

Speech fluency and accuracy as indicators of academic speaking proficiency

Sunoko Setyawan^{1*}, Vigo Dewangga², Zusana E. Pudyastuti³

¹*Faculty of Education, Universitas Jember, Indonesia*

²*Department of Language, Communication, and Tourism, Politeknik Negeri Jember, Indonesia*

³*Department of Informatics, Faculty of Science and Technology, Universitas Bhineka Nusantara, Indonesia*

*Corresponding email: sunokosetyawan@unej.ac.id

Abstract

Keywords:

fluency; accuracy; speaking assessment; academic speaking; EFL learners

Previous studies on the assessment of academic speaking skills in English as a Foreign Language (EFL) context have predominantly emphasized fluency and accuracy as key performance criteria, yet limited attention has been given to empirically examining their suitability as indicators of overall academic speaking proficiency, particularly at the university level. Addressing this gap, the present study aims to investigate the extent to which fluency and accuracy function as key indicators in assessing university-level EFL students' academic speaking proficiency. A quantitative research method with a correlational design was employed, involving 60 students enrolled in an Academic Speaking course who were selected using purposive sampling. Data were collected through recordings of academic presentation tasks and analyzed using an assessment rubric based on the Common European Framework of Reference (CEFR). The results revealed a significant positive correlation between levels of fluency and accuracy and overall academic speaking proficiency scores. These findings provide empirical evidence of the suitability of fluency and accuracy as indicators in academic speaking assessment. The study highlights the importance of integrating assessment rubrics that place greater emphasis on fluency and accuracy in the teaching and evaluation of academic speaking skills.

|| Received: 13/05/2025

|| Accepted: 15/01/2026

|| Published: 15/01/2026

1. Introduction

Speaking ability is one of the essential components in mastering the English language, particularly in academic contexts at the higher education level. In university settings, students are not only expected to comprehend academic content in English but also to deliver it orally through presentations, discussions, seminars, and other scholarly forums

(Najmi, 2021; Tarigan & Stevani, 2022). Academic speaking skills require clarity, precision, and coherence in expressing ideas, which reflect not only language mastery but also students' critical and argumentative thinking abilities (Ningrum & Listyani, 2022).

However, the assessment of academic speaking skills remains a significant challenge, especially in the context of English as a Foreign Language (EFL). Accurate and fair evaluation of speaking ability requires clear, measurable indicators aligned with learning objectives (Cheng, 2021; Freeman & Schroeder, 2022). Among the various components that can be assessed in speaking performance, fluency and accuracy are two aspects that frequently receive attention. These aspects are widely regarded as key indicators of effective speaking performance and are often assumed to represent students' overall language proficiency (Godfroid & Kim, 2021).

In academic contexts, fluency refers not merely to speaking quickly but to the ability to communicate ideas without disruptive pauses and with logical discourse coherence (Takizawa, 2024). Accuracy, on the other hand, focuses on the correct use of grammatical structures, appropriate vocabulary choices, and proper pronunciation (Hasnain & Halder, 2024). In teaching and assessment practices, instructors often face a dilemma between emphasizing fluency, accuracy, or maintaining a balance between both. This dilemma arises because oral language production involves limited cognitive resources, requiring learners to allocate their attention either to maintaining smooth speech flow or to monitoring linguistic forms. When greater attention is directed toward grammatical accuracy, fluency may be disrupted, whereas prioritizing fluency often results in increased linguistic errors, particularly in cognitively demanding academic speaking tasks. This trade-off between fluency and accuracy has been widely documented in second language acquisition research and becomes more pronounced in academic contexts that require complex reasoning and structured argumentation. Therefore, empirical investigation is needed to examine the extent to which these two aspects contribute to overall academic speaking competence (Ahmad et al., 2025; Tarabya et al., 2025).

Previous studies have highlighted the importance of balancing fluency, accuracy, and complexity in speaking performance (Kitjaroonchai & Maywald, 2024; Scholl et al., 2021). In task-based language teaching (TBLT), for instance, oral performance is commonly evaluated based on linguistic complexity, fluency, and accuracy (Amrullah et al., 2021; Wael et al., 2023). More recent research has begun to focus on specific academic speaking contexts. Sosa-López and Mora (2022) found that in academic presentation tasks, students who demonstrated high levels of fluency and accuracy were more likely to be rated as proficient academic speakers compared to those who excelled in only one aspect.

In the Indonesian context, studies on the assessment of EFL students' speaking skills in higher education remain relatively limited (Bagus et al., 2022; Mathur & Mahapatra, 2022; Tsunemoto & Trofimovich, 2024). Existing local research tends to

focus more on instructional strategies or learners' affective factors, while fewer studies have empirically examined the relationship between fluency and accuracy and overall academic speaking performance (Werdiningsih & Mukminatien, 2023). A clearer understanding of how these two aspects function as indicators of academic speaking proficiency may provide valuable insights for improving assessment practices and rubric design (Chen, 2025).

Accordingly, this study aims to address this gap by explicitly examining the relationship between fluency and accuracy and overall academic speaking performance in a university-level EFL context. Unlike previous studies that have primarily discussed fluency and accuracy as pedagogical constructs or general speaking components, the present study empirically investigates how these two aspects function as key indicators of academic speaking proficiency based on instructors' assessment scores. By analyzing recorded academic presentation tasks from students enrolled in an Academic Speaking course and employing a standardized CEFR-based assessment rubric, this study provides a quantitative examination of the relative contribution of fluency and accuracy to academic speaking performance. This approach allows the study to move beyond descriptive accounts and offers empirical evidence regarding the suitability of fluency and accuracy as indicators in academic speaking assessment, thereby justifying the need for the present investigation.

Practically, the results may inform the refinement of speaking assessment rubrics used in Academic Speaking classrooms and support instructional decision-making. Theoretically, this study contributes to the growing body of literature on academic speaking assessment in EFL contexts and offers a basis for further development of fluency- and accuracy-oriented assessment frameworks.

2. The literature review

2.1 Academic Speaking as a Multidimensional Construct in EFL Higher Education

Recent research conceptualizes academic speaking as a multidimensional construct that goes beyond basic oral communication skills, encompassing linguistic, cognitive, and discourse-related competencies required in higher education contexts. In university-level EFL settings, academic speaking involves the ability to present arguments, explain complex ideas, and engage audiences using discipline-appropriate language and coherent discourse structures (Tsunemoto & Trofimovich, 2024). Consequently, academic speaking proficiency is increasingly assessed through integrated dimensions rather than isolated linguistic features.

Assessment frameworks and empirical studies emphasize that temporal control of speech, grammatical precision, and discourse coherence jointly shape raters' perceptions of academic speaking proficiency (Koizumi & In'nami, 2024). However, among these

dimensions, fluency and accuracy consistently emerge as core indicators that are both observable and measurable across proficiency levels, making them central to speaking assessment research.

2.2 Fluency in Academic Speaking: Definitions and Empirical Evidence

Fluency in second language speaking is commonly defined as the ability to produce speech smoothly, with appropriate speed and minimal disruption caused by excessive pausing, hesitation, or self-repair. Contemporary fluency research operationalizes this construct through temporal measures such as speech rate, articulation rate, mean length of runs, and pause frequency (Kallio et al., 2022). These measures have been shown to strongly correlate with human judgments of speaking proficiency, particularly in monologic academic tasks such as presentations.

Empirical evidence suggests that fluency plays a prominent role in shaping evaluators' holistic judgments of academic speaking performance. Studies have demonstrated that speakers with higher articulation rates and fewer breakdown pauses are consistently rated as more proficient and confident academic speakers, even when minor linguistic inaccuracies are present (Peltonen et al., 2024). Meta-analytic findings further confirm that fluency exhibits one of the strongest associations with overall speaking proficiency across instructional contexts and proficiency levels (Yan et al., 2025).

In academic contexts, fluency is particularly salient because extended oral production places heavy demands on speakers' cognitive resources. Learners who achieve greater automatization in speech production can allocate more attention to organizing content and maintaining audience engagement, which enhances the perceived effectiveness of their academic communication (Suzuki, 2025).

2.3 Accuracy and Linguistic Control in Academic Oral Performance

Accuracy refers to the extent to which speakers use grammatical structures, lexical items, and phonological forms in a target-like manner. In academic speaking, accuracy contributes directly to clarity of meaning and disciplinary credibility. Empirical studies have consistently found significant relationships between accuracy measures and overall speaking scores, especially in contexts where precision of expression is highly valued (Wang et al., 2024).

Research in speaking assessment indicates that accuracy becomes increasingly important as task complexity increases. In academic presentation tasks, inaccurate grammatical structures or inappropriate lexical choices may disrupt coherence and weaken argumentative force, thereby negatively influencing raters' evaluations (Liu, 2025). Moreover, accuracy has been identified as a reliable indicator of advanced language control, distinguishing higher-level speakers from those who rely primarily on fluent but formulaic speech patterns (Vercellotti, 2017).

Nevertheless, accuracy does not operate independently of fluency. Studies grounded in cognitive models of speech production suggest that maintaining high

accuracy during real-time speech is cognitively demanding, often resulting in slower speech rates or increased pausing (Song et al., 2020). This interaction highlights the need to examine fluency and accuracy jointly rather than in isolation when assessing academic speaking proficiency.

2.4 The Fluency–Accuracy Relationship and the Trade-Off Effect

The relationship between fluency and accuracy has been widely discussed in second language acquisition research, particularly in relation to the limited attentional capacity available during oral production. Empirical findings indicate a trade-off effect, whereby increased attention to linguistic accuracy may reduce fluency, while prioritizing fluent delivery may lead to a higher frequency of linguistic errors (Peltonen et al., 2024).

Recent studies, however, suggest that this trade-off is moderated by proficiency level and task type. Advanced learners tend to demonstrate a more balanced integration of fluency and accuracy, showing that both dimensions can develop synergistically with sufficient practice and automatization (Kany, 2025). In monologic academic tasks, fluency has been found to exert a stronger influence on holistic proficiency ratings, while accuracy plays a supporting yet still significant role in sustaining clarity and credibility (Koizumi & In'nami, 2024).

2.5 Fluency and Accuracy as Indicators in Academic Speaking Assessment

From an assessment perspective, fluency and accuracy are frequently incorporated as key criteria in speaking rubrics due to their high observability and strong empirical links to overall proficiency. Validation studies of speaking assessments, including CEFR-aligned and institution-specific rubrics, show that these two dimensions account for a substantial proportion of variance in holistic speaking scores (Kallio et al., 2022; Yan et al., 2025).

Moreover, recent research in AI-assisted and rubric-based speaking assessment confirms that fluency and accuracy remain robust predictors of speaking proficiency even when additional dimensions such as complexity or interactional competence are included (Liu, 2025). These findings support the argument that fluency and accuracy function as foundational indicators of academic speaking proficiency and can provide a reliable basis for evaluating university-level EFL learners' oral performance.

2.6 Research Gap and Positioning of the Present Study

Despite extensive discussion of fluency and accuracy in speaking research, relatively few studies have empirically examined their function as indicators of academic speaking proficiency using correlational or predictive designs, particularly in EFL higher education contexts. Existing research often focuses on instructional interventions or affective variables rather than directly testing the strength of association between these dimensions and holistic academic speaking scores.

Therefore, there is a need for empirical studies that quantitatively investigate the contribution of fluency and accuracy to academic speaking proficiency using

standardized assessment frameworks. By examining the relationship between fluency, accuracy, and overall academic speaking performance based on CEFR-aligned assessment scores, the present study addresses this gap and contributes evidence-based insights for refining academic speaking assessment practices in university EFL settings.

3. Method

3.1 Research Design

This study employed a quantitative approach with a correlational design. This design was chosen to examine the relationship between two independent variables fluency and accuracy and the dependent variable, namely academic speaking proficiency. A quantitative approach was utilized to obtain objective, measurable data that could be statistically analyzed.

3.2 Research Setting and Time

The research was conducted in the English Education Study Program, Faculty of Teacher Training and Education, University of Jember. Data collection took place over the course of one semester, specifically during the even semester of the 2024/2025 academic year, in the Academic Speaking course.

3.3 Participants

The participants were 60 fourth-semester students enrolled in the Academic Speaking course. A purposive sampling technique was used, with the criteria that participants had completed prerequisite courses namely *Speaking for Instructional Purposes* and had experience in delivering academic presentations.

3.4 Research Instruments

The main instruments used in this study were:

- **Academic Presentation Task**
Students were required to deliver an oral presentation lasting 5–7 minutes on a topic approved by the lecturer, using academic English.
- **Speaking Assessment Rubric**
The rubric was designed based on the Common European Framework of Reference (CEFR), with a primary focus on two aspects: fluency and accuracy, and an additional aspect: overall speaking proficiency. Each aspect was rated on a scale of 1 to 5 by two independent raters (lecturers).
- **Inter-rater Evaluation Form**
This form is used to check the reliability between raters.

3.5 Data Collection Techniques

Data was collected through video recordings of students' classroom presentations. Each presentation was recorded and independently assessed by two lecturers using the prepared rubric. The evaluations were conducted separately, and the results were compared to ensure consistency. In addition, inter-rater reliability was analyzed using Cohen's Kappa coefficient.

3.6 Data Analysis Techniques

The data were analyzed using SPSS version 25. The stages of data analysis included:

- Normality Test: To ensure the data followed a normal distribution (using the Kolmogorov-Smirnov test).
- Pearson Correlation Test: To identify the relationship between fluency and accuracy and speaking proficiency.
- Multiple Regression Analysis: To determine the contribution of each independent variable to the dependent variable.
- Inter-rater Reliability Test: Cohen's Kappa was used to measure consistency between raters' scores.

3.7 Research Ethics

This study adhered to academic ethical principles, including obtaining informed consent from participants prior to data collection. Participants' identities were kept confidential, and the data were used solely for research purposes.

4. Findings and discussion

This study aimed to investigate the relationship between fluency and accuracy and students' academic speaking proficiency in the *Academic Speaking* course. A total of 60 students participated in the academic presentation task, and their scores were analyzed using a CEFR-based assessment rubric. The key findings of the study are as follows:

4.1 Descriptive Statistics

Table 1 presents the mean scores, standard deviations, and minimum and maximum values for each variable.

Table 1. Mean scores, standard deviations, and minimum and maximum values for each variable

Variable	Mean	SD	Min	Max
Fluency	3.52	0.71	2.00	5.00
Accuracy	3.40	0.65	2.00	5.00
Academic Speaking Proficiency	3.57	0.67	2.00	5.00

The data indicate that students' fluency and accuracy were generally at an upper-intermediate level, with average scores ranging from 3.4 to 3.6 on a 5-point scale.

4.2 Normality Test

The Kolmogorov–Smirnov normality test indicated that fluency ($p = 0.200$), accuracy ($p = 0.134$), and academic speaking proficiency ($p = 0.087$) were normally distributed, thereby justifying the use of Pearson correlation and linear regression analyses.

4.3 Pearson Correlation Test

Table 2 shows the correlation coefficients among the variables.

Table 2. *Correlation Coefficients*

Variable Pair	Correlation (r)	Sig. (p)
Fluency – Speaking Proficiency	0.78	0.000
Accuracy – Speaking Proficiency	0.71	0.000
Fluency – Accuracy	0.64	0.000

The results demonstrate strong and statistically significant positive correlations between fluency and accuracy and academic speaking proficiency. This suggests that higher levels of fluency and accuracy are associated with higher speaking proficiency scores.

4.4 Multiple Regression Analysis

A multiple linear regression analysis was conducted to determine the contribution of each predictor variable to the dependent variable. The results are presented in Table 3:

Model Summary:

- $R = 0.84$
- $R^2 = 0.71$
- $F(2, 57) = 69.81, p < 0.001$

Table 3. *Regression Coefficients*

Predictor Variable	B	β	t	Sig. (p)
Fluency	0.55	0.61	6.81	0.000
Accuracy	0.38	0.43	5.27	0.000

The regression model shows that the combination of fluency and accuracy explains 71% of the variance in academic speaking proficiency scores. Both variables significantly contributed to speaking performance, with fluency emerging as the stronger predictor.

4.5 Inter-rater Reliability Test

The inter-rater reliability analysis using Cohen's Kappa showed a strong level of agreement between the two assessors in rating fluency and accuracy ($\kappa = 0.82, p < 0.001$).

This result indicates that the level of agreement was statistically significant and substantially higher than would be expected by chance, demonstrating that the assessment rubric yielded reliable ratings across raters.

The findings of this study reveal a significant positive relationship between fluency and accuracy and the academic speaking proficiency of EFL students. The correlation analysis showed strong associations between both fluency ($r = 0.78$) and accuracy ($r = 0.71$) with overall academic speaking scores. These results are further supported by the multiple regression analysis, which indicates that these two variables collectively explain 71% of the variance in students' academic speaking performance.

These findings align with Szyszka et al. (2024), who emphasized that in academic presentation contexts, students who demonstrate high levels of fluency and structural accuracy tend to receive higher performance evaluations. This is corroborated by Abdulaal et al. (2022), who found that the combination of fluency and accuracy significantly influences raters' perceptions of students' effectiveness in academic communication.

The dominant role of fluency in the regression model ($\beta = 0.61$), compared to accuracy ($\beta = 0.43$), suggests that in academic presentation settings, fluency plays a key role in conveying a professional, confident, and convincing impression. This is consistent with Koizumi & In'nami (2024), who argue that fluency is highly valued in public oral communication, as it is directly related to the ability to deliver messages clearly and continuously.

Nonetheless, the contribution of accuracy remains significant. Students who can appropriately use grammatical structures and academic vocabulary demonstrate a higher level of language mastery, which enhances their academic credibility (Mawalim et al., 2025). Winke et al. (2023) highlighted that accuracy reflects linguistic maturity in using the target language, which is especially critical in academic contexts where linguistic errors can obscure meaning and weaken argument clarity.

These results also support the CEFR assessment framework, which positions fluency and accuracy as two core dimensions of speaking ability. In pedagogical practice, this reinforces the importance of designing assessment rubrics that assign balanced weight to both fluency and accuracy in order to reflect students' communicative competence holistically (Qureshi et al., 2021; Yan et al., 2025).

Furthermore, the strong correlation between fluency and accuracy ($r = 0.64$) indicates that these aspects are not mutually exclusive but rather interdependent. Students who regularly practice fluent speaking in academic contexts tend to develop greater automaticity in language use, which in turn enhances their accuracy. This aligns with the automatization hypothesis in language learning, which posits that frequent practice leads

to spontaneous and accurate language production (Nematizadeh & Wood, 2019; Wael et al., 2023).

Overall, this study provides empirical evidence that fluency and accuracy are both highly relevant and essential indicators for assessing the academic speaking proficiency of EFL students. These findings not only contribute to the language assessment literature but also offer practical insights for developing more objective and focused oral assessment tools in higher education contexts.

5. Conclusion

This study demonstrates that both fluency and accuracy make significant contributions to students' academic speaking proficiency. While fluency emerged as the more dominant predictor, accuracy also played a crucial role in reflecting students' mastery of appropriate linguistic structures. These findings confirm that fluency and accuracy function as complementary indicators in the evaluation of academic oral performance.

Despite these contributions, several limitations of the present study should be acknowledged. First, the correlational research design does not allow for causal inferences regarding the relationship between fluency, accuracy, and academic speaking proficiency. Second, the study involved a relatively small sample drawn from a single academic context, which may limit the generalizability of the findings to broader EFL populations. Third, the analysis focused exclusively on fluency and accuracy, whereas other dimensions of speaking ability, such as complexity or interactional competence, were not examined. Finally, the data were based on a single type of academic speaking task, which may not fully capture the variability of students' oral performance across different academic genres.

Future research is therefore recommended to employ experimental or longitudinal designs to explore causal relationships among speaking components. Studies involving larger and more diverse samples across institutional and cultural contexts would also enhance the generalizability of findings. In addition, incorporating additional speaking dimensions and utilizing mixed-methods approaches may provide a more comprehensive understanding of academic speaking proficiency. Such efforts would contribute to the development of more robust and context-sensitive assessment frameworks for evaluating academic speaking in EFL settings.

References

- Abdulaal, M. A. A. D., Alenazi, M. H., Tajuddin, A. J. A., & Hamidi, B. (2022). Dynamic vs. diagnostic assessment: impacts on EFL learners' speaking fluency and accuracy, learning anxiety, and cognitive load. *Language Testing in Asia*, 12(1). <https://doi.org/10.1186/s40468-022-00179-0>

- Ahmad, A., Hanadi, M. F., Education, E. L., Gombong, U. M., & Info, A. (2025). *Addressing Challenges In English Speaking Skills In College Through Drama Performer : A Case*. 4(5), 615–620.
- Amrullah, A., Thohir, L., Sahuddin, S., Nawawi, N., & Henny, H. (2021). Development of Academic Speaking Communicative Tasks Model for Students of English Education. *Proceedings of the 2nd Annual Conference on Education and Social Science (ACCESS 2020)*, 556, 32–35. <https://doi.org/10.2991/assehr.k.210525.040>
- Bagus, I., Mantra, N., Handayani, N. D., Suwandi, N., & Maba, W. (2022). Promoting Students' Academic Speaking Skills Through Project Report Presentation. *International Journal of Linguistics and Discourse Analytics*, 3(2), 94–100.
- Chen, Z. (2025). What shapes communicative adequacy in second language speaking performance? The contributions of complexity, accuracy, fluency, and pronunciation. *Vigo International Journal of Applied Linguistics*, 22, 65–90. <https://doi.org/10.35869/vial.v0i22.4882>
- Cheng, L. (2021). The Implications of EFL/ESL Teachers' Emotions in Their Professional Identity Development. *Frontiers in Psychology*, 12(September), 1–7. <https://doi.org/10.3389/fpsyg.2021.755592>
- Freeman, M. R., & Schroeder, S. R. (2022). Assessing Language Skills in Bilingual Children: Current Trends in Research and Practice. *Journal of Child Science*, 12(1), E33–E46. <https://doi.org/10.1055/s-0042-1743575>
- Godfroid, A., & Kim, K. M. (2021). The Contributions Of Implicit-Statistical Learning Aptitude To Implicit Second-Language Knowledge. *Studies in Second Language Acquisition*, 43(3), 606–634. <https://doi.org/10.1017/S0272263121000085>
- Hasnain, S., & Halder, S. (2024). Intricacies of the Multifaceted Triad-Complexity, Accuracy, and Fluency: A Review of Studies on Measures of Oral Production. *Journal of Education*, 204(1), 145–158. <https://doi.org/10.1177/00220574221101377>
- Kallio, H., Suni, A., & Šimko, J. (2022). Fluency-related temporal features and syllable prominence as prosodic proficiency predictors for learners of English. *Language and Speech*, 65(3), 571–597.
- Kany, V. (2025). Predicting perceived speech fluency using temporal and repair-based measures. *Applied Linguistics*, Advance online publication.
- Kitjaroonchai, N., & Maywald, S. (2024). The Effects of Reading Assistant Software on the Speech Fluency and Accuracy of EFL University Students. *JET (Journal of English Teaching)*, 10(2), 183–197. <https://doi.org/10.33541/jet.v10i2.5763>
- Koizumi, R., & In'nami, Y. (2024). Predicting functional adequacy from complexity, accuracy, and fluency of second-language picture-prompted speaking. *System*, 120(March 2023), 103208. <https://doi.org/10.1016/j.system.2023.103208>
- Liu, X. (2025). Perceived validity and scoring accuracy in AI-assisted EAP speaking assessment. *Language Assessment Quarterly*.

- Mathur, M., & Mahapatra, S. (2022). Impact of ePortfolio Assessment as an Instructional Strategy on Students' Academic Speaking Skills: An Experimental Study. *Call-Ej*, 23(3), 1–23.
- Mawalim, C. O., Leong, C. W., Sivan, G., Huang, H. H., & Okada, S. (2025). Beyond accuracy: Multimodal modeling of structured speaking skill indices in young adolescents. *Computers and Education: Artificial Intelligence*, 8(March), 100386. <https://doi.org/10.1016/j.caeai.2025.100386>
- Najmi, K. (2021). The Role of Task Types with Different Task Complexity in EFL Learners' Speaking Performance Complexity, Accuracy, and Fluency across Language Proficiency. *The Journal of new advances in English Language Teaching and Applied Linguistics (JELTAL)*, 3(2), 629–651.
- Nematizadeh, S., & Wood, D. (2019). Willingness to communicate and second language speech fluency: An investigation of affective and cognitive dynamics. *Canadian Modern Language Review*, 75(3), 197–215. <https://doi.org/10.3138/cmlr.2017-0146>
- Ningrum, N. K., & Listyani, L. (2022). Academic Speaking Students' Efforts in Minimizing Their Lack of Self- Confidence. *Prominent*, 5(2), 141–167. <https://doi.org/10.24176/pro.v5i2.7874>
- Peltonen, P., Götz, S., & Lintunen, P. (2024). Task effects and L1 speaking style in L2 fluency development. *Studies in Second Language Acquisition*.
- Qureshi, N. A., Aldossari, A. M., & Alhabeeb, A. A. (2021). Speech Fluency Disorders: A Review of Studies Conducted Over the Past Five Decades (1970-2020). *International Neuropsychiatric Disease Journal*, 15(1), 1–28. <https://doi.org/10.9734/indj/2021/v15i130143>
- Scholl, A. P., Fontes, A. B. A. da L., & Finger, I. (2021). Can bilinguals rate their proficiency accurately in a language background questionnaire? *Revista Da Anpoll*, 52(1), 142–161. <https://doi.org/10.18309/ranpoll.v52i1.1506>
- Song, S., Hu, G., & Xu, H. (2020). Cognitive fluency and utterance fluency in second language speech. *Frontiers in Psychology*, 11, 1234.
- Sosa-López, G., & Mora, J. C. (2022). *The Role of Speaking Anxiety on L2 English Speaking Fluency, Accuracy and Complexity*. 1–12. <https://doi.org/10.31274/psllt.13362>
- Suzuki, S. (2025). Proficiency-mediated relationships between L1 and L2 fluency measures. *Second Language Research*.
- Szyszk, M., Peltonen, P., & Lintunen, P. (2024). Unravelling the relationship between language anxiety and foreign language speech fluency in a monologue production. *Journal of Multilingual and Multicultural Development*, 4632, 1–15. <https://doi.org/10.1080/01434632.2024.2387149>
- Takizawa, K. (2024). What contributes to fluent L2 speech? Examining cognitive and utterance fluency link with underlying L2 collocational processing speed and accuracy. *Applied Psycholinguistics*, 2, 516–541.

<https://doi.org/10.1017/S014271642400016X>

- Tarabya, B. M., Andria, S., & Khateb, A. (2025). Reading subtyping of Arabic-speaking university students: a contribution to the accuracy vs. rate model of dyslexia. *Annals of Dyslexia*, 0123456789. <https://doi.org/10.1007/s11881-025-00323-4>
- Tarigan, K. E., & Stevani, M. (2022). English Teachers' Beliefs in Teaching English Grammar to Improve Students' Speaking Skill. *Journal of English Language and Education*, 7(1), 2022.
- Tsunemoto, A., & Trofimovich, P. (2024). Coherence and Comprehensibility in Second Language Speakers' Academic Speaking Performance. *Studies in Second Language Acquisition*, 795–817. <https://doi.org/10.1017/S0272263124000305>
- Vercellotti, M. L. (2017). The development of complexity, accuracy, and fluency in second language oral production. *Applied Linguistics*, 38(2), 247–267.
- Wang, W., Rezaei, Y. M., & Izadpanah, S. (2024). Speaking accuracy and fluency among EFL learners. *System*, 119, 102992.
- Wael, A., Akib, M., Hasanudin, H., & Akib, R. (2023). Autonomous Learning Strategies for Academic Speaking by English Education Department Students. *J-SHMIC: Journal of English for Academic*, 10(1), 51–62. [https://doi.org/10.25299/jshmic.2023.vol10\(1\).10269](https://doi.org/10.25299/jshmic.2023.vol10(1).10269)
- Werdiningsih, I., & Mukminatien, N. (2023). Testing Public Speaking Proficiency: Designing an Assessment Instrument for University Students. *International Social Sciences and Humanities*, 2(2), 422–431. <https://doi.org/10.32528/isssh.v2i2.261>
- Winke, P., Zhang, X., & Pierce, S. J. (2023). A closer look at a marginalized test method: Self-assessment as a measure of speaking proficiency. *Studies in Second Language Acquisition*, 45(2), 416–441. <https://doi.org/10.1017/S0272263122000079>
- Yan, X., Lei, Y., & Pan, Y. (2025). Diving Deep Into the Relationship Between Speech Fluency and Second Language Proficiency: A Meta-Analysis. *Language Learning*, 1–40. <https://doi.org/10.1111/lang.12701>