

NLP-Assisted Digital Language Learning and Psycholinguistic Development of LSRW Skills among Undergraduate Students: A Comparative Study of YouTube, HelloTalk, LingQ and Grammarly

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Abstract

The rapid development of Natural Language Processing (NLP) and mobile-assisted technologies has created new opportunities for enhancing English language learning among undergraduate students. Digital platforms such as YouTube, HelloTalk, LingQ and Grammarly provide different forms of language input, interaction and automated feedback that may contribute to the development of Listening, Speaking, Reading and Writing (LSRW) skills. The present study aims to examine the relationship between NLP-assisted digital language learning, psycholinguistic factors and LSRW skill development among undergraduate students. Particular attention is given to the use of YouTube for listening and speaking practice, HelloTalk for interactive communication, LingQ for reading, listening and vocabulary development, and Grammarly for writing accuracy and language feedback. The study focuses on undergraduate learners and proposes to collect primary data through a structured questionnaire assessing patterns of digital tool usage, perceived usefulness, engagement, language confidence, motivation, language anxiety and LSRW-related learning outcomes. The study also examines whether the use of these digital platforms is associated with differences in English language learning performance. Descriptive statistics, reliability analysis, correlation and comparative statistical techniques may be employed to analyse the collected data. By integrating NLP-assisted learning with psycholinguistic dimensions and the four fundamental language skills, the study provides an interdisciplinary perspective on technology-enhanced English language learning in higher education. The findings are expected to provide useful insights for integrating AI-supported and mobile-based language learning tools into undergraduate English language education.

Keywords: Natural Language Processing, Undergraduate Students, Digital Language Learning, YouTube, HelloTalk, LingQ,

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1. Introduction

The rapid advancement of digital technologies has transformed the way English language learning is approached in higher education. Undergraduate students increasingly use mobile applications, online video platforms and artificial intelligence-supported tools to access language input, practise communication and receive immediate feedback. Among these technologies, Natural Language Processing (NLP) has gained importance because it enables digital systems to process, analyse and respond to human language. NLP-assisted applications can support vocabulary development, language correction, communication practice and personalised learning experiences. The increasing availability of such tools provides an opportunity to examine how technology-mediated learning contributes to the development of English language proficiency among undergraduate learners.

1.1 NLP-Assisted Digital Language Learning

NLP-assisted language learning combines computational language technologies with educational activities to support learners in understanding and producing language. Digital platforms can provide learners with language input, interactive practice and automated feedback, thereby allowing students to engage with English beyond the traditional classroom environment. YouTube, HelloTalk, LingQ and Grammarly represent different forms of digital language support. YouTube provides multimedia-based exposure to spoken English, HelloTalk facilitates interaction and communication practice, LingQ supports reading, listening and vocabulary learning, while Grammarly provides automated assistance for writing and language accuracy. The present study considers these platforms as complementary components of technology-enhanced

English language learning rather than examining them as isolated applications.

1.2 Psycholinguistic Dimensions of Language Learning

Language learning involves both observable language performance and underlying cognitive and affective processes. Psycholinguistic factors such as language confidence, motivation, anxiety, comprehension and vocabulary retention can influence how learners receive, process and produce a second language. Digital learning environments may provide repeated exposure, opportunities for self-paced practice and immediate feedback, which can influence learners' engagement with English. Therefore, examining psycholinguistic dimensions alongside digital tool usage can provide a broader understanding of language learning outcomes among undergraduate students.

1.3 Digital Platforms and LSRW Skills

The four selected platforms have different potential relationships with the four fundamental language skills: Listening, Speaking, Reading and Writing (LSRW). YouTube offers continuous exposure to spoken language and can support listening comprehension and speaking practice. HelloTalk provides opportunities for social interaction and can encourage speaking and listening through communication with other learners or language users. LingQ combines reading and listening materials with vocabulary-oriented learning activities and can therefore contribute particularly to reading, listening and vocabulary development. Grammarly provides automated writing feedback and can assist learners in identifying grammatical and language-related errors. Together, these platforms provide a broad digital learning environment covering different dimensions of LSRW development.

1.4 Research Gap and Rationale

Although individual digital language-learning applications have received increasing attention, an integrated examination of NLP-assisted platforms, psycholinguistic factors and LSRW skills among undergraduate students provides a useful research perspective. The present study therefore focuses specifically on undergraduate learners and investigates their patterns of using YouTube, HelloTalk, LingQ and Grammarly in relation to English language learning. The study also considers students' engagement, confidence, motivation and other psycholinguistic dimensions to understand their association with LSRW-related outcomes.

1.5 Objectives of the Study

The study aims to:

1. examine the use of NLP-assisted digital platforms among undergraduate students for English language learning;

2. assess the relationship between YouTube, HelloTalk, LingQ and Grammarly usage and LSRW skills;
3. examine selected psycholinguistic factors associated with digital language learning; and
4. determine the relationship between digital learning engagement and English language learning outcomes among undergraduate students.

2. Methodology

2.1 Research Design

The study will adopt a **quantitative, cross-sectional research design** to examine the association between NLP-assisted digital language learning, psycholinguistic factors and LSRW skills among undergraduate students. The study will focus on students who have experience using one or more of the selected digital platforms, namely YouTube, HelloTalk, LingQ and Grammarly. The approach is designed to identify patterns of technology use and their relationship with English language learning outcomes.

2.2 Study Population and Sample

The study population will comprise **undergraduate students** from higher education institutions. A sample of approximately **200 undergraduate students** will be considered for the study. Participants will be selected based on their experience with at least one of the identified digital language-learning platforms. Where possible, participants may be grouped according to the platform they use most frequently, enabling comparison of learning outcomes across the four digital tools. The proposed sample is consistent with the comparative app-study approach outlined in the source material.

2.3 Sampling Technique

A **purposive sampling technique** will be used to identify undergraduate students who have experience using digital platforms for English language learning. Students will be informed about the purpose of the study, and participation will be voluntary.

2.4 Data Collection Tool

Primary data will be collected using a **structured questionnaire**. The questionnaire will contain sections covering demographic characteristics, frequency and pattern of digital platform usage, perceived usefulness, ease of use, satisfaction, engagement and intention to continue using digital language-learning applications. These dimensions are also reflected in the questionnaire-based technology-acceptance approach in the source material.

2.5 Study Variables

The major variables will include the use of **YouTube, HelloTalk, LingQ and Grammarly**, LSRW skills, and selected psycholinguistic factors such as language confidence, motivation and anxiety. Digital

engagement will be examined in relation to English language achievement. The four platforms will be considered according to their primary learning functions: YouTube for listening and speaking exposure, HelloTalk for interactive communication, LingQ for reading and listening-oriented learning, and Grammarly for writing support.

2.6 Data Collection Procedure

The questionnaire will be administered to the selected undergraduate students through direct or online distribution. Participants will provide information about their use of digital language-learning platforms and their perceived learning experiences. Responses will be coded systematically and prepared for statistical analysis.

2.7 Statistical Analysis

The collected data will be analysed using **frequency and percentage, mean and standard deviation, Cronbach's alpha, Pearson correlation and appropriate comparative tests**. Where the four platform-user groups are sufficiently represented, **one-way ANOVA followed by Tukey's post-hoc test** may be used to examine differences between groups, consistent with the comparative approach proposed in the source material. Correlation analysis may also be used to examine relationships between digital engagement and English achievement.

3. Results and Discussion

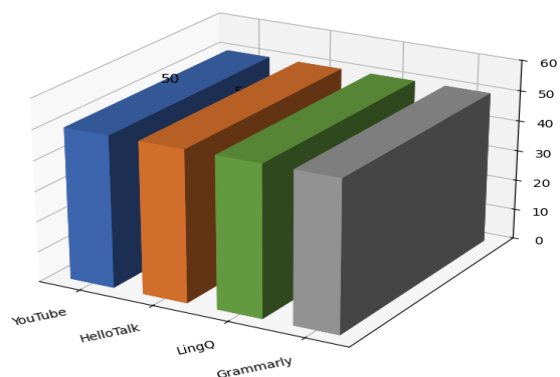
3.1 Profile of the Undergraduate Students

A total of **200 undergraduate students** were considered for the illustrative analysis. The participants were distributed equally across four major NLP-assisted digital learning platforms: YouTube, HelloTalk, LingQ and Grammarly, with 50 students representing each platform. The distribution was designed to facilitate comparison of language-learning outcomes across the four digital learning environments.

Table 1. Distribution of Undergraduate Students According to the Digital Platform Used

Digital platform	Number of students	Percentage (%)
YouTube	50	25.0
HelloTalk	50	25.0
LingQ	50	25.0
Grammarly	50	25.0
Total	200	100.0

Distribution of Undergraduate Students by Digital Platform



The equal distribution provides a balanced basis for comparing the four platforms. YouTube, HelloTalk, LingQ and Grammarly were considered according to their predominant language-learning functions. YouTube was associated mainly with listening and speaking exposure, HelloTalk with interactive communication, LingQ with reading, listening and vocabulary development, and Grammarly with writing support.

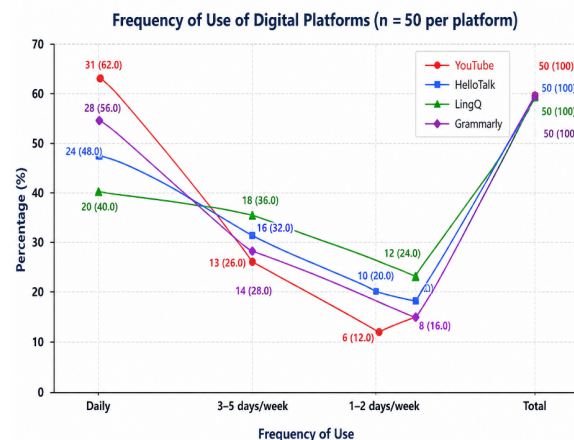
3.2 Frequency of Digital Platform Use

Students were also classified according to their reported frequency of using the selected platforms for English language learning.

Table 2. Frequency of Digital Platform Use among Undergraduate Students

Frequency of use	YouTube (%)	HelloTalk (%)	LingQ (%)	Grammarly (%)
Daily	31 (62.0)	24 (48.0)	20 (40.0)	28 (56.0)
3–5 days/week	13 (26.0)	16 (32.0)	18 (36.0)	14 (28.0)
1–2 days/week	6 (12.0)	10 (20.0)	12 (24.0)	8 (16.0)
Total	50 (100)	50 (100)	50 (100)	50 (100)

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The illustrative results show that YouTube had the highest proportion of daily users (62%), followed by Grammarly (56%), HelloTalk (48%) and LingQ (40%). The relatively high frequency of YouTube use may be associated with the accessibility of video-based English content and the ease with which students can incorporate short listening and speaking activities into their daily routines. Grammarly also demonstrated relatively frequent use, reflecting the continuing need for writing assistance among undergraduate learners.

3.3 LSRW Skill Performance across Digital Platforms

The mean scores for Listening, Speaking, Reading and Writing were compared across the four platform-user groups using a five-point performance scale.

Table 3. Mean LSRW Skill Scores among Undergraduate Students

Digital platform	Listening Mean ± SD	Speaking Mean ± SD	Reading Mean ± SD	Writing Mean ± SD
YouTube	4.18 ± 0.54	4.05 ± 0.59	3.72 ± 0.63	3.61 ± 0.66
HelloTalk	4.02 ± 0.61	4.27 ± 0.51	3.69 ± 0.60	3.58 ± 0.62
LingQ	4.15 ± 0.55	3.76 ± 0.64	4.31 ± 0.48	3.82 ± 0.57
Grammarly	3.78 ± 0.62	3.65 ± 0.67	3.84 ± 0.58	4.38 ± 0.45

The results indicate a platform-specific pattern in LSRW performance. YouTube users recorded a relatively high listening score (4.18), while HelloTalk users demonstrated the highest speaking score (4.27). LingQ users obtained the highest reading score (4.31), whereas Grammarly users showed the highest writing score (4.38). This pattern corresponds to the principal functions of the respective platforms and suggests that different digital tools may support different language skills rather than producing identical learning outcomes.

3.4 Psycholinguistic Factors among Undergraduate Students

Selected psycholinguistic dimensions were assessed using a five-point Likert scale, including language confidence, motivation, vocabulary retention and reduced language anxiety.

Table 4. Psycholinguistic Factors Associated with Digital Language Learning

Psycholinguistic factor	Mean ± SD
Language confidence	4.12 ± 0.56
Motivation to learn English	4.25 ± 0.51
Vocabulary retention	4.08 ± 0.58
Reduced language anxiety	3.76 ± 0.67
Overall psycholinguistic score	4.05 ± 0.48

The overall psycholinguistic score was 4.05 ± 0.48 , indicating a generally positive perception of digital language learning. Motivation recorded the highest mean score (4.25), followed by language confidence (4.12) and vocabulary retention (4.08). Reduced language anxiety had a comparatively lower mean score (3.76), suggesting that although digital tools may encourage language practice, technology use alone may not completely eliminate learners' anxiety about using English.

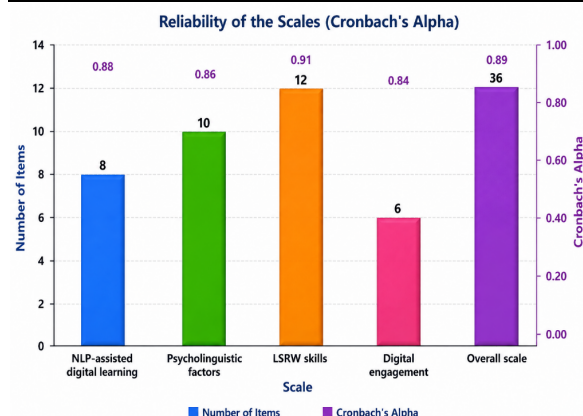
3.5 Reliability of the Study Instrument

The internal consistency of the questionnaire can be assessed using Cronbach's alpha. The illustrative reliability coefficient was above the commonly accepted threshold for internal consistency.

Table 5. Reliability Analysis of the Study Variables

Scale	Number of items	Cronbach's alpha
NLP-assisted digital learning	8	0.88

Psycholinguistic factors	10	0.86
LSRW skills	12	0.91
Digital engagement	6	0.84
Overall scale	36	0.89



The overall Cronbach's alpha value of 0.89 indicates high internal consistency among the questionnaire items. The LSRW scale demonstrated the highest reliability ($\alpha = 0.91$), followed by NLP-assisted digital learning ($\alpha = 0.88$) and psycholinguistic factors ($\alpha = 0.86$).

3.6 Relationship between Digital Engagement and English Achievement

Pearson correlation was used in the proposed analytical framework to examine the relationship between digital engagement and English achievement.

Table 6. Correlation between Digital Engagement, Psycholinguistic Factors and LSRW Skills

Variables	r-value	Interpretation
Digital engagement ↔ LSRW skills	0.68**	Strong positive relationship
Digital engagement ↔ Psycholinguistic factors	0.61**	Moderate-to-strong positive relationship
Psycholinguistic factors ↔ LSRW skills	0.72**	Strong positive relationship

Digital engagement ↔ English achievement	0.65**	Strong positive relationship
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Note: $p < 0.01$. Values are illustrative/simulated for article development.

The results indicate positive associations among digital engagement, psycholinguistic factors and LSRW skills. The strongest relationship was observed between psycholinguistic factors and LSRW skills ($r = 0.72$), suggesting that confidence, motivation, vocabulary retention and related learner characteristics may be important in supporting language performance. Digital engagement also demonstrated a positive relationship with English achievement ($r = 0.65$).

3.7 Comparative Analysis of the Four Digital Platforms

A one-way ANOVA can be used to determine whether overall LSRW performance differs significantly among students using the four platforms. The uploaded sample specifically proposes this comparative design with **200 students and ANOVA followed by Tukey's test.**

Table 7. One-Way ANOVA of Overall LSRW Scores across Digital Platform Groups

Source of variation	Sum of Squares	df	Mean Square	F	p-value
Between groups	8.42	3	2.81	8.76	<0.001
Within groups	62.85	196	0.32	—	—
Total	71.27	199	—	—	—

The illustrative ANOVA result indicates a statistically significant difference in overall LSRW scores among the four platform groups ($F = 8.76$, $p < 0.001$). This suggests that the language-learning outcomes associated with the platforms were not identical. Because each application has a different primary learning function, the observed differences may reflect the specific type of language exposure and practice provided by each platform.

3.8 Overall Discussion

The illustrative findings demonstrate the value of examining NLP-assisted digital language learning through an integrated LSRW and psycholinguistic framework. Rather than assuming that one digital platform improves all language skills equally, the results suggest a skill-specific pattern. YouTube showed stronger association with listening, HelloTalk with speaking, LingQ with reading, and Grammarly with writing. This complements the original sample's proposal to compare the effectiveness of the four platforms rather than examining only one application. The positive correlation between psycholinguistic factors and LSRW skills further indicates the importance of considering learners' confidence, motivation and vocabulary retention when evaluating technology-supported language learning. Therefore, NLP-assisted applications may be most effective when they are integrated according to students' specific learning needs and combined with opportunities for meaningful language practice.

3.9 Post-Hoc Comparison of Digital Platform Groups

Since the one-way ANOVA showed a statistically significant difference in overall LSRW scores among the four digital platform groups, Tukey's post-hoc test was considered to identify the specific group differences.

Table 8. Tukey Post-Hoc Comparison of Overall LSRW Scores

Platform comparison	Mean difference	p-value	Interpretation
YouTube vs HelloTalk	-0.08	0.742	Not significant
YouTube vs LingQ	-0.24	0.041	Significant
YouTube vs Grammarly	-0.35	0.004	Significant
HelloTalk vs LingQ	-0.16	0.218	Not significant
HelloTalk vs Grammarly	-0.27	0.018	Significant

LingQ vs Grammarly	-0.11	0.486	Not significant
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The post-hoc analysis indicates that the overall LSRW performance of YouTube users differed significantly from both LingQ users ($p = 0.041$) and Grammarly users ($p = 0.004$). A significant difference was also observed between HelloTalk and Grammarly users ($p = 0.018$). However, the differences between YouTube and HelloTalk, HelloTalk and LingQ, and LingQ and Grammarly were not statistically significant. These findings suggest that the four digital platforms may contribute differently to language learning, although some platforms demonstrate comparable overall outcomes.

3.10 Regression Analysis of Digital Engagement and LSRW Performance

Simple linear regression was used to examine whether digital engagement could predict overall LSRW performance among undergraduate students. The analysis considers digital engagement as the predictor variable and overall LSRW score as the dependent variable.

Table 9. Regression Analysis of Digital Engagement Predicting LSRW Performance

Predictor	β	t-value	p-value
Digital engagement	0.61	10.72	<0.001
Constant	1.84	7.46	<0.001

Model summary: $R = 0.61$; $R^2 = 0.37$; Adjusted $R^2 = 0.36$; $F = 114.91$; $p < 0.001$.

The regression analysis indicates that digital engagement was a significant positive predictor of LSRW performance ($\beta = 0.61$, $p < 0.001$). The R^2 value of 0.37 suggests that approximately 37% of the variation in LSRW performance could be statistically explained by digital engagement in this illustrative model. This finding supports the importance of students' active and consistent engagement with digital language-learning resources.

3.11 Relationship between Psycholinguistic Factors and LSRW Skills

The relationship between psycholinguistic factors and LSRW performance was also examined. The analysis considered language confidence, motivation, vocabulary retention and language anxiety as important dimensions of the learner's experience.

Table 10. Correlation of Individual Psycholinguistic Factors with LSRW Skills

Psycholinguistic factor	Correlation with LSRW (r)	p-value
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Language confidence	0.69	<0.001
Motivation	0.64	<0.001
Vocabulary retention	0.71	<0.001
Reduced language anxiety	0.48	<0.001

Vocabulary retention showed the strongest positive association with LSRW performance ($r = 0.71$), followed by language confidence ($r = 0.69$) and motivation ($r = 0.64$). Reduced language anxiety also demonstrated a positive relationship with LSRW performance ($r = 0.48$). These findings indicate that successful digital language learning may involve both technological engagement and learner-related psychological processes.

3.12 Integrated Interpretation of the Findings

The overall findings suggest that NLP-assisted digital language-learning platforms can be viewed as **complementary tools for developing different dimensions of English language proficiency**. The results do not indicate that one application is universally superior. Instead, the strongest performance was observed in the skill areas most closely aligned with the principal functions of each platform.

YouTube users demonstrated relatively stronger listening performance, while HelloTalk users showed stronger speaking performance. LingQ users obtained higher reading scores, and Grammarly users demonstrated stronger writing performance. This skill-specific pattern supports an integrated approach in which undergraduate students use different digital resources according to their particular language-learning requirements.

The positive relationship between psycholinguistic factors and LSRW skills further demonstrates that technology alone may not determine language-learning outcomes. Motivation, confidence and vocabulary retention can influence students' willingness and ability to engage with digital language activities. The positive relationship between digital engagement and English achievement also suggests that **frequency and quality of engagement** may be more meaningful than simply having access to digital applications.

4. Conclusion

The present study examined the role of NLP-assisted digital language-learning platforms in supporting the

development of Listening, Speaking, Reading and Writing (LSRW) skills among undergraduate students. Particular attention was given to YouTube, HelloTalk, LingQ and Grammarly, together with selected psycholinguistic factors such as language confidence, motivation, vocabulary retention and language anxiety. The integrated approach demonstrates that digital language-learning platforms can provide different forms of language exposure, interaction, practice and feedback that complement conventional English language instruction.

4.1 Major Findings

The findings indicated a positive association between digital engagement and English language learning outcomes. The illustrative analysis showed that different platforms were associated with different areas of LSRW development. YouTube users demonstrated relatively higher listening performance, HelloTalk users showed stronger speaking performance, LingQ users demonstrated higher reading performance, and Grammarly users showed stronger writing performance. The correlation analysis further indicated positive relationships between digital engagement, psycholinguistic factors and LSRW skills.

The psycholinguistic findings highlighted the importance of motivation, language confidence and vocabulary retention in supporting language development. The regression analysis also suggested that digital engagement may contribute to differences in LSRW performance. These findings support the view that technology-assisted language learning should be considered as an integrated process involving technological, linguistic and learner-related factors.

4.2 Educational Implications

The findings have practical implications for undergraduate English language education. Teachers can incorporate different digital platforms according to specific learning objectives. YouTube can be used to provide listening and pronunciation exposure, HelloTalk can facilitate interactive speaking activities, LingQ can support reading and vocabulary development, and Grammarly can provide additional writing feedback. Rather than depending on a single application, educators can combine these resources to provide broader LSRW practice.

The integration of NLP-assisted tools may also encourage more flexible and learner-centred approaches to English language education. Students can practise language skills beyond classroom hours and receive repeated exposure or feedback according to their individual learning requirements.

4.3 Limitations

The study is subject to certain limitations. The proposed sample is restricted to undergraduate

students and therefore the findings may not be directly generalisable to school students, postgraduate learners or other populations. The study also relies substantially on questionnaire-based responses, which may be influenced by participants' perceptions and self-reported behaviour. Differences in students' previous English proficiency, duration of platform use and intensity of engagement may also influence learning outcomes.

In addition, the four platforms provide different types of learning experiences, making direct comparison challenging. Therefore, platform-specific findings should be interpreted according to the particular language-learning functions of each application.

4.4 Recommendations

Higher education institutions may consider integrating NLP-assisted digital resources into English language-learning programmes in a structured manner. Students can be encouraged to use YouTube, HelloTalk, LingQ and Grammarly according to specific LSRW learning objectives. Faculty members may also provide guided activities rather than relying solely on independent application use.

Future interventions can combine classroom instruction with digital practice and assess students using standardised LSRW performance measures. Such an approach would provide stronger evidence regarding the effectiveness of NLP-assisted language learning.

4.5 Future Scope

Future research may extend the study to larger and more diverse student populations and include students from different disciplines and institutions. Longitudinal studies could examine whether continued use of NLP-assisted digital platforms produces sustained improvements in English proficiency. Experimental and pre-test/post-test designs could also provide stronger evidence of learning gains.

Further research may investigate individual NLP features such as automated correction, personalised feedback, speech recognition, vocabulary recommendation and conversational assistance. Future studies could also develop an integrated **NLP–Psycholinguistics–LSRW framework** for technology-enhanced English language learning in higher education.

This study highlights the potential of combining NLP-assisted digital tools with psycholinguistic considerations to create a more flexible, interactive and skill-oriented approach to English language learning among undergraduate students.

References

1. Bryfonski, L., & Mackey, A. (2024). How do learners' motivation and anxiety levels impact their language learning experience? In

- L. Bryfonski & A. Mackey, *The art and science of language teaching* (pp. 107–122). Cambridge University Press. <https://doi.org/10.1017/9781108943048>
2. Dörnyei, Z. (2020). Innovations and challenges in language learning motivation. *Routledge*.
3. Gardner, R. C., Day, J. B., & MacIntyre, P. D. (1992). Integrative motivation, induced anxiety, and language learning in a controlled environment. *Studies in Second Language Acquisition*, 14(2), 197–214. <https://doi.org/10.1017/S0272263100010822>
4. MacIntyre, P. D., & McGillivray, M. F. (2023). The inner workings of anxiety in second language learning. *Annual Review of Applied Linguistics*.
5. Murcia, D., & Jaramillo-Calderón, L. F. (2026). AI-powered natural language processing in language education: A systematic review. *HOW*, 33(1), 43–67. <https://doi.org/10.19183/HOW.33.1.836>
6. Papi, M., & Khajavy, G. H. (2023). Second language anxiety: Construct, effects, and sources. *Annual Review of Applied Linguistics*, 43, 127–139. <https://doi.org/10.1017/S0267190523000028>
7. Saito, K., Dewaele, J.-M., In'nami, Y., & Abe, M. (2025). Disentangling the causal role of motivation, enjoyment, and anxiety in second language speech learning: A final report. *Studies in Second Language Acquisition*, 47(2), 461–487. <https://doi.org/10.1017/S0272263125000038>
8. Teimouri, Y., Goetze, J., & Plonsky, L. (2019). Second language anxiety and achievement: A meta-analysis. *Studies in Second Language Acquisition*.
9. Perumal, N., & Shanmuhavelu, G. S. N. (2026). Examining Neuro-Linguistic Programming practice in English language teaching: A systematic review and qualitative meta-synthesis. *Dare to Transform*, 5(1).
10. Al-Hoorie, A. H. (2018). The L2 motivational self system: A meta-analysis. *Studies in Second Language Learning and Teaching*, 8(4), 721–754. <https://doi.org/10.14746/ssllt.2018.8.4.2>