

Effectiveness of Meaning-Based Grammar Instruction in ESP: A Moderated Model of Motivation and Learning Preferences in Accounting Education

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Abstract

Grammar instruction in English for Specific Purpose (ESP) has traditionally emphasized structural accuracy, often overlooking motivational and learner-difference factors that may influence learning outcomes. However, contemporary applied linguistics increasingly argues that instructional effectiveness operates through complex interactions among pedagogical design, affective variables, and learners' characteristics. This study addresses the question of whether meaning-oriented grammar instruction improves English achievement directly or indirectly through motivation, and whether perceptual learning style conditions this relationship. This study examines the effectiveness of Meaning-Based Approach to Pedagogical Grammar (MAP Grammar) and tests whether motivation mediates its effect on achievement and whether perceptual learning styles moderate these direct and indirect relationships. A quasi-experimental design was implemented over one semester involving 50 undergraduate accounting students divided into a MAP Grammar group ($n = 25$) and a conventional group ($n = 25$). Data were collected through pre-and post-test of English achievement, a validated motivation questionnaire, and a perceptual learning style inventory administered at the end of the intervention. Data were analyzed using independent-samples t-test and regression-based conditional process analysis (PROCESS Model 59) with 5,000 bootstrap resampling. The results showed that MAP Grammar significantly improved English achievement, $t(48) = 3.38, p = .001$. Although learning materials significantly predicted motivation ($p < .001$), motivation did not significantly predict achievement after controlling for instructional variables and the indirect effect was not significant. Perceptual learning style also did not moderate any effects. These findings suggest that MAP Grammar improved achievement primarily through direct instructional mechanism, rather than through motivational pathways or learning style fit.

Keywords: *Accounting Students, ESP, English Achievement, Learning Style, MAP Grammar*

Introduction

The globalization of higher education, coupled with the convergence of international accounting standards, has increased the demand for graduates who not only possess field-specific knowledge but also strong English communication skills. This is particularly in crucial in the field of accounting, where English serves as the primary language for financial documentation, audit processes, text practices, and international business

communication (Aburous & Kamla, 2022). In this context, English for Specific Purpose (ESP) provides a theory-based and research-supported framework that focuses on the analysis of target situations and discourse related to the discipline, thereby ensuring that language instruction aligns with the learners' academic and professional needs (Hutchinson & Waters, 1987; Dudley-Evans & St. John, 1998).

Review of Related Literature

Accordingly, accounting graduates are expected to demonstrate grammatical accuracy, genre awareness, and the ability to compose accurate and context-sensitive professional texts. However, even though ESP has a strong theoretical foundation, grammar teaching in many higher education contexts is still dominated by a rule-based approach that is detached from context, thereby limiting students' ability to transfer grammatical knowledge into authentic professional communication. Recent research in applied linguistics encourages the re-contextualization of grammar as a resource of meaning formation, rather than merely a prescriptive system, emphasizing the dynamic integration of form, meaning, and use (Larsen-Freeman & Anderson, 2011). From a cognitive and usage-based perspective, grammar learning becomes more effective when integrated into meaningful disciplinary discourse, as language patterns develop through repeated exposure and functional use (Navarro & Lallier, 2025).

The Meaning-Based Approach to Pedagogical Grammar (MAP Grammar) operationalizes this integration by systematically linking structural sequencing with communicative function and professional context (Tajino, 2019). Although meaning-based grammar instruction has gained theoretical support, empirical validation within this discipline-specific higher education, particularly accounting programs, remains limited. This gap raises an important question; Does meaning-based grammar instruction, in this case MAP Grammar, directly enhance achievement, or does its effectiveness operate through-learner related mechanism?

Learner variable, particularly perceptual learning style and motivation, are often used to explain differences in learning outcomes. However, the learning style matching hypothesis has been widely criticized for its lack of strong empirical support (Brown, 2023). Contemporary research increasingly treats learning styles as learner preferences that may interact with instructional conditions rather than deterministic predictors of performance. In contrast, Dörnyei's L2 motivational self-system and subsequent developments highlight the dynamic relationship between learner's future self-guides, contextual experiences, and academic engagement. In ESP contexts, particularly professional such as accounting, instrumental and career-oriented motivations may play a decisive role in shaping learning outcomes (Yang & Wyatt, 2021).

Theoretically, meaning-based instructional design is believed to increase motivation by enhancing perceptions of relevance, task value, and professional authenticity (Ryan & Deci, 2000). Empirical research shows that learning effectiveness often works indirectly through motivational engagement, rather than learning effectiveness often works indirectly through motivational engagement, rather than, solely through direct instructional exposure (Syring et al., 2015). However, there is still little research that integrates learning design, perceptual preferences, and L2 motivation into a single integrated empirical model, especially in the context of ESP grammar teaching.

To address this gap, this study advances the field of study in three aspects. First, theoretically, this study integrates cognitive grammar, ESP pedagogy, debates on learning style, and contemporary L2 motivation theory into a moderated mediation framework. Rather assuming a direct instructional influence, this study conceptualizes motivation as a mediating and learning style as a potential moderator. Second, methodologically, this study goes beyond simple group comparisons by applying reliability and validity testing, interaction analysis, mediation tests to align statistical modeling with theoretical assumption, this approach responds to recent calls for stronger conceptual-statistical coherence in applied linguistic research. Third, practically, this study provides evidence-based guidance for ESP teaching focused on accounting, clarifying whether grammar teaching innovations should prioritize learning style matching or motivational engagement in curriculum design.

Research Questions

Accordingly, the study addresses the following research questions: 1) To what extent does instructional material (MAP Grammar vs. conventional instruction) affect accounting students' English learning achievement? 2) What are the dominant perceptual learning styles of accounting students in learning English? 3) Is there a significant difference in English learning achievement among students with different perceptual learning style? 4) Is there an interaction effect between instructional material and perceptual learning style on students' English learning achievement? By placing grammar teaching within a framework mediated by motivation and sensitive to interaction, this study aims to provide explanation of the effectiveness of learning that is strongly grounded in theory and supported by solid empirical evidence in the context of ESP focused on the field of accounting.

Methodology

This study employs a quasi-experimental design integrated with conditional process analysis to examine the direct and indirect effects, as well as the moderating effects, of learning approaches on students' English learning outcomes. Two learning instructions, namely MAP Grammar and conventional grammar instruction were compared to determine their effectiveness in improving students' achievement. Within this framework, motivation was positioned as a mediating variable, while perceptual learning style served as a moderating variable, thereby enabling a more in-depth analysis of how learning effects vary based on learner characteristics. The study participants were 50 undergraduates accounting students enrolled in an English for Specific Purpose (ESP) course at a private university in Indonesia, divided into two groups as an experimental group and a control group, each consisting of 25 students. A priori power analysis using G*Power 3.1 indicated that the sample size was adequate to detect a moderate effect.

Data were collected using three validated instruments, namely the Perceptual Learning Style Questionnaire ($\alpha = 0.84$), the Motivation Scale ($\alpha = 0.91$; CFI = 0.93; RMSEA = 0.06), and an ESP-based English Proficiency Test covering grammar, vocabulary, reading, listening, and writing (KR-21 = 0.42). The study was conducted over one semester, beginning with a pretest, followed by a 12-week learning intervention, and concluding with a post-test, with motivation measured at the end of the intervention. Data analysis was performed using SPSS 26 and the PROCESS macro, which included tests of initial assumptions, mediation analysis using the bootstrapping technique (5,000 samples), and moderation analysis through interaction effects. The final model was able

to explain 56% of the variance in students' achievement ($R^2 = 0.56$), indicating a strong explanatory power.

Analysis

Several steps had been taken to classify the English learning achievement of accounting students in learning English and identify their learning styles. The findings can be explained as follows.

Descriptive Statistics of instructional material, learning style, and learning achievement

Before examining differences and interaction effects, descriptive statistics were calculated to summarize the distribution of instructional materials, learning styles, and English learning outcomes. The analysis revealed varying levels of data distribution for each studied variable as can be noticed from the following table:

Table 1. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Material	50	1	2	1,50	,505
learning style	50	1	4	2,00	,833
Learning achievement	50	60	97	73,78	7,786
Valid N (listwise)	50				

Based on table 1, the instructional materials variable showed a low standard deviation ($SD = 0.505$), indicating that the study participants were relatively evenly distributed between the groups using MAP Grammar and the conventional instructional materials. This balanced distribution strengthens the internal validity of the quasi-experimental design by ensuring that comparisons between learning groups were not influenced by an imbalance in the number of subjects.

The learning styles variable showed a moderate level of variation ($SD = 0.833$), indicating that students' perceptual learning style preferences were quite diverse but not extreme. This distribution supports the use of a factorial design and allows for testing of meaningful interaction effects between instructional materials and learning styles. Conversely, English learning outcomes showed a higher standard deviation ($SD = 7.786$), reflecting significant differences in student performance levels. This variation confirms the existence of low- and high-achieving students and provides strong justification for further inferential analysis, specifically a two-way ANOVA, to examine the influence of instructional materials and learning styles on learning outcomes.

Accounting students' learning style in English

This section presents the findings related to accounting students' learning preferences in English learning. Table 2 summarizes the dominant learning preferences observed in each instructional group.

Table 2. Learning preferences of students

Instructional Material	Learning Style Preference	Score	Learning Preference Category
Conventional	Auditory	50	Major
MAP Grammar	Group-based	50	Major

Based on Table 2, it can be observed that students with auditory learning preference as their primary style used conventional instructional materials, and students with a group-based learning preference used MAP Grammar materials, both scored 50. This indicates that there was no significant advantage of one type of instructional material over another in relation to a specific learning style.

Accounting Students' Learning Achievement in English and the Difference with the Type of Instructional Material

Answering question number 3, based on the data obtained, the English learning achievement of accounting students shows a clear difference between the low achiever group and the high achiever group based on the type of instructional material used as in the following table:

Table 3. Distribution of accounting students' English learning achievement by achievement group and instructional material

Achievement Group	Instructional Material	N (Students)	Score range
Low Achievers (<75)	Conventional	15	63 – 73
High Achievers (>75)	Conventional	12	71 – 81
High Achievers (>75)	MAP Grammar	22	75 – 97

Based on Table 3, students with low achievement who used conventional materials scored between 63 and 73. The score distribution of students who used conventional materials tends to be narrower and more stagnant. On the other hand, the high achiever group shows a more significant improvement, especially among those who used MAP Grammar materials. Students in this group who used conventional materials scored between 71 and 81, while those who used MAP Grammar scored between 75 and 97.

Additionally, statistical analysis shows a significant difference in English learning achievement between students taught using MAP Grammar instructional materials and those taught using conventional materials. In the first hypothesis test, the p-value was 0.00, which is lower than the significance level of 0.05. This indicates that the type of instructional material has a significant effect on the English learning achievement of accounting students.

The table shows that among the 15 students categorized as low achievers (students who scored below 75), 13 of them were from the conventional group, and only 2 students were from the MAP Grammar group. This indicates that most students taught with MAP Grammar were not in the low achiever category. On the other hand, among the 34 high achievers (students who scored 75 or above), 22 students were from the MAP Grammar group, while the remaining 12 students were from the conventional group. This shows a clear difference that students taught with MAP Grammar materials tend to achieve higher

scores, while those taught with conventional materials are more likely to remain in the low achiever category.

The difference in students' learning achievement in English with their learning style

In addition, based on the calculation results, the obtained p-value was 0.378, which is greater than the significance level of 0.05. This indicates that the answer for the fourth question shows no statistically significant difference in English learning achievement levels (low or high) among accounting students based on their learning styles. The differences in learning outcomes across visual, auditory, group-based, and individual learning styles are not statistically meaningful. Although there were slight variations in the mean scores among different learning styles, these differences were not significant enough to conclude that one learning style consistently outperformed the others.

The interaction effect between the type of instructional material and learning style on accounting students' learning achievement in English

For the fourth question, the results obtained from the two-way ANOVA showed a significant interaction effect between instructional material and learning style on the English learning achievement of accounting students as can be seen from the following figure.

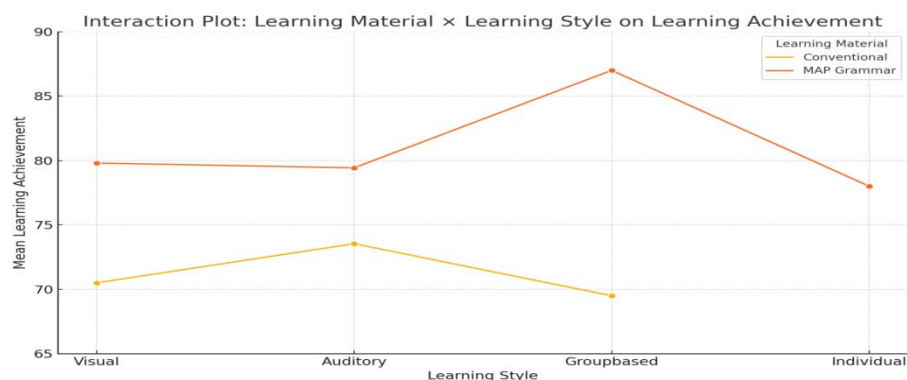


Figure 1: The interaction Effect between the Type of Instructional Material and Learning Style on Accounting Students' Learning Achievement

Although the two-way ANOVA indicated a significant interaction, this effect was not supported in the regression-based conditional process analysis, suggesting that the interaction may not be robust when controlling other variables. In addition, the p-value was 0.04, which is lower than the significance level of 0.05. Looking at the mean scores, this interaction becomes clearer in how certain learning styles perform better than others when paired with particular learning material. This means that the English learning achievement of accounting students depends on the type of instructional material used, and vice versa.

Findings and Discussion

This present study set out to examine the extent to which instructional material and learning style influence accounting students' English learning achievement within an ESP context. The finding indicates the use of MAP Grammar materials is more effective than conventional materials in improving English learning achievement among accounting students. These findings are in line with recent studies which emphasize the effectiveness of meaning-based approaches in grammar instruction for both academic and professional

purposes. For example, a study by Özer & Şükrü Özbay demonstrated that context- and meaning-based grammar instruction significantly improved English language skills among non-English major students, particularly in the context of English for Specific Purposes (ESP) (Özer & Şükrü Özbay, 2022). It highlighted the importance of cognitive approaches to grammar teaching that promote natural and conscious processing among learners. Meaning-based approach such as MAP Grammar (Ulyasari, 2025), which emphasizes word order and contextual meaning, also aligns with input-based communicative teaching models (Tajino, 2019). These studies reinforce that approaches like MAP Grammar are supported by strong theoretical and empirical foundations in the development of effective instructional materials.

The fact that different learning styles resulted in the same score across different instructional approaches highlights the complexity of evaluating the effectiveness of teaching materials. This finding is important because it emphasizes the need for flexible instructional design that can accommodate student diversity. This finding is in line with several recent studies that question the direct impact of learning styles on academic achievement. For example, research by Shaidullina et al., (2023) found that although learning styles influence classroom interaction preferences, they do not significantly affect academic performance unless combined with active engagement strategies. Another study also concluded that matching teaching methods with students' learning styles does not always lead to better learning outcomes (Cimermanová, 2018). Thus, instructional materials should be designed to encourage active learning, regardless of students' preferred styles, especially for those in accounting programs.

However, in the term of students' learning style that determines their learning achievement, could be simply caused by other factors such as students' learning engagement, background knowledge, even motivation as what has been found in answering the first research question. This finding also suggests that the type of instructional approach may play a more decisive role in influencing students' learning outcomes than learning style alone. This result is in line with the findings of El-Sabagh, who emphasized the importance of aligning instructional strategies with students' learning styles (El-Sabagh, 2021). The findings of this study show that learning style is not the only factor that contributes substantially to learning achievement. Instead, the results suggest that strengthening effective instructional design, such as the MAP Grammar approach used in this current study may have a positive impact on students with various learning preferences

This result is not coincidental, instead reflects the pedagogical foundation of the MAP Grammar approach. As proposed by Tajino (Tajino, 2017), MAP Grammar is based on three core principles: simultaneous stimulus and response, consistent practice, and meaningful interaction. These principles are implemented through a nine-step learning cycle that connects new knowledge with students' prior experience and guides them through practical application, supported by continuous feedback. These elements are highly effective in engaging learners, especially those with visual and group-based learning styles, who tend to thrive in structured and interactive learning environments.

Furthermore, MAP Grammar focuses on building sentences using a structured sequence, namely the agent (Who), action (Does), object (What), and context of time and place (Where/When). This sequence provides a scaffold and cognitively accessible pathway for learners to understand sentence construction and meaning within context (Gray &

Smithers, 2019). This structured method not only helps learners internalize English grammar more effectively but also supports the development of fluency and knowledge transfer into real communication, which is essential in English for Specific Purposes (ESP) settings such as accounting.

When students' learning styles are appropriately paired with the right instructional material such as MAP Grammar, the result is more consistent and higher academic achievement, as shown in the findings of this study. The alignment between learning preferences and instructional approach strengthens the impact of the learning process and maximizes student outcomes. The distribution of high and low student scores based on the type of learning material also provides additional evidence that MAP Grammar has a pedagogical impact on English learning, particularly for accounting majors. These findings indicate that students exhibited low English achievement when taught with conventional materials, while the majority of high-achieving students received instruction with MAP Grammar. This pattern indicates that conventional grammar instruction tends to limit learner development by emphasizing rule memorization and isolated practice, resulting in relatively stagnant learning outcomes. In contrast, MAP Grammar appears to support movement from low to high achievement by providing structured and meaningful grammatical input aligned with learners' communicative needs. From an ESP perspective, this shift is significant because it demonstrates that meaning-based grammar instruction not only improves overall learning achievement but also contributes to reducing the performance gap between learners at different levels of language proficiency.

Conclusion

This study concludes that MAP Grammar significantly improves the English proficiency of accounting students through direct learning mechanism. Motivation, although influenced by the learning material, does not act as a mediator of learning outcomes, and perceptual learning styles do not moderate learning effectiveness. These findings underscore the importance of cognitively structured and meaning-based learning designs in the ESP context and suggest that curriculum development should prioritize the quality of learning over adaptation to learning styles.

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