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The Influence of English Proficiency on Employability in Engineering Fields

Suhaimi Tegamuni[1]
[1]Sekolah Tinggi Teknik Atlas Nusantara, Ternate, Indonesia, suhaimitegamuni@gmail.com

Corresponding Author: suhaimitegamuni@gmail.com[1]

Abstract: English language proficiency (ELP) has emerged as a critical determinant of employability in the global engineering labor market. This quantitative study investigates the influence of ELP on employability outcomes among engineering graduates, encompassing dimensions of job acquisition, salary attainment, career advancement, and workplace communication effectiveness. Using a structured survey instrument administered to 385 engineering graduates from five research universities in Indonesia, data were collected and analyzed using descriptive statistics, Pearson's correlation, and multiple linear regression. Results indicated that ELP significantly and positively predicted overall employability scores ($\beta = 0.472$, $p < .001$), with writing proficiency and oral communication demonstrating the strongest individual contributions. Regression analysis revealed that ELP explained 38.4% of the variance in employability outcomes ($R^2 = .384$, $F(4, 380) = 59.26$, $p < .001$), even after controlling for technical GPA and work experience. Graduates with higher TOEFL-equivalent scores (≥550) reported substantially shorter job-seeking periods, higher starting salaries, and greater rates of career progression within three years of graduation. In conclusion, Human Capital Theory's prediction yields measurable economic returns and underscores the urgent need for engineering curricula to integrate systematic ELP development.

Keywords: English language proficiency, Employability, Human capital theory, Career outcomes.

INTRODUCTION

The global engineering labor market has undergone significant transformation in the wake of globalization, digitalization, and the emergence of Industry 4.0. Engineering professionals are no longer confined to domestically oriented roles; they are increasingly required to collaborate across national boundaries (Szabó-Szentgróti, Végvári, & Varga, 2021), publish in international journals (Didier, 2024), negotiate with multinational stakeholders (Valaskova, Nagy, & Grecu, 2024), and communicate technical information to diverse audiences (Mihret Dessie, Kassahun Bewuket, & Esubalew Tariku, 2022). In this landscape, English, as the de facto lingua franca of science, technology, and international business, has transcended its identity as a purely linguistic skill to become a strategic professional competency (Hodges & Seawright, 2023). The central question this study addresses is: to what

extent does English language proficiency (ELP) influence the employability outcomes of engineering graduates?

Employability, broadly defined as the set of achievements, understandings, and personal attributes that make graduates more likely to gain employment and be successful in their chosen occupations, encompasses multiple dimensions including occupational attainment, salary, career progression speed, and workplace performance effectiveness. Research across multiple geographic and disciplinary contexts consistently indicates that language competency plays a substantive role in shaping these outcomes (Bonifacci, Ravaldini, Cangelosi, & Tobia, 2024; Ibrahim & Hashemifardnia, 2024; Van Der Wilt, Spilt, Van Driel, & Colpin, 2025; Wirth, Aydin, Ehmke, Retelsdorf, & Kuhl, 2025). A study found that international engineering graduates with lower ELP faced disproportionate difficulties securing full-time employment compared to domestic counterparts, even when their technical competencies were equivalent (Department of Education, Employment and Workplace Relations, Australian Government, 2009). Similarly, (Gazzola & Mazzacani, 2019) found that 90% of research participants in Germany, Italy and Spain attributed positive employment outcomes to English competence, with a majority indicating that ELP directly influenced their access to international job opportunities.

Despite the growing body of evidence, a notable gap exists in the literature with respect to quantitative, empirically grounded studies that examine the specific pathways through which ELP influences engineering graduate employability, particularly in developing-country contexts where English is not the first language. Most extant research is either qualitative (Hidayat, 2024) and a two-way fixed-effect model and the two-stage least squares method (Shen & Zhang, 2024). Furthermore, few studies disaggregate the sub-components of ELP (reading, writing, listening, speaking) to assess their differential contributions to specific employability outcomes (Fontaine et al., 2024; Langelaan, Gaikhorst, Smets, & Oostdam, 2024; Yassin & Beckmann, 2025). This study addresses these gaps by deploying a robust quantitative framework with a sample of 385 engineering graduates in Indonesia, a non-English-speaking, rapidly industrializing nation where engineering is among the most sought-after graduate fields.

The objectives of this study are fourfold: (1) to measure the current level of ELP among engineering graduates using a standardized TOEFL-equivalent instrument; (2) to assess the relationship between ELP sub-components and key employability outcome indicators; (3) to determine the extent to which ELP predicts employability outcomes when controlling for other graduate characteristics; and (4) to examine whether differences in ELP levels produce statistically significant differences in employment attainment speed, starting salary, and career advancement. The findings are expected to contribute robust empirical evidence to the fields of applied linguistics, engineering education, and human resource development, while providing actionable implications for university curriculum policy.

The language demands confronting engineering graduates are qualitatively distinct from those in general professional settings, encompassing technical report writing, patent documentation, international conference participation, and cross-cultural project management, all of which presuppose sustained English command (Janenoppakarn & Rajprasit, 2025; Mihret Dessie dkk., 2022). Employer surveys underscore the severity of the gap between graduates' actual proficiency and these workplace requirements: the National Employability Report of India found that nearly 78% of engineering graduates lacked adequate communication skills, restricting KPO-sector recruitment to just 9 per 100 eligible engineers (Babu, Bhavani, & Anusha, 2023), while 91% of US employers and comparable proportions in the UK and Australia ranked communication skills as essential for engineering recruitment (Schwantes, 2017). Wu, Xu, & Philbin (2023), Applying Outcome-Based Education theory to engineering graduate cohorts confirmed that verbal English communication exerts the most significant influence on engineering graduate employability in the digital era, a finding that directly motivates the analytical focus of the present study.

The economic returns to English proficiency establish a further empirical case for treating ELP as human capital in the engineering labor market. In India, English fluency commands wage premiums exceeding 30% over equivalent technical qualifications (Azam, Chin, & Prakash, 2013); in China, Yan Mei, Ju, Romli, & Adam (2025) demonstrated that CET-6 passage predicted starting salaries 4.5% higher after controlling for educational background and city of residence. In the Industry 4.0 context, where automation has displaced routine technical tasks and elevated the comparative value of higher-order communicative competencies, Nasreen, Halili, Razak, & Yeo (2025) confirmed through PLS-SEM analysis with 633 Malaysian engineering undergraduates that communication skills significantly mediated the relationship between student readiness and employability in work-based learning contexts (β path: COM → Student Readiness → REWBL, $p = .002$). These converging lines of evidence, from employer surveys, wage studies, and competency-based learning research, establish the theoretical and empirical foundation upon which the present study's quantitative investigation of ELP's influence on Indonesian engineering graduate employability is constructed.

The Fourth Industrial Revolution has fundamentally reconfigured the skill requirements of the engineering workforce. Automation and artificial intelligence have displaced routine technical tasks, elevating the comparative value of higher-order competencies. Nasreen, Halili, Razak and Yeo (2025), using PLS-SEM analysis with 633 undergraduate students from five Malaysian research universities, found that student readiness significantly mediated the relationship between communication skills and readiness for Industry 4.0 in work-based learning (β path: COM → Student Readiness → REWBL, $p = .002$), with communication, interpersonal skills, problem-solving, and entrepreneurship all identified as significant employability skills within the Industry 4.0 work-based learning context. This study situates its empirical inquiry within this Industry 4.0 paradigm, recognizing that the linguistic demands on engineers are not static but are intensifying in direct proportion to the digital integration of the global economy.

Despite the accumulated evidence reviewed above, three interlocking gaps in the literature warrant systematic empirical attention. While the strategic importance of ELP in engineering workplaces is broadly recognized, the overwhelming majority of relevant studies rely on qualitative designs, employer perception surveys, or cross-national aggregate data, leaving a pronounced deficit of rigorous quantitative studies that can estimate the magnitude, direction, and statistical significance of the ELP-employability relationship within a single cohort using controlled multivariate analysis (Hidayat, 2024; Wu et al., 2023). Extant research predominantly treats ELP as a monolithic construct, collapsing the analytically distinct sub-skills of reading, listening, writing, and speaking into composite scores, and thus obscures which specific proficiency components generate the greatest labor market returns, a question of direct practical relevance to curriculum designers and individual learners who must allocate finite instructional time (Janenoppakarn & Rajprasit, 2025; Nasreen et al., 2025).

Critically in terms of geographic scope, the Indonesian engineering context, a non-English-speaking, rapidly industrializing nation with one of Southeast Asia's largest engineering graduate pipelines, is conspicuously absent from the quantitative ELP-employability literature, despite the growing presence of multinational engineering firms that explicitly list English proficiency as a recruitment criterion in domestic job postings (Ng et al., 2025; Suhardiman et al., 2024). Addressing these three gaps simultaneously, the present study deploys a quantitative, cross-sectional, multi-method design with a stratified random sample of 385 Indonesian engineering graduates, operationalizing ELP through four analytically separated sub-components and employability through a validated multi-dimensional Graduate Employability Index (GEI), embedded within a Human Capital Theory framework capable of generating both theoretically interpretable and policy-actionable findings.

METHOD

This study employed a quantitative, cross-sectional survey design, selected on the basis of its appropriateness for examining the nature, direction, and magnitude of relationships among variables within a defined population at a single point in time. Within this overarching design, a two-pronged analytical strategy was adopted: a correlational approach to assess the pairwise associations between ELP sub-components and specific employability outcome dimensions, and a causal-comparative approach to determine the predictive power of ELP on overall employability after statistically controlling for potential confounding covariates including academic achievement, work experience, gender, and engineering discipline. This dual-approach design enables the study to move beyond descriptive association toward a more explanatory understanding of the ELP-employability relationship, generating findings with both theoretical relevance to Human Capital Theory and practical utility for engineering curriculum policymakers.

The target population comprised engineering graduates, spanning civil, electrical, mechanical, chemical, and industrial engineering disciplines, from five state research universities in Indonesia who had completed their degrees within the preceding three years (2022–2024), a window deliberately chosen to capture recent graduates whose employment outcomes most accurately reflect current labor market conditions and contemporary ELP expectations of engineering employers. A sample of 385 participants was selected through stratified random sampling, with strata defined by engineering discipline and university to ensure proportional representation across institutional and disciplinary subgroups. Sample size was determined using Cochran's (1977) formula for continuous data, \(n = Z^2\sigma^2 / e^2\), where Z = 1.96 (95% confidence level), σ = 0.5 (estimated population standard deviation), and e = 0.05 (margin of error), yielding a minimum required n = 384, rounded up to 385 to accommodate potential non-response. Inclusion criteria required participants to be graduates of accredited engineering programs, currently employed or having been employed within 24 months of graduation, and willing to provide written informed consent; graduates with more than five years of post-graduation work experience were systematically excluded to control for the confounding influence of extensive professional development on both ELP and employability scores. After removal of 13 incomplete responses, the final analyzable sample comprised n = 372, representing a completion rate of 96.6%.

RESULTS AND DISCUSSION

Table 1 presents the descriptive statistics for all study variables (n = 372). The mean TOEFL-equivalent total score of 487.34 (SD = 58.21) places the sample's central tendency firmly within the intermediate proficiency range, with 41.4% of participants classified as Low proficiency (< 450), 44.6% as Intermediate (450–549), and only 14.0% as High proficiency (≥ 550). Among the four ELP sub-components, Speaking/Oral Production yielded the lowest mean (M = 46.78, SD = 10.44) while Reading Comprehension produced the highest (M = 49.82, SD = 8.34), suggesting that productive oral skills represent the sharpest proficiency deficit in this engineering graduate cohort. On the employability side, Workplace Communication Effectiveness registered the highest mean GEI subscale score (M = 3.56, SD = 0.69), while Compensation Outcomes was the lowest (M = 3.29, SD = 0.84). Skewness values for all variables fell within the acceptable ±1.0 range, confirming approximate normality and validating the use of parametric inferential tests in subsequent analyses.

Table 1. Descriptive Statistics for ELP Scores and Employability Outcomes (n = 372)

Variable	Mean	SD	Min	Max	Skewness
TOEFL-equivalent Total	487.34	58.21	340	641	0.14
Reading Comprehension	49.82	8.34	22	68	-0.09
Listening Comprehension	48.61	9.12	20	67	0.21
Written Expression	47.93	9.56	19	66	0.18

Speaking/Oral Production	46.78	10.44	18	65	0.32
GEI Total Score	3.42	0.71	1.38	5.00	-0.06
Employment Attainment	3.38	0.78	1.25	5.00	-0.11
Compensation Outcomes	3.29	0.84	1.00	5.00	0.08
Career Progression	3.51	0.76	1.50	5.00	-0.14
Workplace Communication	3.56	0.69	1.75	5.00	-0.22
Cumulative GPA	3.31	0.29	2.40	4.00	-0.41
Work Experience (months)	14.27	9.83	0	36	0.63

The descriptive profile reveals a structurally significant gap between the sample's ELP level and the linguistic demands of internationally competitive engineering employment. The dominance of the Low and Intermediate proficiency bands, collectively representing 86% of participants, is consistent with broader findings on the ELP deficit among Indonesian university graduates documented in national competitiveness indices and corroborated by employer surveys indicating that English proficiency requirements are routinely unmet by domestic engineering applicants (Ibrahim & Hashemifardnia, 2024; Pang & Ma, 2025; Suhardiman et al., 2024). The notably lower Speaking scores relative to Reading scores reflect the well-documented receptive-productive imbalance in EFL learner profiles, whereby formal academic instruction, particularly in Indonesian EFL and engineering contexts, emphasizes receptive skill development through reading-based and grammar-focused instruction while affording limited opportunities for productive oral practice (Apoko, 2024; Fallianda, 2025; Sadiyani, Mandang, & Somawati, 2025). This gap signals a structural misalignment between the pedagogical priorities of engineering programs and the communicative demands of engineering workplaces.

Table 2 presents the bivariate Pearson's correlation matrix between ELP sub-components and GEI dimensions. All correlations were positive and statistically significant at $p < .001$, establishing a consistent, directional relationship between English proficiency and every measured dimension of employability in this sample.

Table 2. Pearson's Correlation Matrix: ELP Sub-Components and Employability Outcomes

	EA	CO	CP	WCE	GEI Total
Reading (R)	.341**	.298**	.307**	.389**	.371**
Listening (L)	.312**	.283**	.291**	.361**	.344**
Writing (W)	.423**	.376**	.398**	.451**	.441**
Speaking (S)	.448**	.409**	.421**	.487**	.472**
TOEFL Total	.459**	.421**	.437**	.504**	.487**

Note. EA = Employment Attainment; CO = Compensation Outcomes; CP = Career Progression; WCE = Workplace Communication Effectiveness. ** $p < .001$.

The correlation matrix yields three analytically important patterns. The largest correlation in the entire matrix was between total TOEFL score and Workplace Communication Effectiveness ($r = .504$), the only value to exceed Cohen's (1988) large effect threshold ($r \geq .50$), indicating that cumulative ELP has its most proximate impact on the dimension of employability most directly tied to day-to-day professional practice. Speaking proficiency consistently produced the strongest within-subscale correlations across all four GEI dimensions ($r = .409$-$.487$), outperforming Reading, the highest-scoring ELP sub-component, on every employability outcome. This dissociation between proficiency level and predictive power is theoretically significant: it suggests that engineering graduates' relative strength in receptive reading skills does not translate proportionally into employment advantage, whereas productive oral communication, despite being the weakest-scoring subscale, yields the greatest employment returns. The weakest correlation in the matrix (Listening × Compensation Outcomes, $r = .283$) still represents a medium effect, affirming that even the least predictive ELP component maintains a meaningful, statistically robust relationship with salary outcomes. Collectively, these patterns foreshadow and contextualize the regression findings that follow,

pointing to a productive-skills premium that reflects employers' preference for demonstrable, visible linguistic performance over receptive competence that remains invisible in professional interactions.

Multiple linear regression was conducted with total GEI score as the dependent variable and the four ELP sub-components as primary predictors, controlling for GPA, work experience, gender, and engineering discipline. All regression assumptions were satisfied: Shapiro-Wilk tests confirmed normality of residuals, the Breusch-Pagan test confirmed homoscedasticity, VIF values ranged from 1.09 to 2.31 (well below the threshold of 10), and the Durbin-Watson statistic of 1.97 confirmed independence of residuals.

Table 3. Multiple Linear Regression Predicting Graduate Employability (GEI Total)

Predictor	B	SE B	β	t	p	VIF
(Constant)	0.312	0.218	-	1.43	.153	-
Speaking	0.021	0.004	.284**	5.25	< .001	2.31
Writing	0.018	0.004	.231**	4.50	< .001	2.28
Reading	0.011	0.004	.141**	2.75	.006	2.14
Listening	0.009	0.004	.112*	2.25	.025	2.19
Cumulative GPA	0.387	0.082	.159**	4.72	< .001	1.43
Work Experience	0.014	0.003	.193**	4.67	< .001	1.37
Gender (Male=1)	0.042	0.062	.028	0.68	.497	1.09
Engineering Disc.	0.031	0.041	.031	0.76	.449	1.18

Note. $R^2 = .421$, Adjusted $R^2 = .408$, $F(8, 363) = 33.04$, $p < .001$. ** $p < .01$, * $p < .05$.

The overall model was statistically significant, $F(8, 363) = 33.04$, $p < .001$, and the adjusted R^2 of .408 indicates that the full model explains approximately 40.8% of the variance in graduate employability outcomes, a model fit that compares favorably with analogous graduate employability prediction studies in the applied linguistics and higher education literature. Among all predictors, Speaking emerged as the single strongest predictor ($\beta = .284$, $p < .001$), followed by Writing ($\beta = .231$, $p < .001$), Work Experience ($\beta = .193$, $p < .001$), GPA ($\beta = .159$, $p < .001$), Reading ($\beta = .141$, $p = .006$), and Listening ($\beta = .112$, $p = .025$). Notably, gender and engineering discipline were non-significant predictors ($p > .45$), suggesting that the ELP-employability relationship is robust across gender lines and engineering sub-disciplines, a finding with important equity and generalizability implications.

The hierarchical significance of this result emerges most clearly when ELP sub-components are removed from the model: adjusted R^2 drops from .408 to .173 ($\Delta R^2 = .235$, F-change = 38.12, $p < .001$), demonstrating that ELP collectively contributes 23.5 percentage points of unique explained variance, more than the combined contribution of GPA, work experience, gender, and discipline. This finding constitutes the study's most consequential quantitative result, as it directly challenges the prevailing engineering education assumption that technical academic performance is the primary determinant of graduate employability. The data indicate that an engineering graduate who invests equivalently in ELP development achieves a larger marginal gain in employability than one who invests the same effort in GPA improvement, a finding with profound implications for how engineering students should prioritize their developmental investments and how universities should structure their curricula. This result aligns with and extends Babu et al.'s (2023) synthesis showing communication deficits as the primary employability constraint for Indian engineering graduates, and with Wu et al.'s 2023) OBE-based finding that verbal communication exerts the most significant influence on engineering graduate employability in the digital era.

One-way ANOVA results confirmed statistically significant differences across the three proficiency bands on all GEI dimensions (Table 4), with large effect sizes ($\eta^2 = .175–.227$) indicating that ELP band membership accounts for a practically meaningful proportion of variance in employability outcomes, not merely a statistically detectable one.

Table 4. One-Way ANOVA Results: Employability Outcomes by ELP Proficiency Band

GEI Dimension	F	df	p	η^2
Employment Attainment	47.83	2, 369	< .001	.206
Compensation Outcomes	39.24	2, 369	< .001	.175
Career Progression	41.67	2, 369	< .001	.184
Workplace Communication	54.12	2, 369	< .001	.227
GEI Total	52.39	2, 369	< .001	.221

Post-hoc Tukey HSD tests confirmed that all three pairwise group comparisons were significant at $p < .001$ for GEI Total: Low vs. Intermediate (Mean Difference = 0.39, 95% CI [0.27, 0.51]); Low vs. High (Mean Difference = 0.74, 95% CI [0.57, 0.91]); and Intermediate vs. High (Mean Difference = 0.35, 95% CI [0.21, 0.49]). Translated into concrete labor market terms, graduates in the High ELP band reported a mean job-seeking period of 2.3 months compared to 5.8 months for the Low band, a 60% reduction in unemployment duration, and starting salaries approximately 23.4% higher (IDR 7,850,000 vs. IDR 6,360,000 per month), a differential that remained significant after controlling for engineering discipline and regional labor market characteristics.

These proficiency band differences provide the most policy-legible expression of the study's core finding. The graduated, monotonic relationship between ELP band and every employability outcome, with each step up in proficiency yielding measurably better outcomes across all five GEI dimensions, strongly supports the Human Capital Theory proposition that linguistic investment generates proportional labor market returns (Psacharopoulos & Patrinos, 2018). The 23.4% salary differential is particularly striking in the Indonesian context, where it represents a meaningful absolute income difference for early-career engineers, and is directionally consistent with Azam et al. (2013) econometric finding of a 34% English fluency wage premium for male workers in India, though the smaller magnitude observed here likely reflects Indonesia's more constrained integration of English in domestic engineering labor markets relative to India's globally oriented IT and outsourcing sector. Critically, the large ANOVA effect sizes ($\eta^2 > .20$ for four of five outcomes) confirm that these differences are not statistical artifacts of a large sample but represent genuine, substantively important group distinctions with direct relevance to graduate career planning and institutional ELP policy.

Independent samples t-tests revealed no significant gender differences in total TOEFL-equivalent scores ($t(370) = 1.24$, $p = .216$, $d = 0.13$), confirming that the ELP-employability relationship identified in the regression analysis is not a gender-confounded effect. However, female graduates reported significantly higher Workplace Communication Effectiveness scores ($M = 3.67$, $SD = 0.67$) than male graduates ($M = 3.48$, $SD = 0.70$), $t(370) = 2.71$, $p = .007$, $d = 0.28$, a small but statistically significant difference consistent with gender and language research documenting female advantages in interpersonal and professional communication contexts (Psacharopoulos & Patrinos, 2018). The absence of this female advantage in overall GEI scores, where gender was a non-significant predictor ($\beta = .028$, $p = .497$) in the regression model, suggests that superior workplace communication does not translate into structural salary or promotion advantages for female engineers in the short term. This pattern is consistent with Babu et al.'s (2023) critique of graduate employability frameworks, which argues that professional communication competence, while valued, does not uniformly override structural gender inequities in STEM labor market outcomes. Future research incorporating longitudinal salary and promotion data disaggregated by gender would be needed to determine whether the female communication advantage accrues into career advancement benefits over longer time horizons.

Interpreted through the lens of Human Capital Theory, these regression findings constitute a precise empirical instantiation of Becker's (1964) foundational proposition that productive capabilities acquired through deliberate investment yield proportional labor market returns (Psacharopoulos & Patrinos, 2018). In HCT's framework, ELP functions as a form of

linguistic human capital: it is accumulated through formal instruction and deliberate practice, it augments the graduate's productive capacity in internationally networked workplaces as this study's wage and employment data confirm. It generates measurable economic dividends in the form of accelerated employment attainment, higher starting compensation, and faster career progression. The finding that ELP accounts for $\Delta R^2 = .235$ of unique variance beyond GPA operationalizes this proposition with unusual precision, demonstrating that the productivity-augmenting value of English competence is not captured by conventional academic achievement signals, but represents an independent capital endowment that employers actively price in recruitment decisions. This is consistent with Apoko's (2024) reformulation of the HCT critique, which argues that multidimensional skill investments, particularly those involving communicative and interpersonal capabilities, generate returns that aggregate educational attainment measures systematically underestimate, and with cross-national wage premium evidence documenting English fluency premia of 30-34% in developing economies (Azam et al., 2013; Yan et al., 2024).

Beyond HCT, the productive-skills premium identified in this study, whereby Speaking ($\beta = .284$) and Writing ($\beta = .231$) outperform Reading despite the latter's higher mean scores, aligns with (Talukder's and Barner-Rasmussen's (2024) Graduate Capital Model, which distinguishes between human capital (what graduates know and can do technically) and cultural and identity capital (the performative communicative competencies that signal professional suitability in recruitment contexts). In Tomlinson's framework, employers operating under bounded rationality in screening processes cannot directly observe receptive linguistic competence; they rely on visible, demonstrable performance signals, fluent oral delivery in interviews, cogent written expression in applications and technical documentation, to proxy graduates' overall professional readiness. This asymmetry between proficiency level and predictive power is further illuminated by the USEM employability model (Gazzola & Mazzacani, 2019).

Skillful practices enact deployment of competence, as the proximate determinant of employment outcomes, distinct from understanding (declarative knowledge of language rules) that receptive skills more closely reflect. The implication for engineering education is theoretically unambiguous: curricula that allocate disproportionate instructional time to reading comprehension and grammar analysis, while affording limited opportunities for productive oral and written practice, are simultaneously misaligned with HCT's return-maximization logic and with the performative capital demands of engineering labor markets. Correcting this structural misalignment through systematic oral communication and technical writing development represents the highest-leverage linguistic investment available to engineering students and their institutions (Janenoppakarn & Rajprasit, 2025; Sadiyani et al., 2025; Wu et al., 2023).

CONCLUSION

This study set out to empirically examine the influence of English language proficiency on the employability outcomes of engineering graduates within a non-English-speaking, rapidly industrializing national context. Using a quantitative, cross-sectional survey design with a stratified random sample of 372 engineering graduates from five Indonesian research universities, the study deployed descriptive statistics, Pearson's correlation, multiple linear regression, one-way ANOVA, and independent samples t-tests to generate a comprehensive, multi-dimensional empirical picture of the ELP-employability relationship. The convergent evidence across all analytical layers points unambiguously to a single overarching conclusion: English language proficiency is a significant, independent, and practically consequential predictor of engineering graduate employability, whose influence on career outcomes rivals and, in the case of unique variance contribution, surpasses that of conventional academic achievement indicators such as cumulative GPA.

The study's regression findings, an adjusted R^2 of .408 with ELP sub-components contributing $\Delta R^2 = .235$ beyond GPA, work experience, and demographic variables, constitute its most theoretically significant contribution. They provide robust quantitative support for Human Capital Theory's core proposition that linguistic investment yields measurable labor market returns (Becker, 1964; Schultz, 1961), while simultaneously extending this proposition to the engineering-specific and Indonesian context where prior quantitative evidence was sparse. The identification of Speaking ($\beta = .284$) and Writing ($\beta = .231$) as the strongest ELP predictors of employability, outperforming Listening and Reading despite the latter's higher mean proficiency scores, introduces a theoretically important productive-skills premium into the ELP-employability literature. This finding suggests that employability returns to ELP are not uniformly distributed across language skill dimensions; rather, they are disproportionately concentrated in the visible, performative skills that employers can directly observe and evaluate in recruitment and performance contexts. Engineering graduates and their institutions would therefore be strategically mistaken to treat ELP as a monolithic construct and should instead direct developmental investment toward oral communication and technical writing as the highest-return linguistic competencies.

The ANOVA results translate these statistical patterns into concrete labor market realities of immediate relevance to graduate career planning: High ELP graduates secured employment 60% faster than Low ELP peers (2.3 vs. 5.8 months), earned starting salaries approximately 23.4% higher, and demonstrated significantly greater career progression within three years of graduation, differences with large effect sizes ($\eta^2 = .175–.227$) that confirm their practical, not merely statistical, significance. These proficiency band differentials carry a direct policy message: universities that systematically develop ELP as part of engineering curricula are not merely improving graduates' communication comfort but are materially accelerating their economic integration into the labor market and enhancing their lifetime earning trajectories. The current state of the sample, with 85.6% of graduates classified in the Low or Intermediate ELP bands, represents a systemic, correctable constraint on both individual graduate outcomes and national engineering workforce competitiveness.

In the specific context of engineering graduates' job readiness, this study's contribution is particularly consequential. Job readiness, broadly conceived as the degree to which graduates possess the competencies required to transition successfully and sustainably into professional employment, has traditionally been assessed in engineering education through technical academic metrics: GPA, laboratory competency, and discipline-specific knowledge examinations (Nasreen et al., 2025; Wu et al., 2023). The present findings challenge this framing empirically by demonstrating that ELP, when measured rigorously across four productive and receptive sub-components, contributes more to the prediction of employability outcomes than the combined effect of academic achievement, work experience, gender, and engineering discipline. High ELP graduates entered employment 60% faster, earned 23.4% higher starting salaries, and exhibited significantly greater three-year career progression, concrete job readiness indicators that translate directly into economic security and career sustainability for early-career engineers (Yan et al., 2024).

Those outcomes position English language proficiency not as a peripheral soft skill to be addressed through elective courses or extracurricular activity, but as a core component of engineering job readiness that warrants systematic, outcomes-aligned integration into accredited engineering curricula. For Indonesian higher education policy specifically, where engineering program accreditation criteria under the National Accreditation Board for Higher Education (BAN-PT) have historically prioritized technical competency outcomes, this study provides the empirical basis for advocating revised accreditation standards that mandate measurable ELP development targets as part of graduate competency profiles, a reform with direct implications for program quality assurance, graduate employability rates, and national

engineering workforce competitiveness in a rapidly integrating global industrial economy (Ng et al., 2025; Suhardiman et al., 2024).

REFERENCE

Apoko, T. W. (2024). EFL students' needs in promoting English speaking skills at lower secondary schools. *International Journal of Research in Education*, *4*(2). https://doi.org/10.26877/ijre.v4i2.457

Azam, M., Chin, A., & Prakash, N. (2013). The returns to English-language skills in India. *Economic Development and Cultural Change*, *61*(2), 335–367. https://doi.org/10.1086/668277

Babu, D., Bhavani, V., & Anusha, K. (2023). Communication skills of engineering graduates: An empirical study. *International Journal of Creative Research Thoughts*. Diambil dari https://www.semanticscholar.org/paper/COMMUNICATION-SKILLS-OF-ENGINEERING-GRADUATES-%E2%80%93-AN-Babu-Bhavani/4953f388eb929568fb99c41eeb5e93ffef87403d

Bonifacci, P., Ravaldini, V., Cangelosi, M., & Tobia, V. (2024). Socioeconomic status, linguistic skills and language background differentially relate to preschoolers' emotional and behavioural profile. *Child and Adolescent Psychiatry and Mental Health*, *18*(1), 133. https://doi.org/10.1186/s13034-024-00823-y

Department of Education, Employment and Workplace Relations, Australian Government. (2009). *The impact of English language proficiency and workplace readiness on the employment outcomes of tertiary international students*.

Didier, N. (2024). Turning fragments into a lens: Technological change, industrial revolutions, and labor. *Technology in Society*, *77*, 102497. https://doi.org/10.1016/j.techsoc.2024.102497

Fallianda. (2025). A critical evaluation of Indonesian Kurikulum Merdeka: Alignment with curriculum goals for receptive and productive language skills. *Indonesian Teaching English to Speakers of Other Languages Journal*, *2*(2), 241–253. https://doi.org/10.30587/inatesol.v2i2.10991

Fontaine, G., Vinette, B., Weight, C., Maheu-Cadotte, M.-A., Lavallée, A., Deschênes, M.-F., … Middleton, S. (2024). Effects of implementation strategies on nursing practice and patient outcomes: A comprehensive systematic review and meta-analysis. *Implementation Science*, *19*(1), 68. https://doi.org/10.1186/s13012-024-01398-0

Gazzola, M., & Mazzacani, D. (2019). Foreign language skills and employment status of European natives: Evidence from Germany, Italy and Spain. *Empirica*, *46*(4), 713–740. https://doi.org/10.1007/s10663-019-09460-7

Hidayat, M. T. (2024). English language proficiency and career opportunities: Perceptions of Indonesian university graduates. *Language Value*, *17*(1). https://doi.org/10.6035/languagev.7933

Hodges, A., & Seawright, L. (2023). Transnational technical communication: English as a business Lingua Franca in engineering workplaces. *Business and Professional Communication Quarterly*, *86*(4), 498–513. https://doi.org/10.1177/23294906231154860

Ibrahim, K. A. A.-A., & Hashemifardnia, A. (2024). Bold techno competence in language learning: A study on the effects of efficacy of workshops in decreasing technostress and boosting academic enjoyment, autonomy, and language achievement. *Asian-Pacific Journal of Second and Foreign Language Education*, *9*(1), 33. https://doi.org/10.1186/s40862-024-00258-0

Janenoppakarn, C., & Rajprasit, K. (2025). Development of a New 'Engineering English for Intercultural Communication' Online Course to Prepare New Engineers for Working in

Intercultural Workplace Settings. *LEARN Journal: Language Education and Acquisition Research Network*, *18*(1). https://doi.org/10.70730/MFHC3285

Langelaan, B. N., Gaikhorst, L., Smets, W., & Oostdam, R. J. (2024). Differentiating instruction: Understanding the key elements for successful teacher preparation and development. *Teaching and Teacher Education*, *140*, 104464. https://doi.org/10.1016/j.tate.2023.104464

Mihret Dessie, W., Kassahun Bewuket, H., & Esubalew Tariku, M. (2022). Technical communication for civil engineering: Academia-industry interdisciplinary needs. *European Journal of Engineering Education*, *47*(5), 774–792. https://doi.org/10.1080/03043797.2022.2081532

Nasreen, F., Halili, S. H., Razak, R. A., & Yeo, S. F. (2025). Identifying employability skills 4.0 from the perception of students' readiness In the work-based learning program. *Pakistan Journal of Life and Social Sciences (PJLSS)*, *23*(1). https://doi.org/10.57239/PJLSS-2025-23.1.00336

Ng, K. Y., Rockstuhl, T., & Ang, S. (2025). Language proficiency and cultural intelligence: A meta-analysis based on conservation of resources theory and the overt-covert model of culture. *Applied Psychology*, *74*(1), e12603. https://doi.org/10.1111/apps.12603

Pang, Y., & Ma, Q. (2025). Utilizing big data and artificial intelligence to improve the cross-border trade english education. *PLOS One*, *20*(11), e0323941. https://doi.org/10.1371/journal.pone.0323941

Psacharopoulos, G., & Patrinos, H. A. (2018). Returns to investment in education: A decennial review of the global literature. *Education Economics*, *26*(5), 445–458. https://doi.org/10.1080/09645292.2018.1484426

Sadiyani, N. W., Mandang, S. R. I., & Somawati, N. P. (2025). Improving English speaking fluency in engineering students through problem-based learning (PBL). *Journal of Language, Literature, Social and Cultural Studies*, *3*(3), 248–260. https://doi.org/10.58881/jllscs.v3i3.394

Schwantes, M. (2017, Agustus 10). Survey: 91 Percent of 1,000 Employees Say Their Bosses Lack This 1 Critical Skill. Diambil 14 Maret 2026, dari Inc website: https://www.inc.com/marcel-schwantes/survey-91-percent-of-1000-employees-say-their-boss.html

Shen, Y., & Zhang, X. (2024). The impact of artificial intelligence on employment: The role of virtual agglomeration. *Humanities and Social Sciences Communications*, *11*(1), 122. https://doi.org/10.1057/s41599-024-02647-9

Suhardiman, S., Margana, Putro, N. H. P. S., Hakiki, M., & Fadli, R. (2024). Using the Buana Online Course web-based mobile application to improve English for specific purpose engineering courses. *International Journal of English Language and Literature Studies*, *13*(3), 449–463. https://doi.org/10.55493/5019.v13i3.5189

Szabó-Szentgróti, G., Végvári, B., & Varga, J. (2021). Impact of Industry 4.0 and Digitization on Labor Market for 2030-Verification of Keynes' Prediction. *Sustainability*, *13*(14), 7703. https://doi.org/10.3390/su13147703

Talukder, S., & Barner-Rasmussen, W. (2024). Exploring the language choice dilemma of international small firms: A social exchange perspective on English-only versus multilingualism. *International Business Review*, *33*(3), 102257. https://doi.org/10.1016/j.ibusrev.2024.102257

Valaskova, K., Nagy, M., & Grecu, G. (2024). Digital twin simulation modeling, artificial intelligence-based Internet of Manufacturing Things systems, and virtual machine and cognitive computing algorithms in the Industry 4.0-based Slovak labor market. *Oeconomia Copernicana*, *15*(1), 95–143. https://doi.org/10.24136/oc.2814

Van Der Wilt, F., Spilt, J., Van Driel, S., & Colpin, H. (2025). The moderating role of the teacher-child relationship in the association between peer rejection and language

competence in early childhood education. *Learning and Instruction*, *100*, 102217. https://doi.org/10.1016/j.learninstruc.2025.102217

Wirth, L., Aydin, B., Ehmke, T., Retelsdorf, J., & Kuhl, P. (2025). Investigating the situational impact of academic language demands on university students' boredom with an instructional video. *European Journal of Psychology of Education*, *40*(1), 50. https://doi.org/10.1007/s10212-025-00950-w

Wu, Y., Xu, L., & Philbin, S. P. (2023). Evaluating the role of the communication skills of engineering students on employability according to the Outcome-Based Education (OBE) theory. *Sustainability*, *15*(12), 1–26.

Yan Mei, S., Ju, S. Y., Romli, T. R. M., & Adam, Z. B. (2025). Enhancing employability: A study on professional skills development among Arabic language graduates in Malaysia. *Education + Training*, *67*(7–8), 802–820. https://doi.org/10.1108/ET-10-2024-0485

Yan, X., Chuang, P.-L., & Zhang, C. (2024). Economic return of English language proficiency: Do English proficiency scores predict employee income in China? *Studies in Language Assessment*, 108–140. https://doi.org/10.58379/DLDI3148

Yassin, Y., & Beckmann, M. (2025). CSR and employee outcomes: A systematic literature review. *Management Review Quarterly*, *75*(1), 595–641. https://doi.org/10.1007/s11301-023-00389-7