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Research Article

Beyond Frequency: Digital English-Learning Purposes, Motivation, and Self-Perceived Proficiency among Non-English-Major Students

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ABSTRACT
Digital technologies have become an important part of English learning beyond formal classroom instruction, yet frequency of use alone may not fully capture the nature of students' digital engagement. This study examined whether the purposes of digital English learning provided explanatory value beyond engagement frequency among non-English-major undergraduate students at an Indonesian university. Using a quantitative cross-sectional correlational design, data were collected from 180 students. Ten reported learning purposes were summarized into three purpose-breadth indicators: task-oriented, language-development-oriented, and authentic/communicative purposes. Descriptive statistics, Spearman's rank-order correlations, and hierarchical multiple regression analyses were employed. Translation (71.7%) and assignment completion (65.6%) were the most frequently reported purposes, indicating a strong orientation toward immediate academic and language-support needs. Digital-learning frequency was positively associated with English-learning motivation (ρ = .309, p < .001) and self-perceived English proficiency (ρ = .280, p < .001). In the hierarchical regressions, frequency remained a significant predictor of both outcomes. Adding the three purpose-breadth indicators did not significantly improve the motivation model, ΔR^2 = .037, p = .061, and this result was sensitive to a small number of extreme observations. In contrast, purpose breadth significantly increased the explained variance in self-perceived proficiency, ΔR^2 = .063, p = .006, with authentic/communicative purpose breadth emerging as the only significant purpose-specific predictor (β = .248, p = .006). These findings suggest that the relevance of digital-learning purposes is outcome-specific: frequency remains important, while authentic and communicative engagement provides additional explanatory value particularly for students' perceptions of their English proficiency.

Keywords: *Authentic Language Use; EFL Higher Education; Informal Digital Learning of English; Learner Engagement; Non-English-Major Students*

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1. Introduction

Digital technologies have substantially broadened the ecology of English learning in higher education. University students can now engage with English beyond formal classroom instruction through online resources, digital platforms, mobile devices, and other technology-mediated environments that support both deliberate and incidental learning. These environments provide opportunities to access language input, complete academic tasks, practice language skills, and interact with English across personal, academic, and communicative contexts (Inayati et al., 2025; Luo & Watts, 2024; Trinder,

2017). In the Indonesian university context, Hidayat et al. (2022) demonstrated that digital technologies form an important part of students' English-learning experiences. Similarly, Nguyen et al. (2024) showed that university students engage in substantial language learning beyond the classroom, although patterns of resource use may differ between English-major and non-English-major learners. Collectively, this research positions digital engagement as an increasingly important extension of formal English-language learning.

Within this growing literature, frequency or quantity of engagement has been widely used to describe learners' participation in digital English learning. Frequency is meaningful because repeated engagement can increase opportunities for exposure and practice. However, it captures only one dimension of learners' digital experiences. Lee (2019) distinguished between the quantity and diversity of informal digital learning of English, demonstrating that the amount of engagement does not fully represent the range of activities in which learners participate. Zhang and Liu (2024) similarly conceptualized informal digital learning as a multidimensional phenomenon rather than a behavior adequately represented by frequency alone. Other studies of digital learning strategies and cross-platform practices further show that learners may organize and use digital resources in substantially different ways even within similar technology-rich environments (Kim & Bae, 2020; JLee, 2026; Lee & Roger, 2023). Thus, knowing how often students engage in digital English learning does not necessarily reveal what they engage with English for.

The purpose of digital engagement provides a complementary perspective on this variation. Learners may use digital resources to translate texts, complete assignments, prepare for examinations, develop vocabulary and language skills, communicate with others, or engage with authentic English-language content. Importantly, these purposes do not appear to be educationally equivalent. Lai and Wang (2025) found that different purposes of online informal English learning, including information, entertainment, and socialization, were differentially associated with receptive vocabulary knowledge. Extending this perspective, Lai et al. (2025) showed that both the purpose of informal digital activities and learners' strategic engagement were relevant to different aspects of vocabulary knowledge. These findings complement earlier evidence that the diversity of digital English-learning activities matters alongside their quantity (Lee, 2019). Purpose can therefore be viewed as a form of functional diversity in digital engagement, capturing information that frequency alone cannot provide.

The distinction between quantity and purpose becomes particularly important when different learner outcomes are considered. Previous research has linked digital English-learning engagement to affective outcomes such as motivation, enjoyment, self-efficacy, and willingness to communicate (Lee & Drajati, 2019a; Liu, Darvin, et al., 2024; Liu, Zhang, et al., 2024; Rezai et al., 2025; Zadorozhnyy & Lee, 2025). Other studies have reported associations with proficiency-related outcomes (Guan et al., 2024; Indrayani et al., 2024; Zhang & Liu, 2025). At the same time, these relationships appear to depend on learner characteristics and the particular forms of digital engagement involved. For example, Yang et al. (2025) identified several variables that influence or moderate informal digital English learning, while Niu et al. (2022) showed that students' approaches to digital English learning are intertwined with factors such as digital competence and technostress. These findings suggest that digital engagement should not be expected to relate uniformly to all learner outcomes.

Motivation and proficiency-related perceptions are particularly useful outcomes through which to examine this possibility. Motivation is a multifaceted construct reflecting learners' goals, values, self-beliefs, interests, and broader learning experiences. In the Indonesian context, Bradford (2007) demonstrated that university learners may hold

multiple motivational orientations toward foreign-language learning. Research specifically involving non-English-major students likewise shows that English-learning motivation may encompass academic, career-related, communicative, and personal orientations (Nguyen & Habók, 2021). Self-perceived English proficiency, by contrast, reflects learners' evaluations of their competence across language domains and may be more closely associated with accumulated opportunities to encounter and use English. It is therefore important to examine motivation and self-perceived proficiency separately rather than assuming that frequency and purpose will relate to both outcomes in the same way.

This issue is especially relevant for non-English-major students in EFL higher-education contexts. Research in Indonesia has documented links between digital English learning and students' learning experiences, affective characteristics, communication, and proficiency-related outcomes (Hidayat et al., 2022; Indrayani et al., 2024; Lee & Drajati, 2019a, 2019b). However, non-English-major students occupy a distinctive position because English generally functions as a supporting academic subject rather than their main field of specialization. Nguyen et al. (2024) found that English-major and non-English-major students differed in aspects of their beyond-classroom language-learning ecologies and resource use, while Nguyen and Habók (2021) highlighted the complexity of English-learning motivation specifically among non-English-major university students. For these learners, digital technologies may simultaneously serve immediate academic needs and broader language-development or communicative purposes.

Despite the growing literature on the quantity, diversity, strategies, and purposes of digital English learning, an important analytical gap remains. Existing studies have established that quantity and diversity matter (Lee, 2019), that digital learning comprises multiple dimensions (Zhang & Liu, 2024), and that different purposes may be associated with different language-learning outcomes (Lai et al., 2025; Lai & Wang, 2025). Yet comparatively limited attention has been given to whether the breadth of learners' digital English-learning purposes explains additional variance beyond the frequency of their engagement, particularly when affective and proficiency-related outcomes are examined separately. This distinction is analytically important because a purpose may correlate with an outcome without making a unique contribution once overall engagement frequency and other purposes are considered simultaneously. Examining purpose breadth beyond frequency can therefore provide a more differentiated account of the relative contributions of how often learners engage and what they engage for.

Against this background, we investigated digital English-learning practices among non-English-major undergraduate students at an Indonesian university. Rather than treating digital engagement solely as a matter of frequency, we examined both digital-learning frequency and the breadth of students' reported learning purposes. For the present study, the ten reported purposes were organized into three conceptually informed indicators: task-oriented purpose breadth, encompassing assignment completion, translation, and examination preparation; language-development-oriented purpose breadth, encompassing vocabulary, reading, listening, speaking, and writing; and authentic/communicative purpose breadth, encompassing communication and engagement with English-language entertainment or authentic content. We examined how frequency and these purpose-breadth indicators were related to English-learning motivation and self-perceived English proficiency and whether purpose breadth accounted for additional variance beyond frequency.

Accordingly, the study addressed the following research questions:

1. What are the main purposes for which non-English-major students use digital technologies to learn English?
2. How are digital-learning frequency and learning purposes related to English-learning motivation and self-perceived English proficiency?
3. Do learning purposes explain additional variance in English-learning motivation and self-perceived English proficiency beyond digital-learning frequency?

2. Method

2.1 Research Design and Context

This study used a quantitative cross-sectional correlational design to examine the relationships among digital English-learning frequency, learning purposes, English-learning motivation, and self-perceived English proficiency. We also examined whether students' learning purposes explained additional variance in motivation and self-perceived proficiency beyond digital-learning frequency.

The study was conducted at Universitas Muhammadiyah Buton, Indonesia, where English is learned as a foreign language. All participants were undergraduate students enrolled in programs outside English language, English education, or other English-related majors. English therefore served as a supporting or compulsory component of their university studies rather than their primary field of specialization. Previous research has shown that digital English-learning practices may vary according to students' academic backgrounds and learning contexts (Hidayat et al., 2022; Nguyen et al., 2024). Because the study involved students from a single university, the findings are interpreted within an Indonesian university EFL context rather than as nationally representative.

2.2 Participants and Data Preparation

The online survey initially produced 185 responses from non-English-major undergraduate students. Before analysis, the dataset was screened for duplicate submissions. Responses with identical combinations of participant name and email address were treated as repeated submissions, and only the first response was retained. Five duplicates were removed, resulting in a final sample of 180 students, including 65 males (36.1%) and 115 females (63.9%).

Personally identifying information, including names, email addresses, telephone numbers, and timestamps, was removed from the analysis dataset. The variables used in this study contained no missing data; therefore, all 180 cases were included in the main analyses.

2.3 Measures

a. Digital English-Learning Frequency

Students reported how frequently they used digital technologies for English learning using a five-point ordered response scale, coded from 1 to 5. Higher scores indicated more frequent digital English-learning engagement.

b. Purposes of Digital English Learning

Students could select more than one purpose for using digital technologies to learn English. The questionnaire included ten purposes: assignment completion, translation, vocabulary learning, reading, listening, speaking, writing, entertainment or authentic English-language content, communication, and examination preparation.

Previous research suggests that digital English learning differs not only in quantity but also in the diversity and purposes of engagement (Lai et al., 2025; Lai & Wang, 2025;

Lee, 2019). Based on this literature and the content of the survey items, we grouped the ten purposes into three purpose-breadth indicators.

Task-oriented purpose breadth included assignment completion, translation, and examination preparation and ranged from 0 to 3. Language-development-oriented purpose breadth included vocabulary learning, reading, listening, speaking, and writing and ranged from 0 to 5. Authentic/communicative purpose breadth included communication and engagement with entertainment or authentic English-language content and ranged from 0 to 2.

Each purpose was coded as 1 = selected and 0 = not selected, and the selected purposes were summed within each category. These indicators therefore represented the breadth of purposes selected, rather than psychometric scales, so internal-consistency coefficients were not calculated for them.

c. English-Learning Motivation

English-learning motivation was measured using items adapted from Nguyen and Habók (2021). The original instrument included 16 five-point Likert items addressing motivational orientation and motivational intensity. For the present study, the items were contextually adapted and used as a study-specific composite measure of English-learning motivation. We did not attempt to reproduce the original subscale structure. During item analysis, the reverse-worded final item showed a negative item-rest correlation even after reverse scoring and was therefore excluded. The final motivation score was calculated as the mean of the remaining 15 items, with higher scores indicating stronger motivation. The 15-item composite showed excellent internal consistency, Cronbach's α = .942, 95% CI [.919, .966].

d. Self-Perceived English Proficiency

Self-perceived English proficiency was measured using six self-rating items covering listening, speaking, reading, writing, vocabulary, and overall English ability. Responses were recorded on a five-point scale, and the six items were averaged to form a composite score.

The measure demonstrated good internal consistency, Cronbach's α = .871, 95% CI [.838, .905]. Throughout the study, this variable is referred to as self-perceived English proficiency because it reflects students' own evaluations rather than performance on a standardized proficiency test.

2.4 Data Analysis

Data were analyzed using JASP. To answer the first research question, frequencies and percentages were calculated for each of the ten digital English-learning purposes. Because participants could select multiple purposes, the percentages were not expected to sum to 100%. Means, standard deviations, minimums, and maximums were also calculated for the main study variables. Reliability of the motivation and self-perceived proficiency measures was examined using Cronbach's alpha and item-rest correlations.

To answer the second research question, Spearman's rank-order correlations were used to examine associations among digital-learning frequency, the three purpose-breadth indicators, English-learning motivation, and self-perceived English proficiency. Spearman's correlation was selected because digital-learning frequency originated from an ordered response scale and the purpose-breadth variables were bounded count measures.

To answer the third research question, hierarchical multiple regression analyses were conducted separately for motivation and self-perceived proficiency. Digital-learning frequency was entered in Model 1, followed by task-oriented, language-development-oriented, and authentic/communicative purpose breadth in Model 2. The analyses focused on R^2, adjusted R^2, change in R^2 (ΔR^2), regression coefficients, and statistical significance.

Regression diagnostics were assessed using residual plots, variance inflation factor (VIF), standardized residuals, and Cook's distance. All 180 valid cases were retained in the primary analyses. Because three observations in the motivation model had standardized residuals greater than |3|, we conducted an additional sensitivity analysis after temporarily excluding these cases. The full-sample analysis remained the primary result, while the reduced-sample analysis was used only to assess robustness.

2.5 Ethical Considerations

Participation was voluntary. Before completing the online survey, students were informed about the purpose of the study and the use of their responses for research purposes. Personally identifying information was removed before analysis, and the analytical dataset contained no direct personal identifiers.

3. Results

3.1 Digital English-Learning Purposes and Descriptive Profile

To provide an initial overview of students' digital English-learning practices, we first examined the purposes for which non-English-major students used digital technologies to support their English learning. The responses were summarized descriptively to identify the most and least frequently reported purposes across the sample. Because students were allowed to select more than one purpose, we interpreted the distribution as reflecting the relative prevalence of different forms of digital English-learning engagement rather than mutually exclusive cate

All 180 participants provided valid responses to the digital English-learning purpose items. As shown in Figure 1, **translation** was the most frequently reported purpose, selected by 129 students (71.7%), followed by **assignment completion** (n = 118, 65.6%). Vocabulary learning (n = 79, 43.9%), reading (n = 72, 40.0%), and speaking (n = 69, 38.3%) constituted the next most frequently reported purposes. In contrast, comparatively fewer students reported using digital technologies for entertainment or authentic English-language content (n = 42, 23.3%), communication (n = 40, 22.2%), writing (n = 36, 20.0%), examination preparation (n = 35, 19.4%), or listening (n = 30, 16.7%). Because participants could select multiple purposes, the percentages are not mutually exclusive categories.

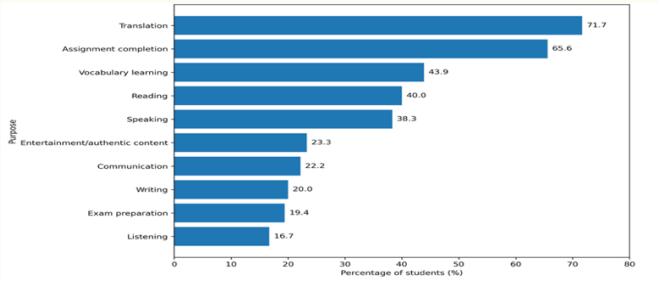

Figure 1. Reported Purposes for Digital English Learning among Non-English-Major Students

Note. N = 180. Participants could select more than one purpose; therefore, percentages do not sum to 100%.

Having identified the distribution of students' digital English-learning purposes, we next examined the descriptive characteristics of the main analytical variables and the internal consistency of the two multi-item outcome measures. Descriptive statistics for the main analytical variables are presented in Table 1. Digital-learning frequency had a mean of 2.91 (SD = 0.92) on the five-point frequency measure. The mean breadth scores were 1.57 (SD = 0.91) for task-oriented purposes, 1.59 (SD = 1.74) for language-development-oriented purposes, and 0.46 (SD = 0.68) for authentic/communicative purposes. The mean English-learning motivation score was 3.87 (SD = 0.62), whereas the mean self-perceived English proficiency score was 3.02 (SD = 0.61). The 15-item motivation composite demonstrated high internal consistency, Cronbach's α = .942, 95% CI [.919, .966], while the six-item self-perceived proficiency measure showed good internal consistency, α = .871, 95% CI [.838, .905].

Table 1. Descriptive Statistics and Internal Consistency of the Main Study Variables

Variable	M	SD	Min	Max	Cronbach's α (95% CI)
Digital-learning frequency	2.91	0.92	1.00	5.00	—
Task-oriented purpose breadth	1.57	0.91	0.00	3.00	—
Language-development-oriented purpose breadth	1.59	1.74	0.00	5.00	—
Authentic/communicative purpose breadth	0.46	0.68	0.00	2.00	—
English-learning motivation	3.87	0.62	1.00	5.00	.942 [.919, .966]
Self-perceived English proficiency	3.02	0.61	1.67	5.00	.871 [.838, .905]

Note. N = 180. Purpose-breadth variables represent counts of purposes selected within each conceptual category and are therefore not treated as psychometric scales.

Taken together, these descriptive findings show that students' digital English-learning practices were concentrated more heavily on immediate academic and language-support purposes, particularly translation and assignment completion, than on authentic or communicative uses. At the same time, the relatively high mean motivation score and the satisfactory internal consistency of both outcome measures provided a stable descriptive basis for the subsequent correlational and regression analyses. We therefore proceeded to examine whether differences in digital-learning frequency and purpose breadth were associated with variation in students' English-learning motivation and self-perceived English proficiency.

3.2 Associations among Digital-Learning Frequency, Purposes, and Outcomes

Building on these descriptive patterns, we next examined how digital-learning frequency and the three purpose-breadth indicators were associated with English-learning motivation and self-perceived English proficiency. Spearman's rank-order correlations among the study variables are presented in Table 2. Digital-learning frequency was positively associated with all three purpose-breadth indicators: task-oriented purposes, ρ = .177, p = .017; language-development-oriented purposes, ρ = .412, p < .001; and authentic/communicative purposes, ρ = .331, p < .001. The three purpose-breadth indicators were also positively interrelated, with correlations ranging from ρ = .421 to .526.

Digital-learning frequency was positively associated with both English-learning motivation, ρ = .309, p < .001, and self-perceived English proficiency, ρ = .280, p < .001. Language-development-oriented purpose breadth was positively associated with motivation, ρ = .345, p < .001, and self-perceived proficiency, ρ = .251, p < .001. Similarly, authentic/communicative purpose breadth was positively related to motivation, ρ = .252, p < .001, and self-perceived proficiency, ρ = .273, p < .001. Task-oriented purpose breadth, however, was not significantly associated with either motivation, ρ = .145, p = .053, or self-perceived proficiency, ρ = .072, p = .335. Motivation and self-perceived proficiency were themselves positively correlated, ρ = .293, p < .001.

Table 2. Spearman's Rank-Order Correlations among Digital-Learning Frequency, Purpose Breadth, Motivation, and Self-Perceived English Proficiency

Variable	1	2	3	4	5	6
1. Digital-learning frequency	—					
2. Task-oriented purpose breadth	.177*	—				
3. Language-development-oriented purpose breadth	.412***	.484***	—			
4. Authentic/communicative purpose breadth	.331***	.421***	.526***	—		
5. English-learning motivation	.309***	.145	.345***	.252***	—	
6. Self-perceived English proficiency	.280***	.072	.251***	.273***	.293***	—

*Note. N = 180. Values are Spearman's rho (ρ). *p* < .05. **p* < .01. **p* < *.001.*

We observed a consistent pattern in which digital-learning frequency, language-development-oriented purpose breadth, and authentic/communicative purpose breadth were positively associated with both English-learning motivation and self-perceived English proficiency, whereas task-oriented purpose breadth was not significantly related to either outcome. These correlational patterns suggest that the relevance of digital English-learning purposes may differ across forms of engagement and provide a clear basis for the subsequent hierarchical regression analyses examining whether purpose breadth contributes explanatory value beyond digital-learning frequency.

3.3 Incremental Contribution of Digital-Learning Purposes beyond Frequency

To determine whether students' digital English-learning purposes contributed explanatory value beyond how frequently they engaged in digital learning, we conducted separate hierarchical multiple regression analyses for English-learning motivation and self-perceived English proficiency. In each analysis, digital-learning frequency was entered in Model 1, followed by task-oriented, language-development-oriented, and authentic/communicative purpose breadth in Model 2.

For English-learning motivation, Model 1 was statistically significant, $F(1, 178) = 21.15$, $p < .001$, explaining 10.6% of the variance in motivation ($R^2 = .106$, adjusted $R^2 = .101$). Digital-learning frequency was a significant positive predictor of motivation, $B = .219$, $SE = .048$, $\beta = .326$, $p < .001$. As shown in Table 3, adding the three purpose-breadth indicators increased the proportion of explained variance to 14.3% ($R^2 = .143$, adjusted $R^2 = .123$). However, the additional 3.7% of explained variance did not reach the conventional level of statistical significance, $\Delta R^2 = .037$, $p = .061$. The full model remained statistically significant overall, $F(4, 175) = 7.30$, $p < .001$.

Within Model 2, digital-learning frequency remained a significant positive predictor of motivation, $B = .160$, $SE = .052$, $\beta = .238$, $p = .002$. None of the three purpose-breadth indicators made a statistically significant unique contribution after frequency and the other purpose indicators were taken into account. Task-oriented purpose breadth yielded

β = −.030, *p* = .711; language-development-oriented purpose breadth yielded β = .146, *p* = .131; and authentic/communicative purpose breadth yielded β = .105, *p* = .239.

Table 3. Hierarchical Regression Analysis Predicting English-Learning Motivation

Predictor	B (SE)	β	p
Model 1			
Digital-learning frequency	.219 (.048)	.326	<.001
Model 2			
Digital-learning frequency	.160 (.052)	.238	.002
Task-oriented purpose breadth	−.021 (.056)	−.030	.711
Language-development-oriented purpose breadth	.052 (.034)	.146	.131
Authentic/communicative purpose breadth	.096 (.081)	.105	.239
Model 1: R^2 = .106, adjusted R^2 = .101, F(1, 178) = 21.15, p < .001. Model 2: R^2 = .143, adjusted R^2 = .123, ΔR^2 = .037, p = .061, F(4, 175) = 7.30, p < .001.			

Note. N = 180. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient; ΔR^2 = change in explained variance.

We then examined whether the same set of predictors accounted for variation in self-perceived English proficiency. Model 1 was statistically significant, $F(1, 178) = 15.35$, $p < .001$, with digital-learning frequency explaining 7.9% of the variance in self-perceived proficiency (R^2 = .079, adjusted R^2 = .074). Digital-learning frequency was a significant positive predictor, B = .186, SE = .047, β = .282, $p < .001$.

The addition of the three purpose-breadth indicators significantly improved the model. As presented in Table 4, explained variance increased from 7.9% to 14.3%, representing an additional 6.3% of variance, ΔR^2 = .063, p = .006. The full model was statistically significant, $F(4, 175) = 7.29$, $p < .001$, with an adjusted R^2 of .123.

In the full model, digital-learning frequency remained a statistically significant positive predictor of self-perceived proficiency, B = .122, SE = .051, β = .185, p = .017. Among the three purpose-breadth indicators, **authentic/communicative purpose breadth** was the only statistically significant unique predictor, B = .222, SE = .080, β = .248, p = .006. By contrast, task-oriented purpose breadth, β = −.108, p = .188, and language-development-oriented purpose breadth, β = .080, p = .407, did not make significant unique contributions.

Table 4. Hierarchical Regression Analysis Predicting Self-Perceived English Proficiency

Predictor	B (SE)	β	p
Model 1			
Digital-learning frequency	.186 (.047)	.282	<.001
Model 2			
Digital-learning frequency	.122 (.051)	.185	.017
Task-oriented purpose breadth	−.073 (.055)	−.108	.188

Language-development-oriented purpose breadth	.028 (.034)	.080	.407
Authentic/communicative purpose breadth	.222 (.080)	.248	.006
Model 1: R^2 = .079, adjusted R^2 = .074, F(1, 178) = 15.35, p < .001. *Model 2: R^2 = .143, adjusted R^2 = .123, ΔR^2 = .063, p = .006, F(4, 175) = 7.29, p < .001.*			

Note. N = 180. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient; ΔR^2 = change in explained variance.

Collinearity diagnostics indicated no problematic multicollinearity in the regression models, with variance inflation factor values ranging from 1.213 to 1.899. Inspection of residual and Q–Q plots suggested generally acceptable model behavior. However, several comparatively large standardized residuals were identified in the motivation model. The largest Cook's distance was .134, suggesting that no single observation exerted extreme influence on the full-sample estimates.

The regression analyses therefore revealed a different pattern across the two outcomes. Digital-learning frequency remained a significant predictor of both English-learning motivation and self-perceived proficiency after purpose breadth was introduced. However, purpose breadth added statistically significant explanatory value only for self-perceived proficiency, where authentic/communicative purpose breadth emerged as a significant unique predictor. In contrast, the incremental contribution of purpose breadth to motivation did not reach statistical significance in the full-sample analysis. Given the presence of several comparatively large residuals in the motivation model, we subsequently examined the robustness of this result through a sensitivity analysis.

3.4 Sensitivity Analysis

Three observations in the motivation model had standardized residuals exceeding |3| in the full-sample analysis (Cases 29, 50, and 108). A sensitivity analysis was therefore conducted after temporarily excluding these observations, reducing the analytical sample to N = 177. In this analysis, digital-learning frequency explained 11.9% of the variance in motivation in Model 1 (R^2 = .119). After the three purpose-breadth indicators were added, explained variance increased to 18.1% (R^2 = .181), representing a statistically significant increment of 6.2%, ΔR^2 = .062, p = .006.

In the full sensitivity model, digital-learning frequency remained statistically significant, β = .233, p = .002. Language-development-oriented purpose breadth also reached statistical significance, β = .189, p = .047, whereas task-oriented purpose breadth (β = −.010, p = .899) and authentic/communicative purpose breadth (β = .120, p = .172) remained non-significant. Because the incremental contribution of purpose breadth changed from non-significant in the full sample (p = .061) to significant in the sensitivity analysis (p = .006), the motivation findings were considered sensitive to the presence of a small number of extreme observations. Accordingly, the N = 180 analysis was retained as the primary result, while the sensitivity analysis was used to qualify the robustness of the motivation model.

4. Discussion

This study examined whether the purposes for which non-English-major students engaged in digital English learning provided explanatory value beyond the frequency of their engagement. Three findings are particularly noteworthy. First, students' digital English-learning practices were dominated by translation and assignment completion,

while authentic and communicative uses were less frequently reported. Second, digital-learning frequency was positively associated with both English-learning motivation and self-perceived English proficiency and remained a significant predictor of both outcomes in the hierarchical regression models. Third, the contribution of learning purposes differed across outcomes: purpose breadth did not significantly increase the explained variance in motivation in the full-sample model, whereas it added significant explanatory value for self-perceived English proficiency, with authentic/communicative purpose breadth emerging as the only significant purpose-specific predictor. These findings support a more differentiated view of digital English learning in which both how often students engage and what they use digital resources for are relevant, but their importance is not uniform across learning outcomes.

The predominance of translation and assignment completion suggests that digital technologies were used primarily to meet immediate academic and language-support needs. This pattern is consistent with research showing that university students frequently draw on digital resources to solve practical language problems, complete coursework, and support self-directed learning outside formal instruction (Hidayat et al., 2022; Kim & Bae, 2020; Nguyen et al., 2024; Trinder, 2017). For non-English-major students in particular, such use is understandable because English functions as a supporting academic subject rather than the central focus of their degree programs. Digital technologies may therefore serve first as tools for overcoming immediate linguistic demands before being used for broader communicative or experiential purposes. Importantly, this pattern should not be interpreted as evidence that task-oriented digital learning is educationally unimportant. Translation, assignment completion, and examination preparation can provide useful support for academic participation; however, their prominence indicates that students' digital engagement may be shaped more strongly by immediate academic demands than by opportunities for sustained authentic language use.

This descriptive pattern also helps explain why purpose alone may not fully capture the value of digital English learning. Previous research has emphasized that learners' digital practices vary not only in quantity but also in diversity, strategy use, and purpose (Lai et al., 2025; Lai & Wang, 2025; Lee, 2019; Lee & Roger, 2023; Zhang & Liu, 2024). The present findings extend this perspective by showing that students with more frequent digital engagement also tended to report broader purpose use, particularly for language-development and authentic/communicative purposes. Thus, frequency and purpose appear related rather than completely independent dimensions of digital engagement. More frequent users may simply encounter or create more opportunities to use English in different ways. This relationship is important because it suggests that research focusing only on frequency risks overlooking meaningful qualitative differences in engagement, while research focusing only on purpose may overlook the cumulative role of repeated exposure and practice.

The positive association between digital-learning frequency and both outcomes further supports the continued relevance of frequency as an indicator of digital engagement. In the present study, frequency was positively related to motivation and self-perceived proficiency and remained significant after the three purpose-breadth indicators were entered into the regression models. This pattern is broadly consistent with previous research linking informal digital English learning with motivational, affective, and proficiency-related outcomes (Guan et al., 2024; Indrayani et al., 2024; Liu, Zhang, & Zhang, 2024; Rezai et al., 2025; Zhang & Liu, 2024). Repeated engagement with digital English resources may provide more frequent opportunities for exposure, practice, and successful task completion, which may in turn be reflected in learners' motivation and perceptions of their own English ability. However, because the

present study was cross-sectional, these relationships should not be interpreted causally. It is equally plausible that more motivated students or those who perceive themselves as more proficient are more inclined to engage frequently with English through digital technologies.

The bivariate correlations also revealed that language-development-oriented and authentic/communicative purpose breadth were positively associated with both motivation and self-perceived proficiency, whereas task-oriented purpose breadth was not significantly related to either outcome. This distinction is broadly compatible with prior work showing that different purposes and forms of digital engagement are associated with different learning experiences and outcomes (Lai et al., 2025; Lai & Wang, 2025; Lee, 2019). Language-development activities such as vocabulary learning, reading, listening, speaking, and writing may involve more direct attention to language skills, while authentic and communicative activities may provide opportunities to encounter English in contexts that extend beyond immediate academic requirements. By contrast, task-oriented uses may be more instrumental and episodic, serving a specific academic need without necessarily reflecting sustained engagement with the language. Nevertheless, the absence of significant correlations for task-oriented purpose breadth should not be interpreted as evidence that these activities are ineffective. The present measures captured only the breadth of purposes selected, not the frequency, duration, quality, or strategic depth of engagement within each purpose.

The most important finding emerged from the regression model predicting self-perceived English proficiency. After digital-learning frequency was controlled, the addition of the three purpose-breadth indicators explained a significant additional 6.3% of the variance, and authentic/communicative purpose breadth was the only significant purpose-specific predictor. This finding provides empirical support for the argument that purpose matters beyond frequency, at least for proficiency-related perceptions. Previous studies have similarly suggested that the value of informal digital learning depends on the type and purpose of engagement rather than simply on the amount of digital activity (Lai et al., 2025; Lai & Wang, 2025; Lee, 2019). Authentic and communicative engagement may offer qualitatively different opportunities to use English, encounter naturally occurring language, negotiate meaning, and participate in socially meaningful interaction. Research on digital communication and informal English use has likewise emphasized the role of authentic exposure, receptive and productive activity, and cross-platform participation in broadening learners' opportunities for meaningful language use (Kim & Brutt-Griffler, 2026; Lee & Drajati, 2019a, 2019b; Lee & Roger, 2023; Zadorozhnyy & Lee, 2025).

The fact that authentic/communicative purpose breadth remained significant while language-development-oriented purpose breadth did not is also noteworthy. At the bivariate level, both were positively associated with self-perceived proficiency, yet only authentic/communicative purpose breadth made a unique contribution when frequency and the other purposes were considered simultaneously. This suggests that the overlap among digital-learning purposes matters analytically. Students who use digital resources for language development may also be those who use them more frequently and for other purposes, reducing the unique contribution of language-development breadth once these shared associations are controlled. Authentic and communicative use, however, appears to contribute information that is less fully captured by overall frequency. This interpretation is consistent with the broader view that digital language learning is multidimensional and that different patterns of engagement may make distinct contributions to learners' experiences (Lee, 2019; Zhang & Liu, 2024).

A different pattern emerged for English-learning motivation. Although frequency explained a significant proportion of variance in motivation and remained a significant

predictor in the full model, the addition of purpose breadth did not produce a statistically significant improvement in the full-sample analysis. This suggests that motivation may be less directly differentiated by the breadth of digital-learning purposes than self-perceived proficiency. Motivation is a complex construct influenced by goals, beliefs, enjoyment, self-efficacy, future aspirations, and contextual demands, and therefore may not be adequately explained by purpose breadth alone (Bradford, 2007; Fang et al., 2026; Liu, Darvin, & Ma, 2024; Liu, Zhang, & Zhang, 2024; Liu et al., 2026; Rezai et al., 2025; Yang et al., 2025). Research involving non-English-major students has also shown that English-learning motivation may simultaneously reflect academic, career, communicative, and personal motives rather than a single dominant orientation (Nguyen & Habók, 2021). In the present study, students' relatively high motivation may therefore have reflected a broader motivational system that extended beyond their reported digital-learning purposes.

The sensitivity analysis reinforces the need for caution in interpreting the motivation model. When three cases with large standardized residuals were temporarily excluded, the incremental contribution of purpose breadth became significant, and language-development-oriented purpose breadth emerged as a significant predictor. Because the substantive conclusion changed across the full and reduced samples, the motivation finding should be regarded as sensitive to a small number of extreme observations rather than as a stable purpose effect. Retaining the full sample as the primary analysis was therefore appropriate, particularly because the observations were not identified as invalid and no case showed extreme influence according to Cook's distance. This instability may indicate genuine heterogeneity in how individual students combine digital engagement and motivation. Future studies with larger and more diverse samples could examine whether distinct learner profiles explain why purpose breadth is more predictive for some students than for others.

The findings also have implications for digital English-learning support for non-English-major students. The results do not suggest that students should simply be encouraged to use digital technologies more often, nor do they imply that task-oriented activities should be replaced. Instead, they suggest that frequency and purpose should be considered together. Task-support activities such as translation and assignment completion may remain valuable, but educators could also create opportunities for students to extend digital engagement toward authentic and communicative purposes, such as interacting with English users, responding to real-world content, participating in online discussions, or engaging with English-language media in ways that require active language use. This approach is consistent with research showing that digital English learning can support broader forms of autonomous, informal, and socially meaningful engagement (Hidayat et al., 2022; Indrayani et al., 2024; Lee & Drajati, 2019a, 2019b; Nguyen et al., 2024). For non-English-major learners, such opportunities may be especially important because formal English instruction occupies only a limited part of their academic experience.

Several limitations should be considered when interpreting these findings. First, the study was conducted at a single Indonesian university, so the results should not be generalized to all Indonesian university students. Second, self-perceived English proficiency was based on students' own evaluations rather than standardized proficiency testing; consequently, the findings concern perceived competence rather than objectively measured language ability. Third, the purpose-breadth indicators represented the number of purposes selected within each category and did not capture the intensity, duration, frequency, or quality of engagement with individual purposes. Fourth, the study used a cross-sectional correlational design, which does not permit conclusions about causal direction. Finally, the sensitivity of the motivation regression indicates that the

relationship between digital-learning purpose and motivation requires replication in larger samples and across different institutional contexts.

Overall, the findings refine the idea that digital English learning should be understood only in terms of frequency. Frequency remained consistently relevant to both motivation and self-perceived proficiency, but learning purpose contributed differently across outcomes. The clearest evidence for a beyond-frequency effect emerged for self-perceived proficiency, where authentic/communicative purpose breadth provided additional explanatory value beyond how often students engaged digitally. For motivation, in contrast, the incremental role of purpose breadth was less stable. The study therefore suggests that the relevance of digital-learning purpose is outcome-specific rather than uniform, and that a fuller understanding of digital English learning requires attention to both the quantity and the nature of students' engagement.

5. Conclusion

This study examined how digital-learning frequency and the breadth of digital English-learning purposes were related to English-learning motivation and self-perceived English proficiency among non-English-major undergraduate students at an Indonesian university. The findings showed that students primarily used digital technologies for translation and assignment completion, while authentic and communicative uses were less common. Digital-learning frequency was positively associated with both motivation and self-perceived proficiency and remained a significant predictor of both outcomes after learning purposes were taken into account. These findings confirm that how often students engage with digital English learning remains an important dimension of their learning experience.

At the same time, the results demonstrate that frequency alone does not provide a complete account of digital English learning. Purpose breadth contributed differently across the two outcomes. For self-perceived English proficiency, the addition of learning purposes significantly improved the regression model, with authentic/communicative purpose breadth emerging as the only significant purpose-specific predictor. In contrast, the incremental contribution of purpose breadth to motivation was not statistically significant in the full-sample analysis and was sensitive to a small number of extreme observations. The central contribution of this study is therefore the finding that the relevance of digital-learning purposes is outcome-specific rather than uniform. For non-English-major students, understanding digital English learning requires attention not only to how frequently they engage with digital resources but also to what they use those resources for.

These findings suggest that digital English-learning support in higher education should move beyond encouraging greater technology use alone. While task-oriented activities remain important for students' immediate academic needs, opportunities for authentic exposure and meaningful communication in English may broaden the educational value of digital engagement. Because the study was conducted at a single institution and relied on self-reported proficiency and purpose-breadth indicators, future research should examine these relationships across more diverse institutional contexts, incorporate objective measures of English proficiency, and consider the frequency, intensity, and quality of specific digital-learning activities. Such work would help clarify when and for whom different forms of digital English engagement are most strongly associated with motivational and proficiency-related outcomes.

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