

# Argumentation Patterns, Logical Reasoning, Pragmatic Competence, and Communicative Competence of College Students

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## ABSTRACT

College students in the Philippines are expected to demonstrate strong argumentation, logical reasoning, and context-sensitive language use to succeed in academic and professional settings. However, gaps in these interrelated skills persist. This study examined the argumentation patterns, logical reasoning, pragmatic competence, and communicative competence of 457 second-year college students from higher education institutions in Capiz during the academic year 2025–2026. It also investigated the relationships among these variables and their influence on students' communicative performance. Using a mixed-methods explanatory sequential design, the study employed a researcher-made Awareness of Argumentation Patterns Questionnaire, Logical Reasoning Test, Discourse Completion Test, and Communicative Competence Test. Quantitative data were analyzed using descriptive statistics, one-way ANOVA, and Pearson correlation through SPSS at a .05 level of significance. Qualitative data from a focus group discussion with eight students from different HEIs underwent reflexive thematic analysis. Findings showed that participants had a high level of awareness of argumentation patterns and high communicative competence, while logical reasoning and pragmatic competence were both moderate. Significant differences in communicative competence were found when grouped according to levels of argumentation patterns awareness, logical reasoning, and pragmatic competence. A significant relationship also existed among the four variables. The study concludes that notable gaps in logical reasoning and pragmatic competence continue to affect students' communicative performance. In response, an instructional material titled "An Input to Discourse Ability Enhancement" was developed.

## INTRODUCTION

In higher education, effective communication necessitates the integration of logical reasoning, pragmatic competence, and argumentative abilities in addition to grammatical precision. Pupils must be able to formulate logical arguments, critically assess the evidence, and modify their language based on the audience and context. Together, these skills contribute to communicative competence, which is still necessary for both professional preparedness and academic success. In higher education, effective communication necessitates the integration of logical reasoning, pragmatic competence, and argumentation skills in addition to grammatical accuracy. Pupils must be able to formulate logical arguments, critically assess the evidence, and modify their language based on the audience and context. Together, these skills support communication competence, which is still necessary for both academic achievement and career preparedness (Canale & Swain, 1980; Hymes, 1972).

Argumentation patterns refer to structured ways individuals organize and defend claims in discourse. Classical rhetoric emphasizes persuasion through ethos, pathos, and logos (Aristotle, as discussed in Kephart, 2024), while contemporary frameworks such as Toulmin's model and the pragma-dialectical approach emphasize rational justification and critical discussion (van Eemeren & Houtlosser, 2002; Al-Maamari, 2017). Research suggests that college students often demonstrate structural weaknesses in argumentation, particularly in rebuttal construction and counterargument integration (Ghanbari et al., 2022; Turós et al., 2025).

The cognitive basis of persuasive argumentation is logical reasoning. It entails the capacity to use both deductive and inductive methods for information analysis, inference, and evaluation (Ennis, 2018; Facione, 2015). According to studies, critical thinking and argumentative writing are greatly enhanced by specific teaching in logical reasoning (Manalo, 2020; Thompson & Martinez, 2019).

The capacity to utilize language effectively in social and academic circumstances is known as pragmatic competence. It encompasses consideration for contextual appropriateness, conversational implicature, indirectness, and civility (Grice, 1975; Leech, 1983; Taguchi, 2019). According to research, many college students still lack pragmatic ability, which is crucial for effective communication (Barron, 2021; Ocampo, 2023).

In order to address these gaps, by examining how awareness of argumentation patterns, logical reasoning, and pragmatic competence relate to and influence communicative competence among college students. This study draws on Toulmin's Model of Argumentation (1958), Piaget's and Bloom's frameworks for logical reasoning, pragma-dialectics, and models of communicative competence (Hymes, 1972; Canale & Swain, 1980; Celce-Murcia et al., 1995). The following specific objectives guided the study: (1) identify the level of awareness of argumentation patterns, logical reasoning, pragmatic competence, and communicative competence of college students; (2) identify the significant differences in students' communicative competence when grouped according to their awareness of argumentation patterns, logical reasoning, and pragmatic competence; (3) identify the significant relationships among all variables; (4) identify and develop an instructional material to enhance students' discourse abilities.

## METHODS

### Research Design

This study employed an explanatory sequential mixed-methods design, combining quantitative and qualitative approaches to provide a comprehensive understanding of students' discourse-related competencies (Creswell, 2014).

### Participants

The study involved 457 second-year college students from all Higher Education Institutions in Capiz selected through stratified random sampling. Eight additional participants were purposively selected for the Focus Group Discussion.

### Instruments

Four instruments were utilized to gather the data needed. The Awareness of Argumentation Patterns Questionnaire (AAPQ), was a researcher-developed questionnaire used to assess students' familiarity and awareness of various argumentation structures commonly employed in academic and persuasive discourse, including Aristotelian, Toulmin, Rogerian, monological, block, point-by-point, and causal patterns. The instrument was developed through a systematic process: (a) review of relevant literature on argumentation models, (b) item construction aligned with established frameworks, (c) expert validation by 6 faculty members in language studies, and (d) pilot testing with 30 college students to establish content validity and internal consistency. Cronbach's alpha for the AAPQ yielded a .912, indicating acceptable reliability.

The Logical Reasoning test assessed the students' logical reasoning skills, grounded in the principles of logical coherence and critical thinking proposed by Ennis (2018). This researcher-made questionnaire measured the students' ability to construct, support, and evaluate arguments based on principles of logical coherence and critical thinking. Item development followed a table of specifications covering deductive, inductive, and evaluative reasoning. The test underwent expert review and pilot testing; item difficulty ranged from 0.47 to 0.80, while discrimination indices ranged from 0.20 to 0.80.

The Discourse Competence Test (DCT), adapted from Taguchi (2019), Grice's (1975) Cooperative Principle, and Leech's (1983) Politeness Principle, examined students' ability to produce contextually appropriate responses in various communicative situations. This instrument likewise underwent expert validation, pilot testing, and three independent evaluators scored the same set of pilot and actual DCT responses to ensure its validity.

The Communicative Competence Test, adapted from Bachman and Palmer (2016), was used to assess students' communicative competence across multiple dimensions, including grammatical, discourse, sociolinguistic, and strategic competence. The test underwent expert review and pilot testing; item difficulty ranged from 0.53 to 0.93, while discrimination indices ranged from 0.20 to 0.90.

## Data Analysis

Descriptive statistics (mean and standard deviation) were used to determine competency levels. One-way ANOVA examined differences in communicative competence across levels of the independent variables, while Pearson correlation tested relationships among variables. Qualitative data came from thematic analysis of written outputs and FGD transcripts. Ethical clearance and informed consent were secured. Quantitative analysis used SPSS for descriptive statistics, Pearson correlation, and regression ( $\alpha = .05$ ). Qualitative data underwent reflexive thematic analysis.

## RESULTS

The findings of the study revealed varying levels of competence across the four discourse-related variables examined (see Table 1). Overall, the students demonstrated a high level of awareness of argumentation patterns, indicating that they were generally familiar with the structural organization and essential components of argumentative discourse. This suggests that students possess a foundational understanding of how arguments are developed and presented, including familiarity with established frameworks such as the Aristotelian model, which emphasizes persuasive appeals; Toulmin's model, which focuses on claims, evidence, and warrants; and pragma-dialectical approaches, which highlight reasoned discussion and critical engagement. The relatively high level of awareness may reflect students' prior exposure to academic writing, classroom debates, and communication-based learning activities that emphasize argumentative organization and rhetorical effectiveness.

Despite this strong awareness of argumentative structures, students demonstrated only a moderate level of logical reasoning, indicating that while they possess basic reasoning skills, they continue to experience challenges in applying higher-order critical thinking processes. Specifically, students showed difficulties in distinguishing between supporting data and underlying warrants, evaluating the validity of arguments, identifying logical inconsistencies, and constructing fully justified claims. These findings suggest that students may be able to recognize the structure of an argument but may struggle with the deeper analytical processes necessary to evaluate and strengthen its logical coherence. This result aligns with previous studies indicating that college students often experience deficits in argument justification and critical evaluation, particularly when required to synthesize evidence and defend positions through reasoned analysis (Wambsganss et al., 2024).

Similarly, students' pragmatic competence was found to be at a moderate level, indicating that while they usually understand how to use language effectively, they struggle to meet the demands of more complicated social and contextual communication. Students specifically showed difficulties in adapting their language to the audience, deciphering indirect meanings, using suitable politeness techniques, and reacting appropriately in circumstances that call for awareness of interpersonal dynamics. This suggests that whereas children might be able to communicate effectively in situations that are known or simple, they might have trouble in situations that call for subtle language choices or culturally appropriate responses. These results corroborate previous research highlighting the gradual development of pragmatic competence, which frequently necessitates explicit training and meaningful communicative practice to enhance (Taguchi, 2019; Barron, 2021).

Students, on the other hand, showed a typically high degree of communicative competence, indicating a satisfactory overall capacity to communicate well in a variety of circumstances. According to Canale and Swain's (1980) conceptualization, this implies that students have appropriate control over a variety of communication characteristics, such as grammatical competence, discourse competence, sociolinguistic competence, and strategic competence. The combination of classroom interaction, language exposure, and academic communication experiences that enable students to gain confidence and flexibility in expressing ideas may be responsible for their comparatively high communicative competence.

Table 1. Mean and Standard Deviation

Variable	Mean	Description	SD
Awareness of Argumentation Patterns	3.50	High	0.71
Logical Reasoning	11.31	Moderate	4.20
Pragmatic Competence	8.23	Moderate	4.12
Communicative Competence	13.83	High	4.50

When students were categorized based on their awareness of argumentation patterns, logical reasoning, and pragmatic competence, further examination showed notable variations in communicative competence (see Table 2). Students with higher levels of logical reasoning and stronger pragmatic competence consistently demonstrated better communicative performance, suggesting that these competencies play an essential role in enabling effective and meaningful communication. While awareness of argumentation patterns also showed a significant relationship with communicative competence, its influence appeared less substantial compared to the cognitive and contextual dimensions represented by logical reasoning and pragmatic competence.

Table 2. Analysis of Variance

Source of Variation	F	Sig.
Communicative Competence and Awareness of Argumentation Patterns	4.751	0.001
Communicative Competence and Logical Reasoning	49.703	0.000
Communicative Competence and Pragmatic Competence	26.817	0.000

Moreover, Pearson correlation analysis revealed significant positive relationships among logical reasoning, pragmatic competence, and communicative competence (see Table 3), indicating that these variables are closely interconnected. The strongest relationship was observed between logical reasoning and communicative competence, highlighting the importance of reasoning ability as a foundation for coherent, persuasive, and effective discourse. A significant relationship was also found between pragmatic competence and communicative competence, reinforcing the role of context-sensitive language use in successful communication. However, the relatively weaker associations involving awareness of argumentation patterns suggest that structural knowledge alone may not be sufficient to ensure effective communication unless accompanied by strong reasoning skills and pragmatic awareness.

Table 3. Pearson r Among Argumentation Pattern, Logical Reasoning, Pragmatic Competence, and Communicative Competence

Source of Variation	r	Sig.
Argumentation Pattern and Logical Reasoning	0.087ns	0.062
Argumentation Pattern and Pragmatic Competence	0.088ns	0.061
Argumentation Pattern and Communicative Competence	0.135*	0.004
Logical Reasoning and Pragmatic Competence	0.479*	0.000
Logical Reasoning and Communicative Competence	0.537*	0.000

Pragmatic Competence and Communicative Competence	0.380*	0.000
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Overall, the findings underscore the multidimensional nature of communicative competence and suggest that while students demonstrate promising awareness and communication skills, greater emphasis should be placed on strengthening logical reasoning and pragmatic competence through targeted instructional interventions. These results provided the basis for developing the instructional material, “An Input to Discourse Ability Enhancement”, designed to address identified gaps and further enhance students’ discourse-related abilities.

### Qualitative Findings from the Focus Group Discussion

To deepen understanding of the quantitative results, a focus group discussion (FGD) was conducted with eight second-year students purposively selected from different HEIs in Capiz. Reflexive thematic analysis of the FGD transcripts revealed four main themes that corroborated and enriched the statistical findings.

Participants viewed argumentation patterns as essential for organizing thoughts and supporting claims clearly. One student described them as “how I explain my thoughts in a way that others can really understand me, not just saying my opinion, but also showing why I think that way.” Most rated their awareness at 4/5, citing frequent academic writing and discussions. They agreed with the high level but distinguished awareness from consistent application, noting that “even if many students are aware... not all of them can apply it effectively, especially in real-life situations.”

On logical reasoning, students saw it as the foundation for clear thinking and credible communication. Ratings clustered around 3–4, with participants acknowledging difficulties under pressure or with unfamiliar topics. They agreed the moderate level was realistic: “While many students are capable of thinking and analyzing, not all of them consistently apply logical reasoning.” Several emphasized the need for more practice beyond memorization.

Pragmatic competence was understood as using language appropriately according to context, audience, and intention. Self-ratings of 3–4 reflected strengths in familiar settings but struggles with tone, politeness, and spontaneity. Participants concurred with the moderate level, attributing it to limited real-world exposure: “Students know the language, but they are still learning how to use it across different contexts.”

Students generally affirmed the high communicative competence finding, linking it to constant classroom and digital interactions. However, they noted individual variation due to confidence and anxiety.

Regarding relationships, participants observed that stronger logical reasoning and pragmatic competence noticeably enhanced communicative effectiveness. One explained: “When my reasoning is clear, I don’t repeat myself... it makes my explanation stronger.” Pragmatic competence was seen as crucial for fitting communication to the situation: “It tells us to be formal, when to be casual... Without it, communication can easily become inappropriate.” Argumentation patterns supported structure but appeared less directly tied to logical reasoning or pragmatics in some accounts, aligning with the weaker correlations.

Overall, the FGD portrayed the variables as interconnected yet distinct contributors to communicative competence. As one participant summarized: “Logical reasoning provides the foundation... argumentation patterns supply the structure, and pragmatic competence ensures suitability to audience and context.” These insights reinforced the quantitative gaps in logical reasoning and pragmatic competence despite high awareness and communicative competence levels. The findings directly informed the development of the instructional material “An Input to Discourse Ability Enhancement.”

## DISCUSSION

The findings suggest that while students possess strong awareness of argument structures, logical reasoning, and pragmatic competence are more influential in shaping communicative competence. Awareness alone may support structural organization, but effective communication depends on cognitive and contextual abilities. Logical reasoning emerged as the strongest contributor to communicative competence, reinforcing the claim that

reasoning is the foundation of persuasive and coherent discourse (Ennis, 2018; Facione, 2015). Pragmatic competence also played a significant role. Students who could adjust their language according to audience and context demonstrated stronger communicative effectiveness, supporting prior studies on contextual language use and speech acts (Austin, 1962; Searle, 1969; Taguchi, 2019). These findings highlight the need for integrated instructional interventions combining argumentation practice, reasoning exercises, and pragmatic awareness activities. The instructional material “An Input to Discourse Ability Enhancement” was developed in response to this need.

## CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this study. No financial, personal, institutional, or professional relationships influenced the design, conduct, analysis, or reporting of the research findings.

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