement, verb tenses, and sentence structure. The study employed a one-group pretest–posttest experimental research design involving thirty (30) Medical Technology students from Calayan Educational Foundation, Inc. A validated researcher-made 30-item grammar test was administered before and after the implementation of the developed ESP-based worktext. Data were analyzed using mean, standard deviation, frequency, percentage, and paired-samples t-test. Findings revealed that students initially demonstrated low to moderate grammatical competence prior to the intervention. After using the developed worktext, the students' grammatical competence improved to a high level across all grammar areas. The results further indicated a significant difference between the pretest and posttest scores, confirming the effectiveness of the ESP-based worktext in enhancing grammatical competence. The study emphasized the importance of contextualized and discipline-specific instructional materials in improving students' language proficiency and communication skills in specialized academic settings.

KEYWORDS: English for Specific Purposes, Grammatical Competence, Worktext Development, Medical Technology Students

1. INTRODUCTION

In an increasingly globalized and professionally specialized society, grammatical competence remains a fundamental component of effective communication. Grammatical competence refers to the ability to understand and apply the structural rules of language, including syntax, morphology, sentence formation, verb usage, and subject–verb agreement, in both spoken and written discourse. Although communicative competence encompasses broader sociolinguistic and pragmatic dimensions, scholars have consistently emphasized that grammatical knowledge remains essential for achieving clarity, precision, and credibility in communication (Canale & Swain, 1980). In professional fields such as healthcare, education, engineering, and law, grammatical accuracy is indispensable because communication errors may lead to misunderstanding, misinformation, and professional inefficiency. For students preparing to enter highly technical professions, mastery of grammar therefore functions not only as an academic requirement but also as a practical workplace necessity.

The teaching of grammar has long occupied a central position in language education, particularly in English as a Second Language (ESL) and English as a Foreign Language (EFL) contexts. While some language educators advocate for implicit grammar instruction through communicative exposure, others argue that explicit instruction remains necessary to develop linguistic accuracy and prevent the persistence of grammatical errors. Current language education literature supports the integration of grammar instruction within meaningful and contextualized learning experiences to enhance both accuracy and communicative ability. This perspective becomes more relevant in tertiary education where students are expected to produce academic papers, laboratory reports, research outputs, and professional documentation that require precise and grammatically correct language use. Consequently, grammatical competence among college students remains a significant concern that educational institutions must continuously address. In the Philippine educational context, the need to strengthen grammatical competence among tertiary learners has become increasingly evident. The transition brought about by the K–12 educational reform significantly altered the structure of higher education curricula. As explained by Tenedero and Orias (2016), the integration of general education subjects into senior high school resulted in a reduced number of language-related courses at the college level. Under the provisions of Commission on Higher Education (CHED) Memorandum Order No. 20, s. 2013, higher education institutions are expected to develop graduates who demonstrate effective communication skills and practical workplace

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

competencies. However, despite these curricular expectations, college students are often exposed to only limited opportunities for advanced language instruction, particularly through the subject Purposive Communication. This limited exposure may contribute to deficiencies in grammar application, especially among students enrolled in highly specialized academic programs.

Several studies have documented persistent grammatical difficulties among Filipino tertiary learners. Gagalang (2020) reported that college students commonly exhibit grammatical inaccuracies, weak command of language mechanics, and limited vocabulary in academic writing. The study further revealed inconsistencies between students' awareness of grammatical rules and their actual writing performance, indicating that years of language instruction do not necessarily guarantee grammatical proficiency. Similar concerns have been observed in various ESL classrooms where students continue to struggle with verb tenses, sentence structures, and subject-verb agreement despite prolonged exposure to English instruction. These findings suggest that traditional grammar instruction may not sufficiently address the communicative and professional needs of tertiary students, particularly those enrolled in discipline-specific programs.

At the local level, grammatical competence also emerged as a significant concern among students of allied health programs at Calayan Educational Foundation, Inc. Preliminary grammar assessments administered to Medical Technology and Radiologic Technology students revealed low performance in essential grammar areas such as subject-verb agreement, verb tenses, vocabulary, and error correction. Results showed that most students obtained only three correct answers out of ten items, while very few achieved satisfactory scores. In addition, common writing errors involving sentence construction, capitalization, and mechanical conventions were frequently observed in students' academic outputs. These findings indicate the necessity of strengthening grammar instruction among allied health students whose future professions require precision, clarity, and accuracy in communication.

The identified deficiencies become more significant when viewed in relation to the professional demands of Medical Technology. According to CHED Memorandum Order No. 14, s. 2006, Medical Technology education aims to prepare students for clinical laboratory work, diagnostic procedures, and healthcare communication through scientific and technical training. The same policy emphasizes that future medical technologists must possess effective communication and interpersonal skills necessary for interaction with healthcare professionals and patients. Since medical technologists routinely prepare laboratory reports, document findings, interpret technical information, and communicate with medical teams, grammatical competence becomes an important professional skill. Weaknesses in grammar may compromise the clarity and accuracy of communication in clinical and laboratory settings, thereby highlighting the need for instructional interventions specifically designed for the linguistic demands of the discipline.

One possible response to this concern is the utilization of English for Specific Purposes (ESP) as an instructional approach. English for Specific Purposes focuses on designing language instruction according to the academic and professional needs of a specific group of learners. Johns and Price-Machado, as cited by Romero (2018), explained that ESP is grounded on the principle that language teaching should be tailored to learners' target situations and workplace contexts. Unlike general English instruction, ESP contextualizes grammar, vocabulary, and communication tasks within authentic disciplinary scenarios, thereby increasing relevance, learner engagement, and practical application.

The present study was further anchored on the educational theories of pragmatism and constructivism, which both support contextualized and learner-centered instruction. Pragmatism, associated with the works of John Dewey, emphasizes that learning becomes meaningful when knowledge is applied to real-life situations and practical experiences. In the context of ESP, pragmatism supports the integration of authentic professional tasks into language instruction so that learners acquire grammar skills through functional communication. Similarly, constructivism, associated with Jean Piaget, views learning as an active process in which students construct knowledge through interaction, reflection, and experience. Constructivist principles encourage contextualized activities and learner engagement, which align with the development of an ESP-based worktext containing discipline-specific grammar exercises and communicative tasks relevant to Medical Technology students.

Despite the recognized importance of grammar and the growing relevance of ESP in tertiary education, there remains a limited number of contextualized instructional materials specifically designed to enhance the grammatical competence of Medical Technology students. Existing grammar materials are often generalized and fail to incorporate authentic healthcare-related contexts that reflect students' academic and professional realities. Moreover, few local studies have explored the effectiveness of ESP-based grammar materials in improving grammatical competence among allied health learners. This gap in instructional resources and empirical research demonstrates the need for a contextualized intervention that addresses both grammar instruction and discipline-specific communication needs.

Guided by these considerations, the present study aimed to develop and evaluate an ESP-based worktext intended to enhance the grammatical competence of Medical Technology students. Specifically, the study sought to determine the level of grammatical competence of the respondents before and after the use of the developed material in terms of subject-verb agreement, verb tenses, and sentence structures, and to identify whether a significant difference existed between the pretest and posttest scores. Through the development of a contextualized and discipline-based instructional material, the study intended to contribute to the

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

improvement of grammar instruction in higher education and support the communicative preparation of future healthcare professionals.

OBJECTIVES OF THE STUDY

This study aimed to develop an ESP-based worktext for enhancing grammatical competence for Bachelor of Science in Medical Technology students. Specifically, this sought to answer the following questions:

1. What is the level of grammatical competence of medical technology students before the use of the developed material in terms of:
 - 1.1 Subject-verb agreement;
 - 1.2 Verb tenses;
 - 1.3 Sentence structure
2. What is the level of grammatical competence of medical technology students after the use of the developed material in terms of:
 - 1.1 Subject-verb agreement;
 - 1.2 Verb tenses;
 - 1.3 Sentence structure
3. Is there a significant difference between the pretest and posttest scores before and after the use of the developed worktext for enhancing grammatical competence?

2. METHODOLOGY

The study employed a one-group pretest–posttest experimental research design to determine the effectiveness of the developed English for Specific Purposes (ESP)-based worktext in enhancing the grammatical competence of Medical Technology students. This design was considered appropriate because it enabled the researcher to measure changes in the respondents' performance before and after exposure to the intervention. The study was conducted at Calayan Educational Foundation, Inc. in Lucena City during the academic year in which the identified grammar competencies were taught under the Purposive Communication course. Initially, the respondents were administered a pretest to establish their baseline level of grammatical competence in terms of subject–verb agreement, verb tenses, and sentence structures. Following the administration of the pretest, the developed ESP-based worktext was implemented over a period of five weeks through contextualized and discipline-specific grammar activities. After the intervention period, the same group of respondents underwent a posttest to determine whether significant improvements occurred after the use of the developed instructional material. The use of this research design provided empirical evidence regarding the effectiveness of the ESP-based worktext and aligned directly with the study's objective of evaluating changes in grammatical competence resulting from the intervention.

The respondents of the study consisted of thirty (30) tertiary students enrolled in the Bachelor of Science in Medical Technology program at Calayan Educational Foundation, Inc. The respondents were selected through purposive sampling because the study specifically required participants enrolled in a discipline where contextualized language instruction was highly relevant. The selected students participated in all phases of the study, including the administration of the pretest, utilization of the ESP-based worktext, and administration of the posttest. Inclusion in the study was limited to officially enrolled Medical Technology students who were taking Purposive Communication during the conduct of the research. Prior to participation, the respondents were informed of the purpose, procedures, and objectives of the study through an informed consent form. Voluntary participation was strictly observed, and the respondents were assured that all gathered data would remain confidential and would be used solely for academic and research purposes. To further ensure the validity of the instruments and instructional material, the researcher also sought the assistance of three external validators composed of language experts and a Medical Technology specialist who evaluated the appropriateness, clarity, and relevance of the developed materials.

The study utilized two major research instruments: a researcher-made grammar test serving as both pretest and posttest, and the developed ESP-based worktext. The grammar test consisted of thirty (30) multiple-choice items that measured the respondents' grammatical competence in subject–verb agreement, verb tenses, and sentence structures, with ten (10) items allotted for each area. The test items were carefully constructed using medical and healthcare-related contexts to ensure alignment with the principles of English for Specific Purposes and to make the assessment relevant to the respondents' discipline. In constructing the instrument, the researcher considered clarity of instructions, appropriateness of difficulty level, objectivity, and avoidance of ambiguity and bias. The grammar test underwent both internal and external validation procedures. Internal validation was conducted by the research adviser and panel members who evaluated the instrument in terms of validity, reliability, flexibility, and fairness. External validation involved language experts and Medical Technology professionals who examined the instrument for grammatical accuracy, technical appropriateness, and contextual relevance. Their comments and recommendations were incorporated to improve the quality and suitability of the instrument before actual administration.

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

The ESP-based worktext was likewise developed in accordance with the Policies, Standards, and Guidelines established by the Commission on Higher Education for the Bachelor of Science in Medical Technology program. The instructional material contained contextualized lessons, exercises, formative assessments, and guided activities focusing on subject–verb agreement, verb tenses, and sentence structures within authentic medical technology scenarios. The worktext aimed to enhance students' grammatical competence while simultaneously strengthening their ability to communicate effectively in professional healthcare contexts. Similar to the grammar test, the developed worktext underwent both internal and external validation. The research panel evaluated the material in terms of content, format, presentation and organization, and accuracy and up-to-dateness of information, while language experts and Medical Technology specialists assessed its linguistic correctness, technical accuracy, and suitability for the target learners. After validation and revision, the worktext was implemented over a five-week period during which students engaged in self-directed and guided learning activities. Throughout the implementation phase, the instructor facilitated feedbacking sessions and provided clarifications to support the respondents' understanding and engagement with the lessons and exercises contained in the material.

After the completion of the intervention period, the posttest was administered under conditions similar to those observed during the pretest to ensure consistency and comparability of results. The gathered data were then subjected to statistical analysis to determine the effectiveness of the developed ESP-based worktext in enhancing the grammatical competence of the respondents. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to describe the respondents' level of grammatical competence before and after the intervention. To determine whether a statistically significant difference existed between the pretest and posttest scores, the researcher employed the paired-samples t-test or t-test for dependent samples. This statistical treatment was considered appropriate because the same group of respondents was assessed twice, thereby producing paired observations. The paired-samples t-test enabled the researcher to determine whether the observed improvements in grammatical competence were significant and attributable to the intervention rather than to chance alone. Through these procedures, the study ensured methodological rigor, reliability of findings, and alignment between the research objectives, instruments, and statistical analyses employed.

3. RESULTS AND DISCUSSION

This chapter presents the data for analysis and interpretation congruent to the established research objectives. Data are presented in tables followed by literature-based interpretations for easier understanding.

Table 1. Level of Grammatical Competence of Medical Technology Students in Terms of Subject-Verb Agreement Before the Use of Developed ESP-Based Worktext

Score Range	Frequency	Percent	Verbal Interpretation
8-10	1	3	High Competence
6-7	3	10	Moderate Competence
4-5	15	50	Low Competence
0-3	11	37	Very Low Competence
Total	30	100.00	

Legend: 8-10 – High Competence; 6-7 – Moderate Competence; 4-5 – Low Competence; 1-3 – Very Low Competence

Table 1 shows the distribution of respondents' performance in subject–verb agreement prior to using the developed ESP-based grammar worktext. The results show that the grammatical competence of the students was predominantly Low to Very Low before the intervention. Specifically, 15 out of 30 respondents (50%) scored within the range of 4–5 (Low Competence), and 11 respondents (37%) scored within the 1–3 range (Very Low Competence). Only a small fraction of the students demonstrated higher proficiency levels, with 3 (10%) in the Moderate category and just 1 (3%) in the High category.

These findings suggest that respondents found it difficult to select the verb that accurately agrees with the subject, leading to the overall grammatical competence in subject–verb agreement to be described as Low. As evident on the results, half of the respondents (50%) were unable to consistently demonstrate accurate subject–verb concord, which means they had limited understanding and noticeable errors which affected clarity and meaning of the sentences. Meanwhile, 11 out of the total respondents (37%) had minimal mastery and pervasive errors which reflects a significant challenge in following the rules of subject-verb agreement. Only 3 respondents (10%) showed good understanding of subject-verb agreement rules and 1 respondent (3%) demonstrated excellent mastery of subject-verb agreement rules with consistent application.

The observed difficulty with subject–verb agreement aligns with empirical literature on grammatical performance among Filipino learners of English. Subject–verb agreement, defined as the grammatical rule requiring the subject and verb in a sentence to correspond in number and person (Reyes, 2021; Santos & Lopez, 2024), remains a fundamental yet challenging aspect of English

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

grammar for many learners. In a study on undergraduate writing skills, Reyes (2021) reported that subject–verb agreement errors frequently appeared in argumentative essays written by college students, indicating a persistent challenge in applying basic grammatical structures. Likewise, Santos and Lopez (2024) found that English majors in a state university in the Philippines exhibited frequent discord errors when constructing complex sentences, suggesting that agreement errors remain a common area of difficulty even in higher education contexts. These local findings are parallel to broader ESL research, such as the work of Alhassan and Wood (2021), which identified subject–verb agreement as one of the most prevalent grammatical problems in academic writing.

In the context of allied health education, the ramifications of weak grammar extend beyond academic writing, as clear and accurate communication is crucial in clinical documentation and professional correspondence. A Philippine study by Dela Cruz and Hernandez (2023) with health sciences students highlighted that grammatical inaccuracies, particularly in agreement and sentence construction, negatively affected readability and professional quality in academic reports. The prevalence of Low and Very Low competence in the present study further underscores the need for targeted grammar instruction tailored to the specific communicative demands of medical technology students.

Taken together, these local and international findings corroborate that subject–verb agreement is a critical yet challenging area for many Filipino learners of English. The dominance of Low and Very Low performance levels in the accurate use of subject-verb agreement rules prior to intervention highlights the educational imperative for structured, context-specific grammar support, such as the ESP-based worktext developed in this study.

Table 2. Level of Grammatical Competence of Medical Technology Students in Terms of Verb Tenses Before the Use of Developed ESP-Based Worktext

Score Range	Frequency	Percent	Verbal Interpretation
8-10	0	0	High Competence
6-7	5	17	Moderate Competence
4-5	20	66	Low Competence
0-3	5	17	Very Low Competence
Total	30	100.00	

Legend: 8-10 – High Competence; 6-7 – Moderate Competence; 4-5 – Low Competence; 1-3 – Very Low Competence

Table 2 presents the distribution of respondents' performance in verb tenses prior to the implementation of the developed ESP-based worktext. The findings reveal that the grammatical competence of the students in verb tense usage was predominantly within the Low Competence category. Specifically, 20 out of 30 respondents (66%) scored within the range of 4–5, which corresponds to Low Competence. Meanwhile, 5 respondents (17%) fell under the Very Low category, and only 5 respondents (17%) demonstrated Moderate Competence. Notably, no respondent reached the High Competence level.

The results showed that the overall level of grammatical competence in verb tenses among the respondents may be described as Low, where 20 respondents (66%) demonstrated limited understanding of verb tenses conjugation with noticeable errors and 5 respondents (17%) demonstrated minimal mastery and pervasive errors on choosing the appropriate verb tense that fits the sentence. Notably, only 5 respondents (17%) were classified under moderate competence, implying good understanding of verb tenses rules and minor errors while no respondent reached the high competence category. Overall, the distributions suggest that many respondents demonstrated limited control over verb tense forms. The relatively low mean, coupled with the observed spread of scores, points to inconsistencies in the use of appropriate tense markers and difficulty in maintaining correct tense sequencing within sentences. These patterns imply that the respondents encountered challenges in expressing accurate time relationships and applying correct verb forms, which are essential components of coherent sentence construction in academic and professional contexts.

The findings are consistent with recent ESL/EFL research identifying verb tense errors as one of the most persistent grammatical challenges among tertiary learners. Zhang (2022) reported that learners often struggle with tense-aspect systems due to differences between their first language and English grammatical structures. In the Philippine context, Reyes (2021) observed that Filipino college students commonly committed verb tense errors in academic essays, particularly in shifting between present and past forms.

Likewise, Dela Cruz and Hernandez (2023), in their study involving health sciences students, found that tense inconsistency affected the clarity and professionalism of laboratory reports and case analyses. Santos and Lopez (2024) further emphasized that even English majors demonstrated moderate to low syntactic accuracy in tense usage, indicating that verb tense mastery remains a developing skill at the tertiary level.

Given that medical technology students are expected to produce precise laboratory reports, research documentation, and clinical

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

narratives, competence in verb tense usage is crucial for clarity and accuracy (Gruta & Astillero, 2024).

Table 3. Level of Grammatical Competence of Medical Technology Students in Terms of Sentence Structures Before the Use of Developed ESP-Based Worktext

Score Range	Frequency	Percent	Verbal Interpretation
8-10	7	23	High Competence
6-7	11	37	Moderate Competence
4-5	6	20	Low Competence
0-3	6	20	Very Low Competence
Total	30	100.00	

Legend: 8-10 – High Competence; 6-7 – Moderate Competence; 4-5 – Low Competence; 1-3 – Very Low Competence

Table 3 presents the distribution of respondents' performance in sentence structure prior to the implementation of the developed ESP-based worktext. The findings show a relatively varied distribution of competence levels compared to subject-verb agreement and verb tenses. The largest proportion of students (37%) obtained a score of 6-7, classified as Moderate Competence, followed by 23% who scored 8-10 categorized under High Competence. However, a considerable number of respondents also fell within the Very Low Competence (20%) and Low Competence (20%) categories.

The results show that the overall level of grammatical competence in sentence structure among the respondents may be described as Moderate, as indicated by the pretest mean score and the distribution of responses. The results imply that 11 medical technology students (37%) showed good understanding of clauses and sentence types with minor errors in combining sentence constituents and 7 respondents (23%) demonstrated excellent mastery of sentence structure rules with consistent rule application. However, 6 respondents fell under Low Competence and 6 respondents fell under Very Low Competence, suggesting limited understanding and noticeable errors on combining sentence constituents, and minimal mastery with pervasive errors on the same, respectively. These difficulties are associated with challenges in organizing sentence elements, combining clauses, and applying appropriate sentence patterns. While some level of competence is evident, the results suggest that students have not yet fully developed consistent control over sentence structure. Overall, while a notable portion of students demonstrated moderate to high competence in sentence structures, a substantial percentage still exhibited limited mastery. This suggests that although some students possess the ability to construct grammatically acceptable simple and compound sentences, inconsistencies remain in combining clauses and segmenting sentence components which are those required in academic and technical writing.

These findings align with contemporary ESL/EFL research identifying sentence construction as a persistent challenge among tertiary learners. According to Li and Roshan (2021), many university students demonstrate partial control of sentence patterns but struggle with syntactic complexity in academic writing. Similarly, Ahmed (2022) found that while learners could produce grammatically acceptable simple sentences, errors frequently occurred in subordinate clauses and embedded structures, affecting coherence and clarity.

In the Philippine setting, Valdez (2021) reported that Filipino college students exhibited difficulty in constructing complex and compound-complex sentences, particularly in formal academic tasks. Bautista and Gonzalez (2023) further observed that allied health students often produced structurally incomplete or fragmented sentences in laboratory reports, which impacted the precision of scientific communication. Moreover, Torres and Ramirez (2024) emphasized that syntactic competence remains a developing area among Filipino tertiary students, especially in discipline-specific writing contexts.

Given the communication demands placed on medical technology students—such as writing laboratory findings, procedural explanations, and research documentation—proficiency in sentence structure is essential to ensure clarity, coherence, and professional credibility. The mixed distribution of competence levels in the present study highlights the need for structured and contextualized grammar instruction. These results therefore reinforce the importance of the developed ESP-based worktext as an intervention designed to enhance syntactic competence aligned with the communicative requirements of the medical technology profession.

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

Table 4. Level of Grammatical Competence of Medical Technology Students in Terms of Subject- Verb Agreement After the Use of Developed ESP-Based Worktext

Score Range	Frequency	Percent	Verbal Interpretation
8-10	14	47	High Competence
6-7	16	53	Moderate Competence
4-5	0	0	Low Competence
0-3	0	0	Very Low Competence
Total	30	100.00	

Legend: 8-10 – High Competence; 6-7 – Moderate Competence; 4-5 – Low Competence; 1-3 – Very Low Competence

Table 4 presents the distribution of respondents' performance in subject-verb agreement following the administration of the developed ESP-based worktext. The results show an increase in numbers compared to the pretest findings. A substantial majority of students performed within the Moderate to High Competence levels. Specifically, 14 respondents (47%) obtained scores classified under Moderate Competence, while another 14 respondents (46%) reached the High Competence category. Only 3 respondents (10%) remained within the lower boundary of the Moderate level, and notably, no respondent fell under the Very Low or Low Competence categories.

The findings show that the overall level of grammatical competence in subject-verb agreement may be described as High to Moderate, as reflected in the posttest mean score and the distribution of responses across score ranges. As reflected in the table, 16 out of 30 respondents (53%) fell under Moderate Competence, indicating better understanding of subject-verb agreement rules with minor errors that do not affect the clarity of the sentences. Meanwhile, 14 medical technology students (47%) were classified under High Competence, implying excellent mastery and consistent application of subject-verb agreement rules. Notably, no students were classified under the Very Low and Low competence categories, suggesting a shift in score concentration toward the upper ranges. The higher mean score, together with the reduced variability, points to more consistent application of agreement rules among the respondents. These patterns suggest fewer errors in matching subjects and verbs in terms of number and person and indicate a more stable grasp of agreement structures in sentence construction.

The observed improvement in performance is consistent with findings from recent studies on grammar learning among tertiary students. Hyland (2022) notes that increased exposure to structured language input can enhance learners' grammatical awareness and accuracy. Similarly, Rahman and Singh (2021) reported that students tend to demonstrate higher levels of accuracy in subject-verb agreement when they are able to engage with grammar in meaningful contexts, resulting in more consistent application of grammatical rules in written outputs.

In the Philippine context, Navarro and Santos (2023) reported that targeted grammar modules designed for health sciences students resulted in measurable gains in syntactic accuracy, particularly in agreement structures used in laboratory documentation. Likewise, Cruz (2024) observed that contextualized instructional materials in higher education improved both grammatical performance and learner confidence in academic writing tasks.

Given that medical technology students are required to produce precise laboratory reports and scientific documentation, mastery of subject-verb agreement is essential for clarity and professional credibility. The shift of the majority of respondents toward Moderate and High Competence levels demonstrates the pedagogical value of the developed ESP-based worktext as an effective intervention for improving grammatical competence in discipline-specific contexts.

Table 5. Level of Grammatical Competence of Medical Technology Students in Terms of Verb Tenses After the Use of Developed ESP-Based Worktext

Score Range	Frequency	Percent	Verbal Interpretation
8-10	19	63	High Competence
6-7	11	37	Moderate Competence
4-5	0	0	Low Competence
0-3	0	0	Very Low Competence
Total	30	100.00	

Legend: 8-10 – High Competence; 6-7 – Moderate Competence; 4-5 – Low Competence; 1-3 – Very Low Competence

Table 5 presents the distribution of respondents' performance in verb tenses following the administration of the developed ESP-based worktext. The findings demonstrate an increase of scores relative to the pretest results. A clear majority of respondents

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

performed within the High Competence category. Specifically, 19 out of 30 students (63%) obtained scores ranging from 8 to 10, which correspond to High Competence. Meanwhile, 11 respondents (37%) fell within the Moderate Competence level, and notably, no student remained in the Very Low or Low Competence categories.

The results show that the overall level of grammatical competence in verb tense usage may be described as High, as reflected in the posttest mean score and the distribution of responses across score ranges. This implies that 19 respondents (63%) demonstrated excellent mastery of verb tenses and consistent choices of accurate forms while 11 respondents (37%) fell under Moderate Competence, indicating better understanding of verb tenses with only occasional errors relative to the pretest results. Apparently, no respondent fell under Low and Very Low Competence categories which implies that no respondent had noticeable or pervasive errors in verb tenses. Overall, the concentration of scores in the higher range, along with the reduced variability, suggests more consistent use of appropriate verb forms among the students. These patterns point to fewer errors in tense selection, improved control of verb inflections, and greater consistency in maintaining appropriate tense throughout sentence construction.

The findings are supported by recent studies emphasizing the effectiveness of ESP-based and discipline-focused grammar instruction in enhancing learners' syntactic accuracy. Hyland (2022) argues that grammar instruction embedded within authentic disciplinary contexts promotes deeper understanding and retention of linguistic structures. Similarly, Nguyen and Pham (2021) found that contextualized grammar interventions significantly improved learners' control of tense-aspect systems in academic writing tasks.

In the Philippine context, Garcia and Mendoza (2023) reported that health sciences students who were exposed to structured grammar modules demonstrated notable improvements in verb tense accuracy in laboratory and clinical documentation. Likewise, Ramos (2024) observed that targeted ESP materials significantly enhanced tense consistency and overall grammatical precision among tertiary students in professional programs.

Considering the communication demands of medical technologists, particularly in writing laboratory reports, research documentation, and procedural descriptions, accurate verb tense usage is critical for clarity, precision, and chronological accuracy. The concentration of respondents within the High Competence category in the posttest suggests that the developed ESP-based worktext effectively strengthened students' grammatical competence in verb tenses and contributed meaningfully to their readiness for discipline-specific communication tasks.

Table 6. Level of Grammatical Competence of Medical Technology Students in Terms of Sentence Structures After the Use of Developed ESP-Based Worktext

Score Range	Frequency	Percent	Verbal Interpretation
8-10	25	83	High Competence
6-7	5	17	Moderate Competence
4-5	0	0	Low Competence
0-3	0	0	Very Low Competence
Total	30	100.00	

Legend: 8-10 – High Competence; 6-7 – Moderate Competence; 4-5 – Low Competence; 1-3 – Very Low Competence

Table 6 presents the distribution of respondents' performance in sentence structures following the administration of the developed ESP-based worktext. The results indicate a substantial increase in scores compared to the pretest findings. A large majority of students performed within the High Competence category. Specifically, 25 out of 30 respondents (83%) obtained scores ranging from 8 to 10, which correspond to High Competence. Meanwhile, 5 respondents (17%) fell within the Moderate Competence level, and notably, no student remained in the Very Low or Low Competence categories.

The findings indicate that the overall level of grammatical competence in sentence structures may be described as High, as reflected in the posttest mean score and the distribution of responses across score ranges. This implies that 25 out of 30 medical technology students (83%) demonstrated mastery of sentence structure rules and consistent application of the conventions in combining sentence constituents along with familiarization in sentence types and patterns. Meanwhile, only 5 students (17%) fell under Moderate Competence, indicating better understanding of the conventions of sentence structures relative to the pretest results. The clustering of scores in the higher range, along with a relatively smaller spread of scores, suggests more consistent application of sentence construction rules among the respondents. These patterns point to improved ability in forming grammatically acceptable simple, compound, and complex sentences, as well as more consistent organization of sentence elements and clause relationships.

The results are consistent with contemporary research emphasizing the positive impact of discipline-based grammar instruction on syntactic development. Hyland (2022) explains that embedding grammar instruction within authentic disciplinary contexts strengthens learners' ability to apply syntactic structures appropriately in professional communication. Likewise, Lee and Chen

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

(2021) found that contextualized writing interventions significantly improved students' syntactic complexity and sentence-level accuracy in tertiary ESL settings.

In the Philippine context, Dizon and Morales (2023) reported that health sciences students who received targeted grammar instruction demonstrated marked improvement in constructing coherent and structurally accurate academic texts. Similarly, Villanueva (2024) observed that ESP-based instructional materials significantly enhanced students' syntactic competence, particularly in producing complex and compound-complex sentences required in scientific documentation.

Considering that medical technology students are expected to produce laboratory reports, research write-ups, and procedural explanations that require clarity and structural precision, competence in sentence construction is fundamental. The dominance of High Competence in the posttest results strongly suggests that the developed ESP-based worktext positively affected the students' syntactic proficiency necessary for discipline-specific communication demands.

Table 7. Significant Difference in the Grammatical Competence of Medical Technology Students Before and After the Use of Developed ESP-Based Worktext

Grammatical

Grammatical Competence	Pretest		Posttest		t-value	p-value
	Mean	SD	Mean	SD		
Subject-Verb Agreement	3.83	1.821	7.6	0.968	-12.17	< .001
Verb Tenses	4.47	1.279	7.97	1.129	-14.11	< .001
Sentence Structure	5.7	1.95	8.47	1.074	-8.73	< .001

Table 7 presents the summary of the pretest and posttest results in terms of subject-verb agreement, verb tenses, and sentence structure. The statistical findings reveal a consistent and statistically significant improvement across all three grammatical areas following the administration of the developed ESP-based worktext.

In subject-verb agreement, the mean score increased from 3.83 (SD = 1.821) in the pretest to 7.60 (SD = 0.968) in the posttest. The computed t-value of -12.17 with a p-value of < .001 indicates a statistically significant difference between the pretest and posttest scores. This substantial increase reflects improved mastery of agreement rules and reduced grammatical inconsistency after exposure to the contextualized instructional material.

The significant improvement in students' performance highlights the effectiveness of explicit and contextualized grammar instruction embedded within the developed ESP-based worktext. The developed material introduces every lesson with a medical technology-related text, thereby situating the students on their discipline followed by grammar tasks anchored on the same topic which clarified their understanding and interest on the lessons taught. Recent studies affirm that targeted grammar instruction, when integrated with meaningful disciplinary contexts, enhances learners' grammatical accuracy and awareness. For instance, Hyland (2022) emphasizes that ESP-oriented materials facilitate deeper engagement with language forms by situating grammar within authentic academic and professional tasks, allowing learners to recognize the functional value of grammatical accuracy. Similarly, Nguyen and Pham (2021) found that contextualized grammar instruction significantly improves learners' control of specific grammatical structures, particularly when tasks require application in realistic communication settings.

The developed worktext demonstrates key strengths that contributed to the observed improvement, including the use of discipline-specific examples, contextualized exercises, and guided practice aligned with medical technology communication tasks. These features enabled students to apply subject-verb agreement rules within familiar and relevant contexts, promoting both understanding and retention. Supporting this, Dizon and Morales (2023) reported that grammar instruction tailored to the needs of health sciences students leads to measurable gains in linguistic accuracy, as learners are better able to connect grammatical rules to their academic writing tasks. Likewise, Villanueva (2024) noted that ESP-based instructional materials enhance students' grammatical competence by integrating form-focused instruction with authentic language use. The present findings are consistent with these contemporary perspectives, suggesting that the structured, contextualized, and discipline-aligned design of the ESP-based worktext played a significant role in improving students' competence in subject-verb agreement.

Similarly, in verb tenses, the mean score improved from 4.47 (SD = 1.279) in the pretest to 7.97 (SD = 1.129) in the posttest. The computed t-value of -14.11 ($p < .001$) confirms a highly significant difference. The magnitude of this improvement suggests enhanced control over tense consistency and verb inflections which are critical components in academic and scientific writing.

The findings are consistent with recent research on grammar instruction which underscores the importance of targeted and contextualized practice in improving learners' grammatical accuracy. Contemporary studies highlight that focused attention on specific grammatical features, such as verb tenses, enhances learners' ability to use these forms accurately in both written and oral

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

communication. For instance, Nguyen and Pham (2021) found that contextualized grammar instruction significantly improved students' control of tense-aspect systems, particularly when tasks required application in meaningful academic contexts. Similarly, Hyland (2022) emphasizes that ESP-oriented instruction strengthens learners' grammatical awareness by embedding language forms within authentic disciplinary communication, allowing learners to understand not only how grammar works but also why it is used in specific contexts.

The developed ESP-based worktext demonstrates several strengths that contributed to the observed improvement in verb tenses performance. These include the use of discipline-specific scenarios, contextualized examples related to medical technology tasks, and structured, progressive exercises that guide learners from rule recognition to application. Such features enable students to practice verb tense usage in realistic situations, thereby reinforcing both accuracy and relevance. Supporting this, Garcia and Mendoza (2023) reported that contextualized instructional materials significantly improved grammatical accuracy among health sciences students by linking grammar instruction to real-world academic tasks. Likewise, Villanueva (2024) noted that ESP-based materials enhance learners' ability to apply grammatical rules consistently by integrating form-focused instruction with meaningful communication. The significant improvement in verb tense performance observed in this study aligns with these findings, suggesting that the contextualized and discipline-aligned design of the worktext effectively supported the development of students' grammatical competence.

For sentence structure, the mean score increased from 5.70 (SD = 1.95) to 8.47 (SD = 1.074), with a computed t-value of -8.73 ($p < .001$), indicating a statistically significant difference. This result demonstrates strengthened syntactic competence, particularly in constructing coherent and structurally accurate sentences.

The results are consistent with recent research on grammar pedagogy, which highlights the effectiveness of systematic and contextualized practice in improving learners' syntactic competence. Contemporary studies emphasize that integrating explicit attention to grammatical form with meaningful language use enhances learners' ability to construct accurate and coherent sentences. Hyland (2022) explains that ESP-oriented instruction strengthens learners' control of sentence structures by situating grammar within authentic disciplinary communication tasks. Similarly, Lee and Chen (2021) found that contextualized grammar instruction significantly improved students' syntactic complexity and accuracy, particularly in constructing compound and complex sentences in academic writing.

The developed ESP-based worktext demonstrates several strengths that contributed to the observed improvement in sentence structure competence. These include the use of discipline-specific sentence models, contextualized activities based on medical technology scenarios, and scaffolded exercises that guide learners from basic to more complex sentence construction. Such features allow students to practice organizing sentence elements and combining clauses in ways that reflect real academic and professional communication tasks. Supporting this, Dizon and Morales (2023) reported that targeted grammar instruction tailored to health sciences students led to significant improvements in sentence-level accuracy and coherence. Likewise, Villanueva (2024) noted that ESP-based instructional materials enhance learners' syntactic competence by integrating structured practice with authentic language use. The significant improvement in sentence structure competence observed in this study aligns with these findings, suggesting that the contextualized, progressive, and discipline-aligned design of the worktext effectively supported the development of students' ability to construct grammatically accurate and coherent sentences.

Across all three grammatical domains, the p-values ($< .001$) indicate that the improvements observed were not due to chance. The negative t-values reflect the direction of change, with posttest scores significantly higher than pretest scores. Moreover, the reduced standard deviations in the posttest results suggest not only improved performance but also greater consistency among students after the intervention.

These findings strongly support the effectiveness of the developed ESP-based worktext in enhancing grammatical competence among medical technology students. The results align with recent research emphasizing that contextualized, discipline-specific grammar instruction yields significant improvements in linguistic accuracy. Hyland (2022) argues that ESP materials facilitate deeper grammatical awareness by embedding language structures within authentic professional tasks. Likewise, Nguyen and Pham (2021) found that contextualized grammar interventions significantly improved learners' syntactic accuracy in tertiary ESL settings.

Recent empirical studies further corroborate these findings. Rahman and Singh (2021) reported statistically significant gains in grammar performance among university students exposed to contextualized instructional modules. In the Philippine context, Garcia and Mendoza (2023) observed that health sciences students demonstrated measurable improvements in grammatical accuracy following the implementation of discipline-based language materials. Similarly, Dizon and Morales (2023) concluded that targeted grammar instruction significantly enhanced sentence-level accuracy and academic writing performance among allied health students.

Given the communicative demands of the medical technology profession, particularly in writing laboratory reports, documenting procedures, and presenting research findings, the observed improvements are pedagogically and professionally significant. The consistent upward trend across all grammatical components confirms that the ESP-based worktext effectively addressed learners'

ESP-Based Worktext and Grammatical Competence of Medical Technology Students

grammatical deficiencies and contributed to the development of discipline-relevant communicative competence. Overall, the statistical evidence and supporting literature substantiate the conclusion that the developed ESP-based grammar worktext is an effective instructional intervention for improving the grammatical competence of medical technology students.

4. CONCLUSION

The findings of the study led to the conclusion that the developed English for Specific Purposes (ESP)-based worktext effectively enhanced the grammatical competence of Medical Technology students in terms of subject–verb agreement, verb tenses, and sentence structures. The significant improvement observed between the pretest and posttest performances confirmed the effectiveness of contextualized and discipline- specific instructional materials in improving grammar learning among tertiary students. The rejection of the null hypothesis established that the ESP-based worktext produced a meaningful positive effect on students' grammatical competence by providing structured, relevant, and authentic learning experiences aligned with the communication demands of the medical technology profession. The study therefore contributes to the growing body of knowledge supporting ESP as an effective approach in language instruction, particularly in specialized academic programs where communication accuracy and professional relevance are essential.

REFERENCES

- 1) Ahmed, S. (2022). Syntactic complexity and grammatical accuracy in ESL academic writing. *Journal of English for Academic Purposes*, 58, 101115.
- 2) Alhassan, A., & Wood, D. (2021). Grammatical errors in academic writing: Patterns and pedagogical implications in ESL contexts. *Journal of English for Academic Purposes*, 52, 100997.
- 3) Bautista, M. L., & Gonzalez, A. B. (2023). Academic writing challenges among allied health students in the Philippines. *Philippine Journal of Applied Linguistics*, 28(1), 55–72.
- 4) CHED Memorandum Order No. 20, s. 2013. Commission on Higher Education. (2013). General education curriculum: Holistic understandings, intellectual, and civic competencies (CMO No. 20, s. 2013).
- 5) CHED Memorandum Order No. 46, s. 2012. Commission on Higher Education. (2012). Policy-standard to enhance quality assurance (QA) in Philippine higher education through an outcomes-based and typology-based QA (CMO No. 46, s. 2012).
- 6) Cruz, M. A. (2024). Contextualized grammar instruction in Philippine higher education: Effects on academic writing performance. *Philippine Journal of Education*, 102(1), 45–62.
- 7) Dela Cruz, M. T., & Hernandez, J. P. (2023). Grammar challenges in health sciences writing: An analysis of undergraduate reports. *Philippine Journal of Language Teaching*, 19(1), 22–38.
- 8) Developing Courses in English for Specific Purposes. Basturkmen, H. (2010). Developing courses in English for specific purposes. Palgrave Macmillan.
- 9) Developments in English for Specific Purposes: A Multi-Disciplinary Approach
- 10) Dudley-Evans, T., & St. John, M. J. (1998). Developments in English for specific purposes: A multi- disciplinary approach. Cambridge University Press.
- 11) Dizon, G. P., & Morales, A. R. (2023). Grammar instruction and academic writing performance among Philippine health sciences students. *Philippine Journal of Applied Linguistics*, 29(2), 75–93.
- 12) English for Specific Purposes: An Advanced Resource Book. Hyland, K. (2022). English for specific purposes: An advanced resource book (2nd ed.). Routledge.
- 13) ERIC Document on Filipino to English Transfer Errors
- 14) Tanpoco, M., Rillo, R., & Alieto, E. (2019). Filipino to English transfer errors in writing among college students: Implications for the Senior High School English curriculum. ERIC Document ED604324.
- 15) Fareed, M., Ashraf, A., & Bilal, M. (2016). ESL learners' writing skills: Problems, factors, and suggestions. *Journal of Education and Social Sciences*, 4(2), 81–92.
- 17) Gagalang, J. (2020). Assessing deficiencies in composition writing: A case of Filipino college freshmen learners. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(1), 307–316.
- 18) Garcia, L. P., & Mendoza, R. T. (2023). Improving grammatical accuracy in health sciences writing through contextualized instruction. *Philippine Journal of Applied Linguistics*, 29(1), 60–78.
- 19) Gruta, R. A., & Astillero, S. F. (2024). Exploring grammatical errors in second language writing among students. *European Journal of Education Studies*.
- 20) Hyland, K. (2011). Writing in the university: Education, knowledge, and reputation. *Language Teaching*, 46(1), 53–70. <https://doi.org/10.1017/S0261444811000036>
- 21) International Journal of Creative Research Thoughts PDF. Pratima, C. R., & Lama, R. (2020). Pragmatism and its

- contribution to education. *International Journal of Creative Research Thoughts*.
- 22) *Introducing Course Design in English for Specific Purposes*. Woodrow, L. (2018). *Introducing course design in English for specific purposes*. Routledge.
- 23) *Introducing English for Specific Purposes*. Anthony, L. (2018). *Introducing English for specific purposes*. Routledge.
- 24) Routledge.
- 25) Jovenil Bacatan, A. M. A., et al. (2025). Grammar gaps: An error analysis of grammar difficulties in academic writing among senior high school students. *International Journal of Social Sciences and English Literature*.
- 26) Lee, J., & Chen, H. (2021). Effects of contextualized grammar instruction on syntactic complexity in ESL academic writing. *Journal of English for Academic Purposes*, 54, 101042.
- 27) Li, Q., & Roshan, S. (2021). Sentence-level grammatical competence in EFL university writing. *System*, 98, 102478.
- 28) *Materials Development in Language Teaching*. Tomlinson, B. (Ed.). (2011). *Materials development in language teaching* (2nd ed.). Cambridge University Press.
- 29) Navarro, R. L., & Santos, J. P. (2023). Improving grammatical accuracy among health sciences students through discipline-based modules. *Asia Pacific Journal of Multidisciplinary Research*, 11(2), 88–97.
- 30) Nguyen, T. H., & Pham, M. T. (2021). Effects of contextualized grammar teaching on tense-aspect accuracy in EFL academic writing. *Journal of English for Academic Purposes*, 51, 100976.
- 31) Pratima, C. R., & Lama, R. (2020). Pragmatism and its contribution to education. *International Journal of Creative Research Thoughts*.
- 32) Quines, Z. M. (2023). Grammatical competence and its impact to listening and speaking proficiency: An analysis. *European Journal of English Language and Literature Studies*, 11(2), 1–12.
- 33) Rahman, M., & Singh, P. (2021). The impact of contextualized grammar teaching on ESL learners' writing accuracy. *Journal of English for Academic Purposes*, 53, 101025.
- 34) Ramos, E. J. (2024). The impact of ESP-based instructional materials on grammatical competence in tertiary education. *Asia Pacific Journal of Multidisciplinary Research*, 12(1), 92–104.
- 35) Reyes, L. A. (2021). Subject–verb agreement and verb tense errors in Filipino college students' academic writing. *Asian Journal of Language and Education*, 3(2), 45–58.
- 36) Santos, M., Miller, J., & Martin, J. (2021). Contextualization on the teaching and learning approach of purposive communication syllabus for the Bachelor of Physical Education students. *TESOL International Journal*, 16(4.4).
- 37) Santos, R. M., & Lopez, E. G. (2024). Syntactic accuracy of Filipino English majors: A study on grammar performance. *Journal of Philippine Linguistics*, 15(1), 113–130.
- 38) Tanpoco, M., Rillo, R., & Alieto, E. (2019). Filipino to English transfer errors in writing among college students: Implications for the Senior High School English curriculum. ERIC.
- 39) Tenedero, P., & Orias, B. (2017). *English that counts: Designing a purposive communication course for future accountants*. University of Santo Tomas.
- 40) *The Handbook of English for Specific Purposes*. Paltridge, B., & Starfield, S. (Eds.). (2013). *The handbook of English for specific purposes*. Wiley-Blackwell. <https://doi.org/10.1002/9781118339855>
- 41) Torres, J. M., & Ramirez, P. L. (2024). Syntactic competence and disciplinary writing in Philippine higher education. *Journal of Philippine Linguistics*, 16(1), 89–105.
- 42) Valdez, R. C. (2021). Grammatical performance of Filipino tertiary students in academic composition. *Asia Pacific Journal of Multidisciplinary Research*, 9(3), 34–41.
- 43) Villanueva, L. M. (2024). Enhancing syntactic competence through ESP-based instructional materials in higher education. *Asia Pacific Journal of Multidisciplinary Research*, 12(2), 110–121.
- 44) Yuntika, A. R., Anggreni, A., Jamiluddin, J., & Usman, S. (2025). Writing errors analysis: Subject–verb agreement made by EFL students. *Journal of English Language and Education*.
- 45) Zhang, Y. (2022). Tense-aspect errors in ESL academic writing: Causes and instructional implications. *System*, 108, 102823.