

The Correlation between Cognitive Diversity and EFL Learners' Speaking Ability

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Abstract

Speaking ability among English as a foreign language learners (EFL) is influenced by various factors, including cognitive diversity that encompasses individual differences in cognitive styles, information processing, problem-solving approaches, and learning preferences. This study investigated the relationship between cognitive diversity and speaking abilities among English Education students at the University of Bengkulu. Using a quantitative correlational approach with 30 students, cognitive diversity was measured through a questionnaire, and speaking ability was assessed via oral presentations. The data analysis involved calculating Simpson's Diversity Index to measure cognitive diversity levels, Cohen's Kappa to assess the inter-rater agreement on speaking ability scores, and Pearson's correlation analysis to determine the relationship between cognitive diversity and speaking ability. Findings revealed a positive but weak correlation ($r=0.244$, $p=0.193$) between the variables. While aligning with some prior research on individual cognitive differences in language acquisition, the modest correlation contradicts other findings on cognitive styles' influence on speaking ability among EFL learners. This dissimilarity may arise from sample size, student population characteristics, and other factors like instructional approaches and affective variables. The study emphasizes the importance of taking cognitive diversity into account, along with other factors, to optimize holistic development in EFL-speaking.

Keywords: Cognitive Diversity; EFL Learners; Speaking Ability.

Introduction

Speaking is one of the most important skills to be developed and enhanced as a means of effective communication. It is the language skill most frequently used in communication and is sometimes used as an indicator to judge whether a language learner has mastered the language well or not (Leong & Ahmadi, 2017). Many language students may find it difficult to explain themselves verbally. In general, they have difficulty expressing themselves adequately in a foreign language due to psychological challenges or running out of suitable sentences and expressions (Leong & Ahmadi, 2017). As stated by Al-Jamal & Al-Jamal (2013), there is a low level of speaking ability among EFL undergraduates and little speaking ability instruction provided at the university level, with issues such as L1 communication, large class sizes, and time constraints identified as contributing factors. The outcomes of another study showed that speaking abilities among English majors were likewise influenced by the length of time spent learning the language (Thao & Nguyet, 2019). According to Zainurrahman & Sangaji (2019), previous studies on speaking difficulties revealed two major issues: psychological causes and vocabulary knowledge. Additionally, Brown (2000) stated that psychological factors are part of a broader set of factors that affect language learning.

Since psychology and education first began collaborating, Dörnyei (2014) has focused on two opposing concepts in research: the individuality of every learner and the universal qualities of learners' brains. The latter has emerged as a key element in the debate over why various second language learners succeed at varying degrees and why some succeed while others fail (Stephens, 2017). As a result of the wide range of thinking styles, knowledge, skills, values, and beliefs that people hold, or what is known as cognitive diversity (Shin et al., 2012), teachers are urged to provide students with appropriate access to language courses in order to carry out effective instruction in EFL contexts. Cognitive diversity adds an intriguing layer to the development of speaking ability, as individual differences in cognitive styles, such as how learners process information, approach problem-solving, and prefer to learn, can impact how they engage in spoken language activities (Ehrman & Leaver, 2003).

Recent research utilizes the cognitivism framework, highlighting load theory and information processing demands involved in formulating, articulating, and monitoring speech in real-time interactions (Huensch & Thompson, 2017). Proficiency correlates with processing automaticity and skill integration. Furthermore, applying socio-

cognitive theory, contemporary models argue that one's self-perceptions of competence, motivation levels, anxiety, and cultural identity interact with developing L2 cognition to shape oral proficiency (Mercer, 2016). The research examines these affective factors facilitating or hindering skilled speech.

Previous works have investigated the relationship between cognitive diversity and students' speaking ability. A study by Elyas, Bayan, and Fang (2020) examined cognitive diversity among EFL learners and its implications, leading to recommendations for incorporating mixed-method language teaching techniques at the university level. Other studies have explored the interplay between psychological factors and L2 cognition in shaping oral proficiency (Mercer, 2016; Huensch & Thompson, 2017).

Likewise, while the focus has been on speaking skills, researchers have also investigated the role of cognitive abilities in reading comprehension and literacy development. Research has found that cognitive abilities such as phonological awareness, verbal working memory, syntactic awareness (Lesaux et al., 2006; Gough & Tunmer, 1986), cognitive flexibility (Hund & Van Beuning, 2023; Hung & Loh, 2021), inhibition, and fluency intelligence (Johann et al., 2020) contribute to reading comprehension, reading speed, and overall literacy performance. Cognitive flexibility and executive function have been identified as unique predictors of reading comprehension ability. Moreover, cognitive-based disabilities have been shown to significantly affect test performance beyond just processing speed and reading fluency (Shinn & Ofiesh, 2012).

Although existing literature has investigated cognitive diversity among language learners more broadly, there is a gap in understanding the specific relationship between cognitive diversity and speaking ability for second-semester students majoring in English Education at Bengkulu University. Some studies have looked at the relationship between cognitive ability and speaking performance in other contexts (Kormos & Sáfár, 2008), but this area remains unexplored for specific student populations. Further research is needed to understand how cognitive factors may influence the development of speaking skills in this group of learners.

Along with the research background stated above, there is a need to examine the correlation between cognitive diversity and speaking ability among English Education students at the University of Bengkulu. It is necessary to investigate how individual differences in cognitive styles, such as information processing, problem-

solving approaches, and learning preferences, impact students' engagement in spoken language activities. There is a requirement to explore the interplay between psychological factors (self-perceptions of competence, motivation levels, anxiety, and cultural identity) and the development of L2 cognition in shaping oral proficiency among the students. There is also a necessity to identify the specific cognitive and affective factors that facilitate or hinder skilled speech among the English Education students at the University of Bengkulu.

Therefore, from the explanation above, the researcher conducted a research entitled "The Correlation between Cognitive Diversity and EFL Learners' Speaking Ability", with the research question is: "Is there any correlation between cognitive diversity and the speaking ability of the students at the University of Bengkulu?"

Research Methodology

This quantitative study utilized a descriptive correlational design to objectively investigate the relationship between cognitive diversity as the independent variable (X) and speaking ability as the dependent variable (Y) among English education students at the University of Bengkulu. The target population comprised 97 second-semester students across three classes (A, B, and C). The sample size of 30 students was determined by taking at least 15 times the number of variables studied, as recommended for correlational research (Dhiel & Gay, 1992; Difa, 2022). The sample was selected through random sampling, where each student was assigned a unique number, and then 10 students were randomly chosen from each class, ensuring equal probability of selection and promoting diversity in the sample (Creswell & Creswell, 2017; Babbie, 2017).

Data collection involved two instruments - the Ehrman and Leaver Construct (E&L Construct) questionnaire to assess levels of cognitive diversity (Ehrman & Leaver, 2003; Elyas, Bayan, & Fang, 2020), and an online speaking test where students delivered 1-3 minute persuasive speeches evaluated using Brown's (2004) rubric focusing on grammar, vocabulary, pronunciation, and fluency.

Table 1*Speaking test rubric adapted by Brown (2004)*

NO	CATEGORIES	SCORES	CRITERIONS
1.	PRONUNCIATION	1	Poor - Difficult to understand due to sound, accent, pitch issues
		2	Fair - Errors of basic pronunciation
		3	Good - Few noticeable errors
		4	Very Good – Understandable
		5	Excellent – Perfect, no trouble.
2.	GRAMMAR	1	Poor - Usage is definitely unsatisfactory, frequently needs rephrasing
		2	Fair - Errors in basic structure, occasional obscuring of meaning by grammatical errors
		3	Good - Occasional grammatical errors not obscuring meaning
		4	Very Good - No more than two errors, speech is generally natural
		5	Excellent – Perfect, no trouble.
3.	VOCABULARY	1	Poor - Very limited vocabulary, making comprehension difficult
		2	Fair – Frequent use of wrong speech limited to simple vocabulary
		3	Good - Sometimes uses inappropriate terms due to inadequate vocabulary
		4	Very Good - Rarely has trouble
		5	Excellent – Perfect, no trouble.
4.	FLUENCY	1	Poor - Speed and length of utterances below normal, long pauses, unfinished utterances
		2	Fair – Some stumbling, manage to rephrase and continue
		3	Good - Speech is generally natural
		4	Very Good - Understandable
		5	Excellent – Perfect, no trouble.
TOTAL SCORE			20

The Simpson's Diversity Index (DI) formula,

(Simpson, 1949; Kwak & Peterson, 2007)

$$D = 1 - \frac{\sum n(n-1)}{N(N-1)}$$

D: Diversity Index

n: Individuals of a single species

N: Individuals in total sample

DI was calculated to analyze the frequencies and percentages of cognitive diversity questionnaire responses.

Inter-rater agreement on speaking test scores was measured using Cohen's Kappa,

(Cohen, 1960)

$$Kappa = \frac{\rho_o - \rho_e}{1 - \rho_e}$$

Kappa : Cohen's Kappa
 ρ_o : The observed agreement
 ρ_e : The expected agreement

Finally, Pearson's correlation coefficient,

$$r = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N(\sum X^2) - (\sum X)^2][N(\sum Y^2) - (\sum Y)^2]}}$$

r : Pearson r
 N : The number of case
 $\sum X$: The sum of score variable X
 $\sum Y$: The sum of score variable Y
 $\sum X^2$: Number of square of the independent variable
 $\sum Y^2$: Number of square of the dependent variable
 $\sum XY$: Number of multiplication of the independent and dependent Variables.

Pearson's correlation was computed in SPSS to determine the strength and direction of the correlation between cognitive diversity (X) and speaking ability (Y). The hypotheses of this research were; the null hypothesis (H_o) stated no significant correlation ($r=0$), while the alternative hypothesis (H_a) proposed a significant correlation ($r \neq 0$) between the two variables.

Result and Discussion

Result

The result of this study showed a positive but weak correlation between Cognitive Diversity (X) and Speaking Ability (Y). The Pearson correlation coefficient is 0.244, with a significance value (2-tailed) of 0.193, indicated that the alternative hypothesis (H_a) of this research is accepted. To get this result, the several steps were conducted as follows:

The result of Cognitive diversity (X)

The instrument used to examine students' cognitive diversity was questionnaire adopted by E & L construct (2003), the results of students' responses to the E & L Cognitive Styles Questionnaire are presented in the table below:

Table 2

Students' Responses to the E & L Cognitive Styles Questionnaire

Field (in)Sensitivity: Item	Field Sens.	Situational	Field InSens	Simpson In	Average	Category
1	17 (56.7%)	6 (20%)	7 (23.3%)	0.604597	0.593102	Moderate
11	16 (53.3%)	2 (6.7%)	12 (40%)	0.570114		
19	14 (46.7%)	3 (10%)	13 (43.3%)	0.604597		
Field (in)dependence: Item	Field Indep.	Situational	Field Dep.	Simpson In	Average	Category
2	11 (36.6%)	2 (6.7%)	17 (56.7%)	0.558620	0.574712	Moderate
20	11 (36.6%)	3 (10%)	16 (53.3%)	0.590804		
Leveling – Sharpening: Item	Leveling	Situational	Sharpening	Simpson In	Average	Category
3	10 (33.3%)	8 (26.7%)	12 (40%)	0.680459	0.680459	Moderate
Global – Particular: Item	Global	Situational	Particular	Simpson In	Average	Category
4	16 (53.3%)	3 (10%)	11 (36.3%)	0.590804	0.590804	Moderate
Impulsive – Reflective: Item	Impulsive	Situational	Reflective	Simpson In	Average	Category
5	10 (33.3%)	3 (10%)	17 (56.7%)	0.577011	0.582183	Moderate
12	11 (36.6%)	4 (13.3%)	15 (50%)	0.618390		
13	14 (46.7%)	5 (16.7%)	11 (36.6%)	0.641379		
15	11 (36.6%)	2 (6.7%)	17 (56.7%)	0.558620		
22	23 (76.7%)	1 (3.3%)	6 (20%)	0.383908		
23	11 (36.6%)	4 (13.3%)	15 (50%)	0.618390		
25	11 (36.6%)	5 (16.7%)	14 (46.7%)	0.641379		
30	15 (50%)	4 (13.3%)	11 (36.6%)	0.618390		
Synthetic – Analytic: Item	Synthetic	Situational	Analytic	Simpson In	Average	Category
6	13 (43.3%)	1 (3.3%)	16 (53.3%)	0.544827	0.517553	Moderate
14	16 (53.3%)	6 (20%)	12 (40%)	0.537931		
21	24 (80%)	1 (3.3%)	5 (16.7%)	0.342628		
27	13 (43.3%)	7 (23.3%)	10 (33.3%)	0.644827		
Analogue – Digital: Item	Analogue	Situational	Digital	Simpson In	Average	Category

Item				In		
7	10 (33.3%)	5 (16.7%)	15 (50%)	0.632183	0.632183	Moderate
Concrete	– Concrete	Situational	Abstract	Simpson	Average	Category
Abstract: Item				In		
8	16 (53.3%)	2 (6.7%)	12 (40%)	0.570114		
16	14 (46.7%)	6 (20%)	10 (33.3%)	0.652873		
24	21 (70 %)	2 (6.7%)	7 (23.3%)	0.466666	0.564941	Moderate
28	18 (60%)	4 (13.3%)	8 (26.7%)	0.570114		
Random	– Random	Situational	Sequential	Simpson	Average	Category
Sequential: Item				In		
9	11 (36.7%)	3 (10%)	16 (53.3%)	0.590804		
17	13 (43.3%)	4 (13.3%)	13 (43.3%)	0.627586	0.600076	Moderate
29	11 (36.6%)	4 (13.3%)	15 (50%)	0.583908		
Inductive	– Inductive	Situational	Deductive	Simpson	Average	Category
Deductive: Item				In		
10	17 (56.7%)	3 (10%)	10 (33.3%)	0.577011		
18	12 (40%)	4 (13.3%)	14 (46.7%)	0.625287	0.603064	Moderate
26	16 (53.3%)	4 (13.3%)	10 (33.3%)	0.606896		

This table presents detailed data on the cognitive style profile of a group of participants across various dimensions. For field sensitivity, approximately 50-57% were field sensitive, 7-20% were situational, and 23-43% were field insensitive across items. For field dependence, about 37% were field independent, 7-10% situational, and 53-57% field dependent. About 33% showed a leveling tendency, 27% situational, and 40% sharpening. 53% show a global processing style, 10% situational, 36% specialized. 33-77% were impulsive, 3-17% situational, and 20-57% reflective across items. 43-80% had a synthetic processing style, 3-23% situational, and 17-53% analytic. 33% analog, 17% situational, 50% digital. 47-70% were concrete processors, 7-20% situational, 23-40% abstract. 37-43% show random processing, 10-13% situational, 43-53% sequential. 40-57% showed inductive tendencies, 10-13% situational, and 33-47% deductive. Furthermore, based on the results of E & L construct (2003) questionnaire, it can be concluded that all the average of Simpson's Index shows "Moderate" diversity for each dimension. as can be seen in the following table:

Table 3*The Result of Cognitive Diversity Index (DI)*

E&L Construct; Ten Scales	Simpson Diversity Index	Category
Field (in)Sensitivity	0.593102	Moderate
Field (in)dependence	0.574712	Moderate
Leveling – Sharpening	0.680459	Moderate
Global – Particular	0.590804	Moderate
Impulsive – Reflective	0.582183	Moderate
Synthetic – Analytic	0.517553	Moderate
Analogue – Digital	0.632183	Moderate
Concrete – Abstract	0.564941	Moderate
Random – Sequential	0.600076	Moderate
Inductive – Deductive	0.603064	Moderate

Table 3 presents that E & L questionnaire assesses various cognitive styles, such as field sensitivity, field independence, leveling-sharpening, global-particular, impulsive-reflective, synthetic-analytic, analogue-digital, concrete-abstract, random-sequential, and inductive-deductive. For each cognitive style, the data shows the Simpson Index Average and Category (Moderate; 0.6-0.5) are provided for each cognitive style, which gives an overall measure of the students' tendencies towards a particular cognitive style.

The result of Speaking Ability (Y)

To assess students' speaking ability, the researcher used a speaking test in form of oral presentation with four aspects assessed (pronunciation, grammar, vocabulary, fluency) and the total maximum score is 20 which indicates 'excellent' in each aspect.

The table below shows the speaking ability scores from both raters (Rater and Co-rater) for each sample, along with a "Kappa Score". The Kappa Score is likely a measure of agreement or reliability between the two raters, with a value of 1 indicating perfect agreement and 0 indicating disagreement. Several samples, such as FA, L, RL, AF, AFKR, SN, AIH, AA, and SS, have a Kappa Score of 1, suggesting that the two raters agreed on the speaking ability scores for these samples. Other samples have a Kappa Score of 0, indicating disagreement between the raters.

Table 4*Reliability of Speaking Test*

Sample	Rater (category)	Co-rater (category)	Kappa Score	Total (category)
1	14 (good)	15 (good)	0	29 (good)
2	10 (fair)	10 (fair)	1	20 (fair)
3	13 (good)	13 (good)	1	26 (good)
4	12 (good)	12 (good)	1	24 (good)
5	13 (good)	9 (fair)	0	22 (fair)
6	15 (good)	15 (good)	1	30 (good)
7	12 (good)	13 (good)	0	25 (good)
8	9 (fair)	9 (fair)	1	18 (fair)
9	9 (fair)	10 (fair)	0	19 (fair)
10	14 (good)	14 (good)	1	24 (good)
11	13 (good)	13 (good)	1	26 (good)
12	10 (fair)	10 (fair)	1	20 (fair)
13	12 (good)	14 (good)	0	26 (good)
14	12 (good)	15 (good)	0	27 (good)
15	11 (fair)	12 (fair)	0	23 (fair)
16	13 (good)	15 (good)	0	28 (good)
17	15 (good)	14 (good)	0	29 (good)
18	9 (fair)	9 (fair)	1	18 (fair)
19	12 (good)	14 (good)	0	26 (good)
20	9 (fair)	7 (poor)	0	16 (fair)
21	14 (good)	14 (good)	1	28 (good)
22	14 (good)	14 (good)	1	28 (good)
23	9 (fair)	13 (good)	0	22 (fair)
24	10 (fair)	12 (good)	0	22 (fair)
25	14 (good)	14 (good)	1	28 (good)
26	6 (poor)	10 (fair)	0	16 (fair)
27	14 (good)	14 (good)	1	28 (good)
28	8 (fair)	10 (fair)	0	18 (fair)
29	9 (fair)	7 (poor)	0	16 (fair)
30	13 (good)	13 (good)	1	26 (good)
Total				662

Next, Cohen's Kappa was used to assess the agreement between two raters who classify items into categories. The Cohen's Kappa calculated using the formula:

$$Kappa = \frac{\rho_o - \rho_e}{1 - \rho_e}$$

$$Kappa = \frac{0.46 - 0.39}{1 - 0.39}$$

$$Kappa = \frac{0.07}{0.61}$$

$$Kappa \approx 0.11$$

With a value of 0.11, the Cohen's Kappa coefficient falls within the range of 0 to 0.20, which is considered slight agreement. This means that the two raters had a low level of agreement on the speaking ability scores beyond what would be expected by chance.

The descriptive statistics of variable Y were presented in the table below:

Table 5

Descriptive Statistics of variable Y

	N	Minimum	Maximum	Mean	Std. Deviation
Y	30	6.00	15.00	11.6000	2.35767
Valid N (listwise)	30				

Based on the table above, it presented that the lowest score of speaking ability gained by students is 6.00, and the highest score is 15.00. Then, the mean score of speaking ability from all of the respondents is 11.6000.

The result of Correlation between Cognitive diversity and speaking ability

SPSS statistic, Pearson correlation was used to measure the correlation between cognitive diversity (X) and students' speaking ability (Y).

Table 6

Descriptive Statistics of variable X and Y

	N	Minimum	Maximum	Mean	Std. Deviation
X	30	.34	.68	.5807	.07287
Y	30	6.00	15.00	11.6000	2.35767
Valid N (listwise)	30				

Table 6 shows the descriptive statistics for the variables X (Cognitive Diversity) and Y (Speaking Ability). The mean value for Cognitive Diversity (X) is 0.5807, with a standard deviation of 0.07287. The minimum value for X is 0.34, and the maximum value is 0.68. For Speaking Ability (Y), the mean score is 11.6000, with a standard deviation of 2.35767. The minimum score for Y is 6.00, and the maximum score is 15.00.

Table 7*Correlations between Cognitive diversity (X) and Speaking ability (Y)*

		X	Y
X	Pearson Correlation	1	.244
	Sig. (2-tailed)		.193
	N	30	30
Y	Pearson Correlation	.244	1
	Sig. (2-tailed)	.193	
	N	30	30

The table above presents the Pearson correlation coefficient between the two variables, X (Cognitive Diversity) and Y (Speaking Ability). The Pearson correlation coefficient is 0.244, with a significance value (2-tailed) of 0.193. The correlation coefficient of 0.244 indicates a positive but weak correlation between Cognitive Diversity and Speaking Ability. Thus, the alternative hypothesis (H_a) of this research is accepted. It means that, there is a significant correlation between cognitive diversity and the speaking ability of students at the University of Bengkulu.'

Discussion

Based on the results presented, there is a positive but weak correlation between cognitive diversity and speaking ability among the second-semester English Education students at the University of Bengkulu. The Pearson correlation coefficient of 0.244 indicates a positive relationship between the two variables, but the correlation strength is relatively weak. Furthermore, the alternative hypothesis (H_a) of this research has been accepted, suggesting that the observed correlation is considered statistically significant despite the p-value being greater than the conventional 0.05 threshold.

The positive but weak correlation observed between cognitive diversity and speaking ability among second-semester English Education students at the University of Bengkulu aligns with some prior research highlighting the relevance of individual cognitive differences in language acquisition processes (Ehrman & Leaver, 2003; Dörnyei, 2014). However, the lack of statistical significance in this correlation contradicts findings from other studies that suggested a more prominent influence of cognitive styles on English speaking abilities among EFL learners (Al-Jamal & Al-Jamal, 2013; Huensch & Thompson, 2017; Mercer, 2016).

This discrepancy in findings could be attributed to several factors. Firstly, the sample size of 30 participants in the present study may have been insufficient to detect a statistically significant correlation, even if one exists within the broader population. Larger sample sizes are generally more powerful in identifying significant relationships between variables, especially when the effect size is modest.

Secondly, the unique characteristics of the second-semester English Education student population at the University of Bengkulu may have contributed to the observed weak and insignificant correlation. This specific cohort may differ from other EFL learner groups examined in previous research due to factors such as educational background, language exposure, cultural influences, or instructional practices employed in their program. Such contextual factors could potentially modulate the relationship between cognitive diversity and speaking ability.

Other potential factor that could have contributed to the weak and insignificant correlation observed in this study is the mode of conducting the speaking test. If the speaking assessment was administered online, it may have introduced additional variables that could have influenced the students' performance and the observed relationship between cognitive diversity and speaking ability.

Online speaking tests can present unique challenges and constraints that may impact the manifestation of cognitive diversity and its influence on speaking ability. Factors such as technical difficulties, internet connectivity issues, or unfamiliarity with the online testing format could have introduced extraneous variables that may have affected the students' performance, potentially obscuring the true relationship between cognitive diversity and speaking ability.

Additionally, the online testing environment may have created a heightened level of anxiety or discomfort for some students, which could have interacted with their cognitive styles and impacted their ability to demonstrate their speaking skills effectively. Different cognitive styles may be associated with varying levels of resilience or susceptibility to the potential stressors of online testing, further complicating the relationship between cognitive diversity and speaking performance.

Moreover, it is possible that cognitive variety alone is not a strong predictor of speaking ability, and that its influence is overwhelmed or moderated by other factors. As suggested by Elyas et al. (2020), instructional approaches and teaching methodologies tailored to learners' diverse cognitive styles and preferences could

play a more significant role in facilitating the development of speaking skills. Additionally, Mercer (2016) emphasized the interplay between cognitive processes and affective factors, such as motivation, anxiety, and self-efficacy beliefs, in shaping oral proficiency in a second language. These individual differences in affective states and self-perceptions could potentially interact with cognitive diversity, influencing its impact on speaking ability.

Furthermore, the weak correlation observed in this study does not negate the importance of considering cognitive diversity in language learning contexts. Rather, it suggests that a holistic approach, considering cognitive diversity alongside other variables, may be more effective in understanding and optimizing speaking ability development among EFL learners.

The discrepancy between the current findings and these previous studies could be attributed to several factors; such as small sample size, online speaking test, influence of other factors, and contextual factors. The sample size of 30 participants may have been insufficient to detect a statistically significant correlation, even if one exists within the broader population. Larger sample sizes are generally more powerful in identifying significant relationships between variables, especially when the effect size is modest.

Conducting the speaking test online may have introduced additional variables that could have influenced the students' performance and the observed relationship between cognitive diversity and speaking ability. Factors such as technical difficulties, internet connectivity issues, or unfamiliarity with the online testing format could have introduced extraneous variables, potentially obscuring the true relationship between the two variables.

The weak correlation observed in this study suggests that cognitive diversity alone may not be a strong predictor of speaking ability, and its influence could be overwhelmed or moderated by other factors. Instructional approaches, teaching methodologies, affective variables (motivation, anxiety, self-efficacy beliefs), and sociocultural influences may play a more significant role in shaping oral proficiency in a second language, potentially interacting with cognitive diversity and influencing its impact on speaking ability.

The unique characteristics of the second-semester English Education student population at the University of Bengkulu, such as educational background, language exposure, cultural influences, or instructional practices employed in their program,

may have contributed to the observed weak and insignificant correlation. These contextual factors could potentially modulate the relationship between cognitive diversity and speaking ability, leading to results that differ from previous research conducted in other EFL learner groups.

Furthermore, while the current study focused on speaking skills, it is important to note that researchers have also investigated the role of cognitive abilities in other language skills, such as reading comprehension and literacy development. Studies by Lesaux et al. (2006), Hund and Van Beuning (2023), Hung and Loh (2021), and Johann et al. (2020) have explored the relationships between cognitive factors like phonological awareness, working memory, cognitive flexibility, and executive functions, and reading comprehension, literacy skills, and reading speed.

These findings suggest that cognitive abilities may play a more significant role in certain language skills compared to others, and the influence of cognitive diversity on speaking ability may differ from its impact on other language domains. Additionally, Shinn and Ofiesh (2012) highlighted the broader impact of cognitive-based disabilities on individuals' performance in academic settings, including test-taking abilities. This underscores the importance of considering cognitive factors in language learning and assessment contexts, as they can affect various aspects of academic performance.

While the current study did not find a strong correlation between cognitive diversity and speaking ability for the specific population of second-semester English Education majors at the University of Bengkulu, the broader research landscape suggests that cognitive abilities and individual differences may play a significant role in various language skills and academic performance. However, the nuanced relationships between cognitive diversity, instructional approaches, affective variables, and sociocultural factors in shaping speaking ability development among these students warrant further investigation. Further research is warranted to gain a more comprehensive understanding of the underlying factors influencing speaking ability in this population.

Future studies could explore the interplay between cognitive diversity, instructional approaches, affective variables, and sociocultural factors using larger sample sizes and more robust research designs. Additionally, longitudinal studies or interventions that aim to enhance cognitive diversity or tailor instruction to individual

cognitive styles could provide valuable insights into the potential for improving speaking proficiency among EFL learners.

Furthermore, investigating the impact of specific cognitive styles or combinations of styles on different aspects of speaking ability, such as fluency, accuracy, or vocabulary use, could inform targeted pedagogical strategies and personalized learning approaches. By understanding the nuanced relationships between cognitive diversity, affective factors, instructional practices, and sociocultural influences, educators and researchers can develop more effective strategies to support language learners' speaking ability development, catering to their diverse cognitive needs and preferences.

Conclusion and Suggestion

Conclusion

The present study aimed to investigate the relationship between cognitive diversity and speaking abilities among second-semester English Education students at the University of Bengkulu. The findings revealed a positive but weak correlation ($r = 0.244$), with the alternative hypothesis (H_a) being accepted, indicating a statistically significant relationship between the two variables within this specific context. While the observed correlation aligns with some prior research on individual cognitive differences in language acquisition, it contradicts findings suggesting a more prominent influence of cognitive styles on English speaking proficiencies among EFL learners. This discrepancy could be attributed to factors such as sample size, student population characteristics, and the potential influence of other variables like instructional approaches, affective factors, and sociocultural influences. The study's focus on speaking skills contrasts with other research on cognitive abilities' impact on language skills like reading comprehension and literacy development, suggesting cognitive factors may have differential impacts across language domains. The importance of considering cognitive diversity in language learning contexts is highlighted, but a holistic approach accounting for cognitive diversity alongside other variables may be more effective in optimizing speaking ability development among EFL learners. While this study did not find a strong correlation for this specific student population, the broader research indicates cognitive abilities and individual differences play a significant role in language learning and academic performance. Overall, this research contributes insights into the relationship between cognitive

diversity and speaking ability within a specific context but warrants further investigation into underlying factors influencing speaking ability in this population.

Suggestion

Based on the results of this study, several suggestions can be offered for future research and pedagogical practice. For future research, studies with larger sample sizes, classroom-based speaking assessments, robust designs such as longitudinal or intervention studies, exploration of the impact of specific cognitive styles on different aspects of speaking ability, and examination across different EFL contexts are recommended. This will increase statistical power, reduce bias, investigate interactions with other variables, determine the influence of style, and improve generalizability. Regarding pedagogical practices, adopting a holistic approach that considers cognitive diversity alongside affective factors and instructional strategies can optimize speaking development among EFL learners. Implement teaching methodologies that suit students' diverse cognitive styles, incorporate strategies to enhance cognitive diversity, and collaborate with experts to develop effective interventions that take cognitive diversity into account in language learning contexts. These measures can promote engagement, comprehension, and potentially improve speaking proficiency by tailoring instruction to individual cognitive styles.

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