A Study On The Effects Of Critical Thinking On The Development Of Speaking Ability

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Abstract- The purpose of the study was to investigate the effects of critical thinking skills on speaking ability among students of non-English major. The study was conducted at Dai Nam University with 74 students from three disciplines; linguistics, healthcare and technology. The research design were survey and experimental. The findings reveal that the levels of critical thinking skills vary across disciplines. Linguistics students hold the least (M=1.87). This indicates that the students were categorized as a "Basic Critical Thinker." The Healthcare students ranked the top (M=3.07). A ranking within this range (M= 3.00 to 3.99) places the individuals in the "Proficient Critical Thinker". Technology students were categorized as "Emerging Critical Thinker" (M=2.10). The aspects of Clarity of Communication and Problem Solving Skills contributed mostly to the development of speaking ability $B = 0.79$, t(69) = 3.51, p < .001 and $B = 0.57$, t(69) = 2.23, p = .005 respectively. The critical training course proved beneficial for students in terms of enhancing speaking ability; mean of post-test was significantly higher than mean of pre-test M= 6.28 and M=5.03 respectively.

Index Terms- critical thinking skills, speaking ability, clarity of communication, problem solving skills, logical reasoning skills, audience engagement

I. INTRODUCTION

1.1. Background and Rationale

Poor speaking ability in language learning can have significant consequences, affecting various aspects of an individual's language acquisition and communication skills. These consequences can affect both the learning process and the individual's overall language proficiency. In the long term, poor speaking ability restricts an individual's capacity to communicate effectively in the target language. Limited communication skills can hinder interactions in both social and professional contexts, reducing the individual's ability to engage in meaningful conversations. Individuals with poor speaking skills may struggle to speak fluently and with confidence. This lack of fluency can lead to hesitations, pauses, and difficulty expressing thoughts coherently, affecting the overall quality of communication. Limited speaking ability may discourage learners from actively participating in language-related activities, such as group discussions, oral presentations, or debates. This limited participation can impede their language exposure and practice (Nation & Newton, 2009). It is a fact that university students who study English as a foreign language and are required to be qualified in B1 (CEFR) find speaking is the most challenging skill (Chand, 2021). English non-major students who have studied English for 3-4 semesters claim that they do not know how to develop an organized talk or presentation effectively. This leads to disadvantages in competing in their world of work. Language proficiency, including speaking skills, is often a critical factor in academic and professional success. Poor speaking ability can limit opportunities for higher education, job prospects, and career advancement, particularly in fields that require effective communication (Brown, 2007). Leaving challenges such as pronunciation, grammar, vocabulary behind, the inability to think critically might be the cause of ineffective communication. It is claimed that critical thinking encourages individuals to analyze and organize their thoughts coherently. This clarity of thought translates into clear and organized speech. Critical thinkers are more likely to structure their ideas logically, leading to more effective and comprehensible communication (Paul & Elder, 2006). Critical thinking skills help individuals construct well-reasoned arguments and counterarguments. When speaking, critical thinkers can present their ideas persuasively, provide evidence, and address counterpoints, making their arguments more convincing and compelling Browne & Keeley, 2014). Furthermore, critical thinking involves problem-solving skills, which can be applied in real-time during spoken communication. When faced with unexpected challenges or questions, critical thinkers are better equipped to analyze the situation, devise solutions, and communicate them clearly (Halpern, 2014).

1.2. Research problem

In an attempt to solve the problem of speaking ability that many students are facing, this research aims to investigate the levels of critical thinking skills among participants of multi-disciplines while also delving into the specific dimensions or components of critical thinking that might have the greatest impact on the enhancement of speaking abilities. It invites exploration into the role of critical thinking in shaping effective spoken communication, offering valuable insights into language education and pedagogical practices.

1.3. Research questions

In order to highlight the importance of critical thinking as well as to obtain insight about the correlation between critical thinking and the development of speaking ability, the study attempt to answer the following research questions

a) *What is the self-perceived level of critical thinking skill among students of multiple disciplines?*

b) *Which specific dimensions of critical thinking, such as Clarity of communication, Problem-solving skill, Logical reasoning, and Audience engagement appear to have the most significant impact on the development of effective speaking skills?*

c) *In what ways the does the delivery of critical thinking courses enhance the speaking ability?*

1.4. Significance of the Study

The significance of the study investigating the connection between critical thinking and speaking skills lies in its potential to contribute to both educational and practical domains. Understanding the relationship between critical thinking and speaking skills can inform educators and curriculum designers. It provides insights into how to develop more effective teaching methods that integrate critical thinking and speaking, leading to better learning outcomes. Effective speaking is a crucial skill in various professional and personal contexts. By uncovering the role of critical thinking in speaking, the study can offer guidance on how individuals can enhance their communication skills, making them more effective communicators. Furthermore, the study can shed light on the importance of integrating critical thinking into the curriculum at all educational levels. It highlights the connection between critical thinking and effective communication, emphasizing the need to nurture critical thinking skills in learners. In summary, research into the connection between critical thinking and speaking skills holds significant implications for education, personal development, and societal communication. It has the potential to improve teaching practices, empower individuals to become more effective communicators, and contribute to decision-making in various contexts.

II.   LITERATURE REVIEW

1.5. Overview of Critical Thinking

Critical thinking is a cognitive skill involving the analysis, synthesis, and evaluation of information. Its significance extends to various domains, including education and language learning. Critical thinking promotes deeper understanding, effective communication, and problem-solving abilities. As demonstrated by references from prominent scholars in the field, the cultivation of critical thinking has far-reaching implications for education and cognitive development. Encouraging active engagement, analyzing multiple perspectives, and fostering systematic problem-solving contribute to learners' overall competence and success in various contexts. Critical thinking involves the active, reflective, and analytical evaluation of information and ideas (Paul & Elder, 2006). It is characterized by the analysis, evaluation, and synthesis of information and ideas to make reasoned and well-informed judgments. It involves the ability to think logically, critically assess evidence, identify biases, and construct sound arguments (Ennis, 2015).
Analysis Component

The first and foremost component of critical thinking is analysis which is the process of breaking down complex information, ideas, or situations into their constituent elements, examining the relationships between these elements, and understanding the underlying structure and implications. It is a key step in critical thinking as it allows individuals to gain a deeper understanding of the subject matter (Elder & Paul, 2005). It enables individuals to gain a deeper and more nuanced understanding of the subject matter. By analyzing the pros and cons of various options, individuals can make informed decisions. Analytical thinking allows individuals to express ideas more clearly and persuasively, as they can articulate the underlying rationale (Facione, 2015).
Evaluation Component

The second component of critical thinking is characterized by evaluation. It involves assessing and judging the quality, relevance, credibility, and validity of information, arguments, evidence, and ideas. Evaluation is crucial in making informed decisions, forming well-grounded beliefs, and effectively communicating one's thoughts and opinions. Evaluation in critical thinking begins with assessing the information and sources. Critical thinkers are skilled at determining whether a source is reliable, unbiased, and credible (Facione, 2015). Critical thinkers evaluate arguments and evidence critically. They analyze the strength of arguments, identify logical fallacies, and scrutinize the quality and relevance of supporting evidence. Effective evaluation in this context aids in distinguishing between sound and weak arguments (Paul & Elder, 2006). Critical thinkers are adept at identifying underlying assumptions and presuppositions in arguments and claims. They evaluate these assumptions to determine their validity and relevance, recognizing their potential impact on the overall argument (Halpern, 2014). The evaluation component of critical thinking involves a systematic and thoughtful assessment of information, arguments, evidence, and ideas. It enables individuals to make informed judgments, identify weaknesses and strengths in arguments, and form well-grounded beliefs.
Synthesis component

The final but most important component of critical thinking is synthesis, which is the ability to combine, integrate, and create new ideas, solutions, or perspectives from existing information, arguments, or concepts. It goes beyond mere analysis and evaluation by fostering creativity, innovation, and the development of novel insights. Synthesis is a crucial aspect of critical thinking that enables individuals to make connections, solve complex problems, and contribute to knowledge. Synthesis involves the skill of merging information and ideas from multiple sources or disciplines to create a comprehensive understanding of a topic. It requires individuals to identify relationships and connections between diverse pieces of information (Paul & Elder, 2006). Critical thinkers use synthesis to generate innovative solutions or alternative approaches to problems or challenges. By combining different perspectives and ideas, they can develop creative solutions that may not be apparent through analysis alone (Facione, 2013). Synthesis can lead to the creation of new concepts, theories, or models. Critical thinkers use existing knowledge as a foundation to construct new frameworks or paradigms that advance understanding in various fields (Halpern, 2014). In academic and research contexts, synthesis is essential for

contributing to knowledge. Critical thinkers synthesize existing research findings to identify trends, gaps, and areas for further exploration (Ennis, 1987). In summary, the synthesis component of critical thinking is about bringing together information, ideas, and perspectives to create something new, insightful, and valuable. It plays a pivotal role in problem-solving, decision-making, creativity, and advancing knowledge across various domains.

1.6. Aspects of Critical Thinking in Developing Oral Communication Skill

Critical thinking plays a pivotal role in developing speaking ability, as it enhances various aspects of communication and enables individuals to express themselves effectively, persuasively, and coherently. Critical thinking skills contribute to the overall quality of speeches, presentations, and verbal interactions.

Clarity of Communication

Clarity of communication is a crucial component of developing speaking ability. It refers to the speaker's ability to express thoughts and ideas in a manner that is easily understood by the audience. Clarity ensures that the message is conveyed accurately, reducing the risk of confusion or misinterpretation. One of the primary objectives of speaking is to convey information or ideas to the audience. Clear communication ensures that the audience comprehends the message without difficulty (McLean & Allen, 2011). Clarity helps speakers articulate their thoughts in a way that leaves little room for ambiguity (Chapman, 2018). In educational settings, clarity is essential for effective learning. Clear communication helps students grasp new concepts, retain information, and engage actively in discussions (Fisher & Frey, 2018). Clear and articulate speakers are often perceived as more credible and trustworthy. When speakers express themselves clearly, it enhances their reputation as knowledgeable and reliable sources of information (Lucas, 2019). Clear communication captivates the audience's attention and keeps them engaged. An engaged audience is more likely to absorb and retain the speaker's message (Guffey & Almonte, 2018). Furthermore, clear communication helps speakers present their points in a way that is both persuasive and comprehensible (Ramage, Bean, & Johnson, 2016). It is more important to note that clarity of communication allows speakers to break down complex ideas into manageable, understandable components (Lucas, 2019). It is particularly important in diverse and multicultural settings. It ensures that the message is accessible to individuals with varying levels of language proficiency (Chapman, 2018). In group discussions or collaborative settings, clarity enables effective problem-solving. Participants can communicate their ideas clearly, leading to more efficient solutions (Fisher & Frey, 2018).

In conclusion, clarity of communication is fundamental to developing speaking ability. It ensures that the speaker's message is easily understood, engages the audience effectively, and promotes credibility and trust. Developing clarity in communication is an essential skill that enhances the overall impact and effectiveness of speeches and presentations.

Problem Solving Skill

Problem-solving skills play a significant role in developing effective speaking ability. When speakers possess strong problem-solving skills, they can address challenges, respond to questions, and adapt to unexpected situations during their presentations or speeches. Lucas (2019) claims that problem-solving skills enable speakers to adapt their presentations on the fly. This adaptability is crucial when dealing with unexpected changes in the audience or environment. During Q&A sessions or discussions, speakers often encounter questions or challenges. Effective problem solvers can address these inquiries thoughtfully and provide well-reasoned responses (Beebe, Beebe, & Ivy, 2020). Strong problem solvers can construct and defend arguments effectively, contributing to the persuasiveness of their speeches (Paul & Elder, 2006). The skills extend to decision-making. Speakers frequently make decisions about what to include or exclude from their speeches. Effective decision-making contributes to the overall quality of the presentation (Facione, 2013). In today's digital age, speakers may encounter technical issues with presentation equipment or software. Problem-solving skills are essential for troubleshooting and resolving these issues swiftly (Beebe, Beebe, & Ivy, 2020). Effective speakers often use interactive techniques to engage the audience. Problem solvers can design and implement interactive elements that encourage participation and keep the audience engaged (Lucas, 2019). Problem-solving skills foster creativity and innovation. Speakers who can approach topics from unique angles or present novel solutions are more likely to captivate their audience (Fisher & Frey, 2018). When addressing controversial subjects, speakers may face opposition or dissent. Problem-solving abilities help speakers navigate these challenges and present their perspectives persuasively (Beebe, Beebe, & Ivy, 2020). Besides, effective problem solvers often excel in interpersonal communication. They can build rapport with their audience, respond empathetically to feedback, and foster positive interactions (Fisher & Frey, 2018).

In summary, problem-solving skills are essential for developing effective speaking ability. They enable speakers to address challenges, engage with the audience, make informed decisions, and adapt to dynamic speaking situations. By honing their problem-solving abilities, speakers can enhance the quality and impact of their presentations and speeches.

Logical Reasoning Skills

Logical reasoning skills are essential for developing effective speaking ability. These skills enable speakers to construct coherent arguments, present ideas in a structured manner, and persuade their audience through sound and rational thinking. The skills help speakers organize their thoughts and arguments logically. This structured approach enhances the clarity and coherence of their speeches (Paul & Elder, 2006). Strong logical reasoning skills enable speakers to recognize and avoid logical fallacies in their own arguments and in the arguments of others. This enhances the credibility of their speeches (Beebe, Beebe, & Ivy, 2020). Logical reasoning aids in the effective use of evidence to support arguments. Speakers with strong reasoning skills can evaluate the relevance and strength of evidence, making their arguments more persuasive (Facione, 2013). Skilled speakers anticipate counterarguments and address them effectively. Logical reasoning allows them to formulate responses that refute opposing viewpoints logically (Lucas, 2019). Logical reasoning contributes to persuasive communication. Speakers who can present their ideas with logical coherence and sound reasoning are more likely

to convince their audience (Beebe, Beebe, & Ivy, 2020). Fisher & Frey (2018) added that logical reasoning skills assist speakers in resolving challenges or unexpected situations that may arise during presentations, enabling them to think on their feet. It is especially crucial when dealing with intricate or multifaceted topics. Speakers with strong logical skills can break down complex subjects into understandable components (Paul & Elder, 2006). Effective speakers strike a balance between emotional and logical appeals. Logical reasoning helps speakers support emotional appeals with rational arguments (Lucas, 2019). Speakers who engage in critical thinking can identify assumptions, evaluate evidence, and construct well-reasoned arguments (Facione, 2013).

In summary, logical reasoning skills are integral to developing effective speaking ability. They enable speakers to construct well-structured arguments, recognize and address logical fallacies, and present their ideas persuasively. By honing their logical reasoning skills, speakers can enhance the quality and impact of their presentations and speeches.

Audience Engagement

Audience engagement refers to the way speakers connect with and involve their audience. It can significantly influence the effectiveness of their communication. Engaging the audience ensures that your message is received and understood. When the audience is actively involved, there is a higher chance of effective communication (Hartley, 2010). Engaged listeners are more likely to pay attention and retain information. Effective speakers use engagement techniques to capture and maintain the audience's interest (Gallo, 2015). Audience engagement promotes active learning. In educational settings, it encourages participants to think critically, ask questions, and participate in discussions (Prince, 2004). Engaging with the audience allows speakers to receive real-time feedback. This enables them to adjust their message, clarify points, and address audience concerns (Trower, 2010). When listeners can easily follow your train of thought, they are more likely to stay attentive and interested (Gallo, 2015). Engaged audiences are more likely to connect emotionally with the speaker. This emotional connection can enhance the speaker's ability to persuade and influence (Beebe & Beebe, 2016). Engaging speeches are more memorable. Listeners are likely to remember and recall key points from speeches that captured their interest (Heath & Heath, 2007). Successfully engaging an audience boosts a speaker's confidence. Confidence is a key component of effective speaking (Lucas, 2018).

In conclusion, audience engagement is a cornerstone of developing effective speaking ability. Engaging with the audience not only ensures that your message is heard but also enhances the overall impact of your communication. It is a skill that can be honed and refined through practice and understanding the needs and interests of your audience.

1.7. Critical Thinking Training Courses

In the present educational setting, students are not officially trained their critical thinking skills. Traditional English education programmes pay less attention to critical thinking skill, yet, it is crucial for developing productive skills such as speaking and writing. Critical thinking training helps individuals organize their thoughts logically and express them clearly, making their spoken communication more coherent and understandable (Paul & Elder, 2006). Critical thinking courses teach individuals how to construct and present well-reasoned arguments, which are fundamental for persuasive speaking and debates (Halpern, 2014). Speakers encounter diverse audiences with varying perspectives. Critical thinking training equips them with the ability to engage with and respond to different viewpoints effectively (Facione, 2015). Critical thinking skills enable speakers to adapt to unexpected challenges during presentations, problem-solve on the spot, and respond thoughtfully to audience questions (Trower, 2010). Misunderstandings and miscommunications can hinder effective speaking. Critical thinking training helps individuals recognize and address potential sources of misinterpretation (Blythe & Sweet, 2006). As individuals become more proficient in critical thinking, they gain confidence in their ability to analyze complex topics, leading to more self-assured and impactful speaking (Lucas, 2018). The courses teach individuals to evaluate evidence and consider multiple perspectives, skills that are transferable to decision-making in various contexts (Ennis, 2015). Furthermore, speakers who demonstrate critical thinking skills are perceived as more credible and trustworthy by their audiences, enhancing the impact of their messages (Zarefsky, 2008). Finally yet importantly, in an information-rich world, critical thinking training equips speakers with the ability to assess the reliability of sources and adapt their messages based on the latest information (Gallo, 2015).

III.   RESEARCH METHODOLOGY

1.8. Research Designs

In order to gain valuable data to investigate the connection between critical thinking and speaking skills, the study employed a variety of research designs. In the first phase, survey research was selected to measure the levels of critical thinking skills among the selected participants. It is a widely used method for collecting data from a population or sample through structured questionnaires or interviews. It is valuable in various fields, including social sciences, market research, and public health. Surveys can be conducted through various methods, including face-to-face interviews, telephone interviews, online surveys, or mailed questionnaires. The choice of method should align with the research goals and target audience (Fowler, 2013). For the investigation of cultivation of critical thinking skills influence the development of speaking ability in language learners, experimental research design was selected for several reasons. It is a systematic approach used to investigate cause-and-effect relationships by manipulating one or more independent variables and observing their effects on dependent variables. It is a rigorous method commonly employed in various scientific disciplines to establish causal relationships and test hypotheses. The researcher deliberately delivered a critical training course (independent variable) in the experimental group to test its effect on the speaking proficiency (dependent variable). Statistical tests, such as t-tests, ANOVA, or regression analysis, are used to analyze the data and determine if there are significant differences or relationships between the variables (Keppel & Wickens, 2004).

1.9. Participants

The participants of the study include 74 students, Dai Nam University in Hanoi. The students come from Linguistics (English language is excluded), Healthcare and Technology faculties. The frequencies and percentages can be found in the table 1 below.

Table 1: Frequency and Percentage of the participants

		Frequency	Percent	Valid Percent	Cumulative Percent
	Profession				
Valid	Linguistics	25	33.8	33.8	33.8
	Healthcare	26	35.1	35.1	68.9
	Technology	23	31.1	31.1	100.0
	Total	74	100.0	100.0	

1.10.   Data Collection and Analysis Instruments

In order to measure the level of critical thinking skills among the participants, the researcher used a 20 item Likert Scale to collect data. The statements were ranked from 1 (strongly disagree) to 5 (strongly agree). The Basic Critical Thinker (M=1.00-1.99), the Emerging Critical Thinker (M=2.00-2.99), the Proficient Critical Thinker (M=3.00-3.99) and Advanced Critical Thinker (M=4.00-5.00) (see the appendix 1). In order to explore the relationship between critical thinking skills and speaking proficiency, a 10 week training course was delivered to the participants as an intervention (see appendix 2). A pre-test of speaking proficiency was administered before the training course to obtain the baseline of speaking proficiency of the participants. After 10 weeks of training, a post-test was administered to assess the outcomes. Some statistical tests such as *t*-test, ANOVA, paired-sample *t*-test and linear regression analysis were conducted to analyze the data.

IV. FINDINGS

1.11.   Self-perceived Levels of Critical Thinking Skills by Disciplines

Descriptive statistics reveal levels of critical thinking split by majors. For Linguistics students, the observations of levels of critical thinking had an average of 1.87 (SD = 0.43, SE_M = 0.09, Min = 1.50, Max = 2.70, Skewness = 1.14, Kurtosis = -0.53). For Healthcare students, the observations of levels of critical thinking had an average of 3.07 (SD = 0.46, SE_M = 0.09, Min = 2.20, Max = 3.90, Skewness = -0.61, Kurtosis = -0.63). For Technology students, the observations of levels of critical thinking had an average of 2.10 (SD = 0.43, SE_M = 0.09, Min = 1.40, Max = 3.10, Skewness = 0.68, Kurtosis = -0.24). When the skewness is greater than 2 in absolute value, the variable is considered to be asymmetrical about its mean. When the kurtosis is greater than or equal to 3, then the variable's distribution is markedly different than a normal distribution in its tendency to produce outliers (Westfall & Henning, 2013). The summary statistics can be found in Table 28.

Table 2: Summary Statistics Table for Interval and Ratio Variables by Major

Variable	M	SD	n	SE_M	Min	Max	Skewness	Kurtosis
Levels of critical thinking								
Linguistics	1.87	0.43	25	0.09	1.50	2.70	1.14	-0.53
Healthcare	3.07	0.46	26	0.09	2.20	3.90	-0.61	-0.63
Technology	2.10	0.43	23	0.09	1.40	3.10	0.68	-0.24

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

1.12.   Specific Dimensions of Critical Thinking that Influence the Speaking Ability

In order to measure the contribution of specific dimensions of critical thinking to the speaking proficiency, a linear regression analysis was conducted with post-test results as the dependent variable and aspects of Clarity of Communication, Problem Solving Skills, Logical Reasoning Skills, and Audience Engagement as independent variables. The linear regression analysis was conducted to assess whether those aspects significantly predicted speaking ability (post-test results). The results of the linear regression model were significant, F(4,69) = 18.67, p < .001, R2 = .52, indicating that approximately 51.98% of the variance in post-test is explainable by Clarity of Communication, Problem Solving Skills, Logical Reasoning

Skills, and Audience Engagement. Clarity of Communication significantly predicted Post-test, **B** = 0.79, t(69) = 3.51, p < .001. This indicates that on average, a one-unit increase of Clarity of Communication will increase the value of post-test by 0.79 units. Problem Solving Skills significantly predicted post-test, *B* = 0.57, t(69) = 2.23, p = .005. This indicates that on average, a one-unit increase of Problem Solving Skills will increase the value of post-test by 0.57 units. Logical Reasoning Skills did not significantly predict Post-test, *B* = 0.30, t(69) = 1.35, p = .182. Based on this sample, a one-unit increase in Logical Reasoning Skills does not have a significant effect on Post-test. Audience Engagement did not significantly predict post-test, *B* = 0.05, t(69) = 0.40, p = .687. Based on this sample, a one-unit increase in Audience

Engagement does not have a significant effect on post- test. Table 3 summarizes the results of the regression model.

Table 3: Results for Linear Regression with Clarity of Communication, Problem Solving Skills, Logical Reasoning Skills, and Audience Engagement predicting Post-test

Variable	B	SE	95.00% CI	β	t	p
(Intercept)	3.25	0.39	[2.47, 4.02]	0.00	8.35	< .001
Clarity of Communication	0.79	0.17	[0.26, 0.93]	0.59	3.51	< .001
Problem Solving Skills	0.57	0.16	[0.04, 0.70]	0.36	2.23	.005
Logical Reasoning Skills	0.30	0.22	[-0.14, 0.74]	0.19	1.35	.182
Audience Engagement	0.05	0.12	[-0.19, 0.29]	0.04	0.40	.687

Note. Results: $F(4,69) = 18.67$, $p < .001$, $R^2 = .52$

1.13. How does the Critical Thinking Training Course Enhance Speaking Ability?

A two-tailed paired samples t-test was conducted to examine whether the mean difference of Pre-test and Post-test was significantly different from zero. The result of the two-tailed paired samples *t*-test was significant based on an alpha value of .05, $t(73) = -9.76$, $p < .001$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of Pre-test and the mean of Post-test was significantly different from zero. The mean of Pre-test was significantly lower than the mean of Post-test. The results are presented in Table 4. A bar plot of the means is presented in Figure 1.

Table 4: Two-Tailed Paired Samples t-Test for the Difference between Pre-test and Post-test

Pretest		Posttest				
M	SD	M	SD	t	p	d
5.03	1.54	6.28	1.28	-9.76	< .001	1.13

Note. N = 74. Degrees of Freedom for the *t*-statistic = 73. *d* represents Cohen's *d*.

Figure 1: The means of Pre-test and Post-test with 95.00% CI Error Bars
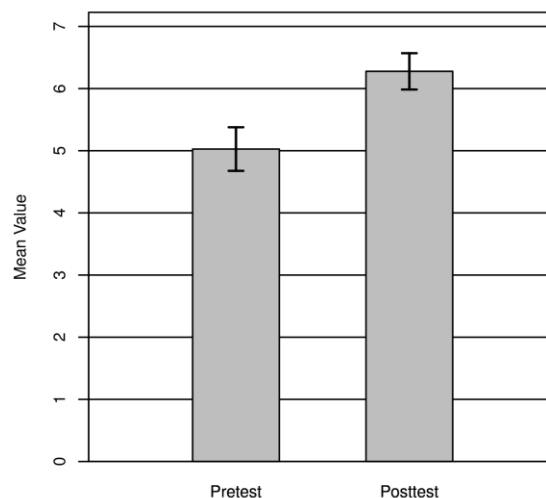
V. CONCLUSIONS & DISCUSSIONS

The findings of the research reveal that the levels of critical thinking skills vary across disciplines. Linguistics students hold the least (M=1.87). This indicates that the individual is categorized as a "Basic Critical Thinker." The Health care students ranked the top (M=3.07). A ranking within this range (3.00 to 3.99) places the individual in the "Proficient Critical Thinker" category. This suggests that these students possess a good level of critical thinking skills and is able to think critically effectively in various situations. Holding the mean of M=2.1, students of Technology were categorized as "Emerging Critical Thinker." This indicates

that the students are making progress in their critical thinking skills but have not yet reached a proficient level. They have some critical thinking abilities but may still be developing them.

The linear regression analysis presented that the aspect of Clarity of communication has had the most significant impact on the development of effective speaking skills $B = 0.79$, $t(69) = 3.51$, $p < .001$. This indicates that on average, a one-unit increase of Clarity of Communication will increase the value of speaking ability (post-test) by 0.79 units. The Problem Solving Skills also considerably contributed to the development of speaking ability ($B = 0.57$, $t(69) = 2.23$, $p = .005$). Logical Reasoning Skills and Audience Engagement did not have a significant effect on speaking outcome ($B = 0.30$, $t(69) = 1.35$, $p = .182$ and $B = 0.05$, $t(69) = 0.40$, $p = .687$ respectively). Based on this sample, a one-unit increase in does not have a significant effect on post-test.

In terms of measuring the cultivation of critical thinking course on speaking proficiency, the findings reveal a positive outcome after intervention. The mean of Pre-test was M=5.03 and that for Post-test was M=6.28. This finding suggests the difference in the mean of Pre-test and the mean of Post-test was significantly different from zero. The mean of Post-test was significantly higher than the mean of Pre-test.

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Appendices

Appendix 1: Self-Perceived of Critical Thinking Skills

Introduction: Please respond to the following statements by indicating your level of agreement or disagreement on a scale of 1 to 5, where:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Demographic Information:

Gender: _____

Grade Level: _____

Major/Field of Study: _____

Statements	Ratings
Clarity of Communication	
1. I effectively conveyed my main ideas during the speaking test.	① ② ③ ④ ⑤
2. My key points were clear and easily understood by the audience.	① ② ③ ④ ⑤
3. I articulated my thoughts precisely and without ambiguity.	① ② ③ ④ ⑤
4. I avoided unnecessary jargon or complex language that might confuse the audience.	① ② ③ ④ ⑤
5. My speaking was transparent and left no room for misunderstanding.	① ② ③ ④ ⑤
Problem-Solving Skill	
6. I demonstrated the ability to address unexpected questions or challenges effectively.	① ② ③ ④ ⑤
7. I provided well-reasoned solutions to problems posed during the speaking test.	① ② ③ ④ ⑤
8. I adapted my responses to unexpected situations with confidence.	① ② ③ ④ ⑤
9. I demonstrated problem-solving skills in a dynamic speaking environment.	① ② ③ ④ ⑤
10. My responses to unexpected situations were logical and coherent.	① ② ③ ④ ⑤
Logical Reasoning Skills	
11. My arguments and explanations were logically structured.	① ② ③ ④ ⑤
12. I presented my ideas in a sequential and organized manner.	① ② ③ ④ ⑤
13. I maintained logical consistency throughout my presentation.	① ② ③ ④ ⑤
14. My use of evidence and examples was logically sound.	① ② ③ ④ ⑤
15. My reasoning was clear, and the audience could easily follow my thought process.	① ② ③ ④ ⑤
Audience Engagement	
16. I actively engaged with the audience throughout the speech.	① ② ③ ④ ⑤
17. I maintained eye contact and body language that conveyed engagement.	① ② ③ ④ ⑤
18. I was tailored to the audience's level of understanding and interests.	① ② ③ ④ ⑤

19.	I effectively used anecdotes or real-life examples to captivate the audience.	① ② ③ ④ ⑤
20.	I encouraged questions and comments from the audience and responded thoughtfully.	① ② ③ ④ ⑤

Thank you for completing the survey! Your feedback is valuable for our research.

Appendix 2: A Course in Enhancing Critical Thinking and English Speaking Skills

Course Description:

This course aims to develop students' critical thinking abilities while simultaneously improving their English speaking proficiency. Through a combination of structured discussions, debates, presentations, and language exercises, students will learn to think critically and express their thoughts effectively in English.

Course Duration: 10 weeks

Instructor: _____

Course Objectives:

By the end of the course, students should be able to:

- Apply critical thinking skills to analyze information and arguments.

- Construct well-organized and persuasive oral presentations.

- Engage in effective group discussions and debates in English.

- Recognize and address logical fallacies in spoken and written discourse.

- Articulate their thoughts clearly and coherently in English.

- Required Materials:

Textbook: _____

Supplementary readings and articles

Grading and Assessment:

- Class Participation: 20%

- Speaking Assignments and Presentations: 30%

- Critical Thinking Activities: 25%

- Midterm Speaking Assessment: 10%

- Final Speaking Assessment: 15%

Course Schedule:

Week 1: Introduction to Critical Thinking and English Speaking

- Understanding critical thinking in the context of English communication

- Assessing individual speaking abilities and goals

Week 2-3: Analyzing and Evaluating Information

- Identifying reliable sources of information

- Analyzing arguments and evidence

- Practicing critical reading and listening skills

Week 4-5: Constructing Effective Arguments in English

- Structuring and organizing persuasive speeches

- Incorporating evidence and support for claims

- Delivering convincing speeches with clarity and coherence

Week 6-7: Engaging in Group Discussions

- Strategies for active participation in group discussions

- Leading and moderating discussions

- Evaluating the quality of group interactions

Week 8-9: Debating in English

- The art of effective debating

- Preparing and presenting arguments in debates

- Evaluating and critiquing debating performances

Week 10: Final Presentations and Reflecting on Progress

- Student presentations showcasing improved critical thinking and speaking skills

- Self-assessment and reflection on personal growth

- Course evaluation and feedback