



Bridging Classroom and Workplace: An Interactive English E-Module through Task-Based Simulation for Vocational Students' Professional Communication

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Article Info	Abstract
Received: 2026-09-22 Revised: 2026-10-08 Accepted: 2026-10-22 Keywords: <i>interactive e-module; workplace-based learning; task-based simulation; professional communication; vocational English</i> DOI: 10.24256/ideas.v14i2.12694 Corresponding Author: Surya Setiadi Tarigan tarigansurya120@gmail.com Business Administration Kupang State Polytechnic	<i>English instruction in vocational education remains largely general, leaving graduates underprepared for workplace communication. This study aimed to develop an interactive English e-module designed to support vocational students' professional communication competence and to evaluate its appropriateness, practicality, and preliminary effectiveness. Its novelty lies in the integration of Workplace-Based Learning (WBL), Task-Based Simulation (TBS), and ESP-oriented professional communication within one interactive e-module. Using a Research and Development (R&D) design with the ADDIE model, the study began with a needs analysis involving 40 Business Administration students. The resulting e-module, English for Workplace Communication, situates each unit in a simulated organizational scenario that combines language input, simulation tasks, and rubric-based assessment. It was validated by three experts (one per domain: content, language, and media) and trialed over three learning sessions, with practicality rated by 15 students and performance measured in 15 students using a one-group pretest-posttest design. The e-module was rated highly appropriate by experts ($M = 4.25/5.00$) and practical by students (75.60%). Students' professional communication performance increased from 2.23 to 3.12 ($N\text{-Gain} = 0.43$, moderate), a statistically significant improvement with a large effect size (Wilcoxon signed-rank, $p < .001$, $rrb = .98$). These findings provide initial evidence that the e-module was appropriate and practical and was associated with improved professional communication performance within the limited trial. Larger, controlled studies are needed to confirm its effectiveness.</i>

1. Introduction

Professional communication in English has become an important employability factor in the global labor market. A survey of more than 5,300 employers across 38 countries found that 95 percent regard English proficiency as important in the workplace,

with a skills gap of at least 40 percent between required and actual language competence (Cambridge English, 2016). Communication and collaboration are likewise projected to remain among the most demanded competencies throughout this decade (World Economic Forum, 2023). Vocational graduates therefore need preparation that goes beyond general proficiency toward the communicative demands of authentic professional settings.

This need is particularly relevant in Indonesia, which is placed within the low proficiency band of the EF English Proficiency Index (EF Education First, 2024). More than 80 percent of Indonesian polytechnic alumni regard English proficiency as critical for employment and career advancement (Setiawan, 2022), and vocational graduates report persistent gaps between classroom learning and job requirements (Suhaili et al., 2025). The researchers' earlier needs-mapping study likewise identified the professional communication skills that vocational students require for their careers (Tarigan et al., 2024). As general labor-market context, approximately 7.47 million Indonesians were unemployed in 2024 (Badan Pusat Statistik, 2024); this figure reflects multiple structural factors and is not attributed here to English competence, but it underlines the value of vocational education aligned with workplace demands.

The first strand of literature, on workplace-oriented English for Specific Purposes (ESP), consistently shows that vocational English instruction is often insufficiently aligned with learners' occupational communication needs. This misalignment is visible from three angles: employers and vocational students perceive the required communication competencies differently (Rizwan et al., 2021); vocational English teachers struggle to adapt instruction to industry needs because of limited authentic materials and institutional support (Royyani & Gozali, 2025); and scholars therefore call for ESP to be integrated into vocational curricula through closer collaboration with industry (Chettiar et al., 2024). Although the relevance of workplace-oriented ESP is widely acknowledged, its classroom implementation through interactive digital media remains limited (Zeng & Della, 2024). The central challenge is therefore not recognizing workplace needs but translating them into authentic, workplace-embedded classroom practice.

The second strand concerns the pedagogical means of meeting this challenge, for which Workplace-Based Learning (WBL) and Task-Based Simulation (TBS) play complementary roles. WBL provides the contextual dimension by situating learning within, or in close simulation of, authentic work environments, so that learners encounter language demands as they occur in professional practice. WBL and related work-integrated learning designs have been shown to integrate technical competence with communication skills and to strengthen the transfer of classroom learning to workplace performance (Viona & Afrianti, 2024; Putra et al., 2025), including in English instruction for polytechnic students (Jufidah & Wellalangi, 2026).

TBS, an application of Task-Based Language Teaching, provides the activity structure: learners complete realistic tasks with a defined purpose, audience, and outcome, which require them to plan, perform, and reflect as in professional practice. Task-based and simulation-based designs, delivered face to face or digitally, have improved ESP learners' speaking and communication performance (Fujita & Shintani, 2025; Parianson et al., 2023; Ditsiri et al., 2026). However, the two approaches are largely examined separately, and their combination within accessible vocational English materials remains less explored.

The third strand concerns the medium. Interactive e-modules combine text, multimedia, and interactive tasks on a single platform accessible both in class and independently, and interactive instruction has been associated with greater speaking gains among vocational students than non-interactive instruction (Bella et al., 2025). Development studies of such materials have reported positive validation and effectiveness results, yet each addresses only part of the need: ESP-based modules have focused on technical vocabulary (Astuti & Mulyawati, 2026); interactive and flipbook-based speaking e-modules have served basic-level learners or have not used authentic workplace scenarios (Humaya et al., 2025; Makhroji et al., 2023); and simulation-assisted e-modules for workplace communication have targeted general soft skills rather than ESP (Kusumaningrum et al., 2025, 2026).

Taken together, these three strands point to a clear gap. ESP research identifies the need for authentic workplace communication practice, WBL and TBS offer the pedagogical means, and e-module research provides a feasible medium. However, few studies have explicitly integrated WBL, TBS, and ESP-oriented professional communication within one interactive e-module for vocational students. The present study therefore offers three points of novelty: (1) it embeds TBS within an e-module explicitly grounded in WBL; (2) it builds professional communication activities around a consistent, realistic organizational scenario rather than generic dialogues; and (3) it contributes a model of ESP-oriented vocational English instruction centered specifically on workplace communication.

Accordingly, this study aims to develop a WBL-TBS interactive English e-module, evaluate its appropriateness and practicality, and examine changes in vocational students' professional communication performance after its implementation in a limited trial. It addresses two research questions:

1. How is the WBL-TBS interactive English e-module developed and evaluated for appropriateness and practicality?
2. What changes in professional communication performance are observed after its implementation?

Secondarily, the study aligns with Sustainable Development Goal 4 (Quality Education), particularly its target of increasing the number of youth and adults who have relevant technical and vocational skills for employment.

2. Method

2.1 Research Design

This study employed a Research and Development (R&D) design following the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), which suits studies that both develop an instructional product and evaluate it formatively. The evaluation addressed three criteria: appropriateness, judged by experts; practicality, judged by students; and preliminary effectiveness, examined through a one-group pretest-posttest design in a limited trial. Because no comparison group was included, the effectiveness evidence is treated as preliminary rather than causal.

2.2 Development Procedure

Analysis. The analysis stage identified the gap between vocational students' existing English competence and workplace communication demands. It drew on two distinct

sources. The researchers' earlier needs-mapping study (Tarigan et al., 2024) provided a broad map of the professional communication skills that vocational students require and framed the general direction of this research, but none of its data were reused here. The present study then collected new primary data through a needs analysis questionnaire administered to 40 Business Administration students specifically for this study, to identify the English skills and learning preferences that the e-module needed to address at the research site. Its design followed the needs analysis framework used in previous studies of English speaking materials, which distinguishes learners' target needs, namely necessities, lacks, and wants, from their learning needs (Menggo et al., 2019). Accordingly, the questionnaire covered necessities (anticipated workplace situations and skill priorities), lacks (self-assessed competence and evaluations of current materials), and wants and learning needs (preferred ways of learning).

Design and Development. The design phase translated these needs into the module's overall structure, with each unit opening with an authentic Workplace Orientation before proceeding to language input and simulation-based practice. The e-module was then developed using Flip PDF Professional, an interactive flipbook-style publishing application supporting multimedia elements and interactive quizzes, complemented by Mentimeter for warm-up activities and Kahoot for interactive quizzes. Each unit follows a consistent architecture: Workplace Orientation (Scenario, Mission, and an interactive Warm-up), Core Language Input, a Task-Based Simulation, an Assessment with a scoring rubric, an Answer Key, and References. All units are framed around a single fictional organization, positioning learners as employees or interns under a named supervisor to reinforce authenticity.

Implementation and Evaluation. After expert validation, the e-module was implemented in a limited trial of three learning sessions, each lasting 100 minutes, held over three consecutive weeks in August 2026. The pretest was administered before the first session and the posttest after the third session, using the same rubric. During the sessions, the lecturer introduced each workplace scenario, facilitated the role plays, and gave oral feedback after each simulation. After the posttest, students completed the practicality questionnaire, and the e-module was revised and finalized on the basis of the trial results.

2.3 Participants

The participants were 40 fourth-semester students of the Business Administration study program at Kupang State Polytechnic, aged 20 to 24 (34 female and 6 male). They were selected through purposive sampling, a non-probability technique in which participants are chosen because they hold characteristics directly relevant to the research purpose. Three inclusion criteria were applied: (a) active enrollment in the fourth semester of the program; (b) enrollment in a course requiring professional English communication; and (c) completion of General English, the prerequisite for professional English, without prior workplace-oriented communication training. Their English proficiency was characterized through two indicators available in this study: in the needs analysis, only 20% rated their speaking as sufficient for workplace communication, and the trial participants' baseline professional communication performance was at the Developing level (pretest $M = 2.23$ on the four-point rubric).

This group was appropriate for evaluating workplace professional communication on two grounds. Its members were the intended end users of the module, and as prospective business professionals who will use English with clients, colleagues, and supervisors, they were positioned to judge whether its tasks reflected the demands of their future workplaces. Because the same cohort produced the needs data, the trial could be assessed against the needs the module was designed to meet, consistent with the formative logic of the ADDIE framework.

The full cohort took part in the needs analysis. The limited trial was then conducted with 15 students purposively drawn from this group on three further criteria: (a) submission of the needs analysis questionnaire; (b) availability to attend all three learning sessions; and (c) willingness to complete the pretest-posttest sequence and the 10-item student response questionnaire. No participant withdrew, and all assessment data were obtained in full.

2.4 Instruments

Four instruments supported the evaluation stages: a needs analysis questionnaire, an expert validation sheet, a professional communication test, and a student response questionnaire. Table 1 summarizes their purpose, respondents, format, and validation, and each is described below.

Table 1. Summary of Research Instruments

Instrument	Purpose and respondents	Format and scale	Validation and reliability
Needs analysis questionnaire	Identify communication needs and learning preferences; 40 students	33 items in eight areas (30 closed, 3 open); 1–5 scales, selection, and ranking	Reviewed by two experts for relevance and clarity; descriptive survey
Expert validation sheet	Judge appropriateness; three experts, one per domain	12 statements (four per domain); 1–5 scale	Developed from WBL, TBS, and ESP design principles; reviewed before use; one expert per domain (limitation)
Professional communication test	Measure performance before and after the trial; 15 students	Scenario-based speaking task; analytic rubric with six dimensions scored 1–4	Content review before use; single rater (course lecturer), not blind to test occasion; Cronbach's $\alpha = .90$ (pretest) and $.87$ (posttest)
Student response questionnaire	Judge practicality; 15 students	10 statements; 1–5 agreement scale	Developed from practicality indicators; reviewed before use; reliability not established (small sample)

Needs analysis questionnaire. The questionnaire contained 33 items in eight areas: the importance of English for future employment (five items), self-assessed speaking, listening, writing, and reading ability (four), the skill most in need of improvement (one), a ranking of the four skills (one), anticipated workplace situations (ten), the existing English materials (five), preferred ways of learning (four), and open-ended questions (three). The 30 closed items used a 1–5 agreement scale, a single selection, a 1–4 ranking in which lower means indicated higher priority, or multiple

responses. Before administration, two experts reviewed the instrument, one for the relevance of the items to the targeted professional communication needs and the other for the clarity of the wording and response formats. Because the questionnaire was a descriptive inventory whose sections were not designed as unidimensional scales, its quality rested on this expert review rather than on internal-consistency coefficients.

Expert validation sheet. This instrument assessed the appropriateness of the developed e-module through 12 statements, four in each of three expert fields. The material and content statements concerned relevance to workplace communication needs, authenticity of the workplace situations, consistency with Workplace-Based Learning and Task-Based Simulation, and alignment with the stated learning objectives; the language statements concerned grammatical accuracy, appropriateness of vocabulary and expressions, clarity of instructions and examples, and naturalness of the dialogues; and the media and design statements concerned layout and typography, navigation, interactive elements, and suitability for independent learning.

The statements were developed from the WBL, TBS, and ESP design principles that guided the e-module and were reviewed by English lecturers for relevance and clarity before use. The three validators were an ESP lecturer in vocational education (material and content), a linguist with ten years of teaching experience (language), and an instructional media specialist with at least five years of teaching experience (media and design). Each statement was rated from 1 (very inappropriate) to 5 (very appropriate), and the four ratings in a field were summed (maximum 20) and averaged. The total was expressed as a percentage of the maximum and interpreted using five equal intervals of 20 percentage points (Table 2). Because each field was assessed by a single expert, the panel was small and the evidence is limited in strength, so future validation should involve more than one expert per field (Yusoff, 2019).

Professional communication test. This instrument measured students' performance in professional communication and was administered twice, as a pretest before the trial and a posttest after it. It was built around the authentic workplace scenarios that the e-module used in its simulation tasks, so that students performed a purposeful communicative task rather than answering isolated language items. Each performance was rated on six dimensions, namely communication purpose, language accuracy, workplace vocabulary, register, fluency, and interaction. Every dimension was scored from 1 to 4 with level descriptors (1 = needs major improvement, 2 = developing, 3 = competent, 4 = very competent; for example, for communication purpose, 1 = does not achieve the communicative goal and 4 = achieves it clearly and effectively), and the six scores were averaged into a single performance score.

That mean was interpreted as very competent when it fell between 3.26 and 4.00, competent between 2.51 and 3.25, developing between 1.76 and 2.50, and in need of major improvement between 1.00 and 1.75, four equal intervals across the 1–4 range. The change from pretest to posttest was then expressed as a normalized gain for each student, $g = (\text{posttest} - \text{pretest}) / (4 - \text{pretest})$, read as high improvement at g of 0.70 or above, moderate improvement at g between 0.30 and 0.69, and low improvement at g below 0.30 (Hake, 1998). The criterion-referenced rubric was derived from the communicative focus of the e-module's simulation tasks, and its content was reviewed by the material and content expert before use.

All performances were scored by a single rater, the lecturer who conducted the sessions (an English lecturer with five years of ESP teaching experience), who applied the same rubric and scoring procedure on both occasions so that the two sets of scores were directly comparable. Because the rater also taught the sessions, scoring was not blind to test occasion, and inter-rater reliability could not be estimated; both are acknowledged as limitations. Internal consistency across the six rubric dimensions was high (Cronbach's $\alpha = .90$ at pretest and $.87$ at posttest).

Student response questionnaire. This instrument captured students' perceptions of the practicality of the e-module after the limited trial. Its ten statements, whose item-level results are reported in Section 3.4, covered ease of use, clarity of instructions and content, relevance of the workplace scenarios, ease of the Task-Based Simulation activities, engagement, navigation, usefulness of the language activities, realistic practice, and practicality for independent learning. They were developed from common practicality indicators for instructional materials and reviewed by English lecturers before use. Each statement was answered on a five-point agreement scale (1 = strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree), giving a maximum possible score of 50. Mean scores were expressed as a percentage of the maximum and interpreted with the same five intervals (Table 2). Given the small sample and the limited variance of responses, internal consistency could not be meaningfully established, so the practicality results are treated as descriptive.

Table 2. Interpretation Criteria for Expert Validation and Practicality Scores

Percentage of maximum score	Expert validation category	Practicality category
81–100%	Highly appropriate	Very practical
61–80%	Appropriate	Practical
41–60%	Fairly appropriate	Fairly practical
21–40%	Less appropriate	Less practical
0–20%	Not appropriate	Not practical

2.5 Data Analysis

Data were analyzed according to the purpose of each evaluation stage. Needs analysis data were summarized as percentages and means. Expert judgment was summarized as the total and mean score of each domain and interpreted with the criteria above; because each domain was assessed by a single expert, these results are treated as descriptive expert judgment rather than strong evidence of validity. Practicality was analyzed as item and overall mean scores and their percentages of the maximum, based on the responses of the 15 students in the limited trial.

Preliminary effectiveness was assessed from the pretest and posttest performance scores, which were compared descriptively together with individual and mean N-Gain scores. The normality of the paired difference scores was examined using the Shapiro-Wilk test; because the difference scores did not satisfy the normality assumption, the Wilcoxon signed-rank test was used to examine whether the pretest-posttest change was statistically significant at $\alpha = .05$.

The matched-pairs rank-biserial correlation (r_{rb}) was computed as the effect size because it is the rank-based correlation that corresponds to the Wilcoxon signed-rank test; it was obtained as the difference between the proportions of favorable and unfavorable evidence from the rank sums (Kerby, 2014), and values of .10, .30, and .50 were read as small, medium, and large effects (Cohen, 1988). A 95% bootstrap confidence interval (10,000 resamples) was also computed for the mean pretest-posttest difference and the mean N-Gain. Descriptive statistics and N-Gain scores were calculated in Microsoft Excel, and the inferential statistics (Shapiro-Wilk test, Wilcoxon signed-rank test, rank-biserial correlation, and bootstrap confidence interval) were computed in Python with the SciPy library.

2.6 Ethical Considerations

The study was approved by the Head of the Department of Business Administration, Kupang State Polytechnic. Participation was voluntary, and informed consent was obtained from all participants before data collection. Individual data were kept confidential and are reported only in aggregate.

3. Results

3.1 Needs Analysis Results

Table 3 summarizes the needs analysis results. Students regarded English as highly important for their future employment but judged their current skills as insufficient, and speaking emerged as the clear priority, followed by writing. They anticipated using English in almost all of the listed workplace situations. At the same time, they evaluated the current English materials and teaching negatively, particularly in terms of workplace relevance and opportunities for speaking practice, while expressing strong preferences for interactive digital materials, simulation-based tasks, company-based contexts, and role play.

Table 3. Summary of Needs Analysis Results (N = 40)

Area	Result	Meaning
Importance of English for work	83.5% agreed (M = 4.12)	English is seen as very important
Current English skills	10.0% felt sufficient (M = 2.49)	Skills are seen as insufficient
Skill priority	87.5% chose speaking	Speaking is the top priority
Workplace situations	95.5% selected on average	English is expected in most tasks
Current English materials	8.8% agreed (M = 2.95)	Materials lack workplace relevance
Learning preferences	92.0% agreed (M = 4.14)	Strong preference for interactive, simulation-based learning

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Overall, the needs analysis indicated that students require more opportunities to practice spoken professional communication through authentic workplace situations and interactive digital activities. These findings provided the basis for the design and development of the interactive e-module presented in the following section.

3.2 Module Design and Development

Building on the needs analysis findings, the design and development stage translated the identified student needs into specific instructional and technological features. The high priority given to speaking, the preference for authentic workplace situations and simulation-based tasks (82.5% and 92.5%, respectively), and the universal interest in interactive digital materials directly informed the development of the e-module.

The developed English for Workplace Communication e-module was created using Flip PDF Professional to transform the instructional content into an interactive digital learning resource (Figure 1). The platform supported the presentation of learning materials, navigation, multimedia elements, and interactive activities. The module places learners in realistic workplace situations involving communication with colleagues, supervisors, and clients. It consists of three learning sessions covering the importance of English and register, professional greetings and self-introduction, and professional business correspondence. Each session integrates workplace orientation, contextualized language materials, Task-Based Simulation, assessment, an answer key, and references, with activities such as warm-ups, exercises, role plays, and self-checks.

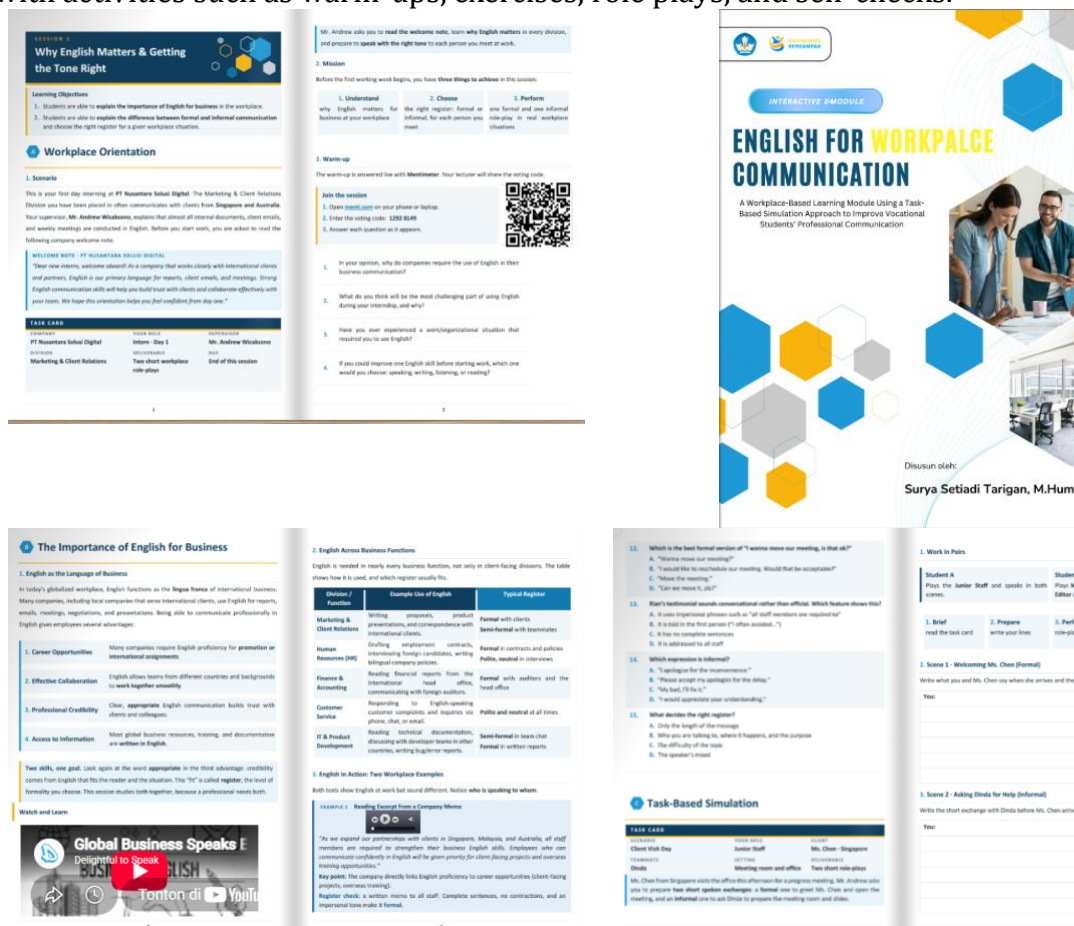


Figure 1. Developed Interactive E-Module

Through this design, Workplace-Based Learning was reflected in the use of realistic professional contexts, while Task-Based Simulation was implemented through purposeful workplace communication tasks. Flip PDF Professional supported the digital realization of these instructional components, resulting in an interactive e-module that connects English learning with workplace situations and professional communication outcomes. Table 4 summarizes the structure of each unit.

Table 4. Structure of the Developed E-Module per Unit

Component	Description
Workplace Orientation	A realistic scenario situates the learner as a new employee or intern at company, presented through a company welcome note and a Task Card specifying the company, role, supervisor, division, deliverable, and due date, followed by a Mission statement and an interactive Warm-up activity conducted through Mentimeter.
Core Language Input	Explicit instruction and model texts relevant to the unit's communicative focus, such as the role of English in business, register choice across business functions, professional greetings, self-introduction, and business correspondence conventions, supported by annotated example texts and formal and informal phrase banks. Some parts use interactive materials such as video, audio, and Kahoot quizzes.
Task-Based Simulation	A structured, workplace-based communicative task with a clear purpose, audience, and outcome, such as preparing a formal meeting opening for a visiting client together with an informal exchange with a colleague, requiring learners to plan, perform, and reflect in a role that mirrors authentic professional practice.
Assessment	A self-check checklist and a criterion-referenced rubric used by the lecturer to score the simulation task, together with a confidence checkpoint completed by the learner.
Answer Key and References	Sample answers with explanations for the unit's exercises, together with unit-specific references that support self-directed review.

3.3 Expert Validation Results

Table 5 presents the expert judgment results, interpreted with the criteria in Table 2. The material and content domain obtained the highest score (18 of 20; $M = 4.50$; 90%), followed by the language domain (17 of 20; $M = 4.25$; 85%), both in the highly appropriate category. The media and design domain obtained 16 of 20 ($M = 4.00$; 80%), which falls in the appropriate category; all four media and design statements were rated 4, indicating that layout, navigation, interactive elements, and support for independent learning were acceptable but could be improved. Across the three domains, the e-module obtained 51 of 60 points ($M = 4.25$; 85%), in the highly appropriate category.

Because each domain was rated by a single expert, these results represent descriptive expert judgment rather than strong evidence of product validity. They nonetheless indicated that the e-module was sufficiently appropriate to proceed to the limited trial.

Table 5. Expert Judgment Results for the Developed E-Module

Expert Domain	Total Score (%)	Mean Score	Interpretation
Material/Content	18 (90%)	4.50	Highly appropriate
Language	17 (85%)	4.25	Highly appropriate
Media/Design	16 (80%)	4.00	Appropriate
Overall	51 (85%)	4.25	Highly appropriate

3.4 Practicality Results

The developed e-module obtained an overall mean score of 3.78 out of 5.00, equivalent to 75.60% of the maximum possible score, and was categorized as practical (Table 2). The highest mean score was obtained for the relevance of the workplace scenarios to vocational students ($M = 4.27$; 85.33%), followed by the clarity of the instructions ($M = 4.13$; 82.67%). In contrast, the lowest mean score was found for the overall practicality of using the e-module independently ($M = 3.20$; 64.00%), although this result remained within the practical category. Across the 150 item responses, 78.00% were positive responses, represented by scores of 4 or 5. Table 6 presents the item-level results.

Table 6. Practicality Results of the E-Module Based on Student Responses

Item	Indicator	Mean	Percentage
P1	Ease of use	4.00	80.00%
P2	Clarity of instructions	4.13	82.67%
P3	Clarity and understandability of content	3.67	73.33%
P4	Relevance of workplace scenarios	4.27	85.33%
P5	Ease of Task-Based Simulation activities	4.00	80.00%
P6	Engagement from interactive features	4.00	80.00%
P7	Navigation and organization	3.60	72.00%
P8	Usefulness of examples and language activities	3.53	70.67%
P9	Practice in realistic workplace situations	3.40	68.00%
P10	Overall practicality for independent learning	3.20	64.00%
	Overall	3.78	75.60%

The findings indicate that the e-module was sufficiently practical for continued implementation and preliminary effectiveness testing. The result should be interpreted as evidence of practicality among the 15 students involved in the limited trial rather than as a basis for generalizing usability to the wider vocational student population.

3.5 Preliminary Effectiveness Results

Preliminary effectiveness was examined through a one-group pretest-posttest design involving the same 15 students who participated in the limited trial and was operationalized as improvement in performance-based professional communication, scored with the six-dimension rubric described in Section 2.4.

Students' mean performance increased from 2.23 (SD = 0.46; developing) at pretest to 3.12 (SD = 0.30; competent) at posttest, a mean gain of 0.89 points on the four-point rubric (95% bootstrap CI [0.63, 1.10]; Table 7). The mean N-Gain was 0.43, within the moderate-improvement category, although its 95% bootstrap CI [0.20, 0.59] indicates that the average normalized gain may range from low to moderate. Fourteen of the 15 students improved, none remained unchanged, and one showed a decrease (Table 8), so that individual N-Gain values ranged from -1.00 to 0.92.

The negative value belonged to a single student whose pretest score was the highest in the group (3.50) and whose posttest score was 3.00, which remained in the competent category. Because the N-Gain divides the observed change by the remaining room for improvement ($4 - 3.50 = 0.50$), this decrease of 0.50 points produced a large negative value. The case is reported as an anomalous individual pattern; the available data do not allow its cause to be determined, and it was retained in all analyses.

At the dimension level (Table 9), all six dimensions showed positive mean changes. The largest gains occurred in communication purpose and language accuracy (1.00 point each), followed by workplace vocabulary and register (0.93 point each) and by fluency and interaction (0.73 point each).

Table 7. Descriptive Results of Performance-Based Professional Communication

Measure	Pretest	Posttest
N	15	15
Mean	2.23	3.12
SD	0.46	0.30
Minimum	2.00	2.67
Maximum	3.50	3.83
Performance category	Developing	Competent

Table 8. Individual Performance Change in the Limited Trial

Individual Outcome	n	Percentage
Improved performance	14	93.33%
No change	0	0.00%
Decreased performance	1	6.67%

Table 9. Aspect-Level Changes in Professional Communication Performance

Professional Communication Dimension	Pretest Mean	Posttest Mean	Mean Gain
Communication purpose	2.27	3.27	1.00
Language accuracy	2.27	3.27	1.00
Workplace vocabulary	2.20	3.13	0.93
Register	2.20	3.13	0.93
Fluency	2.27	3.00	0.73
Interaction	2.20	2.93	0.73

Because the paired difference scores were not normally distributed (Shapiro-Wilk $W = 0.75$, $p < .001$), the Wilcoxon signed-rank test was used. Posttest scores were significantly higher than pretest scores ($W = 1.00$, $z = -3.44$, $p < .001$), with a large effect size ($r_{rb} = .98$). Because the study used a single group of 15 students without a comparison group, this result is interpreted as preliminary evidence of improvement within the limited trial rather than as causal evidence attributable solely to the e-module.

4. Discussion

4.1 From Identified Needs to Workplace-Oriented E-Module Design

The findings demonstrate a clear alignment between the students' identified needs and the instructional design of the developed e-module. The needs analysis (Table 3) showed that the students did not merely require additional English input but needed opportunities to use English in situations that resemble the communicative demands of professional environments, with speaking as the clear priority. The combination of high perceived importance, low self-assessed competence, and negative evaluations of the workplace relevance of current materials suggests that the problem in this context lay less in students' recognition of the need for English, which was strong, than in the lack of instructional opportunities to rehearse workplace communication.

This pattern echoes the misalignment between vocational English instruction and occupational needs reported in workplace-oriented ESP research (Rizwan et al., 2021; Royyani & Gozali, 2025) and supports previous research emphasizing the importance of aligning vocational English instruction with workplace requirements and professional communication needs (Suhaili et al., 2025; Zeng & Della, 2024).

The design of the e-module directly responded to these needs by organizing learning around a sequence of Workplace Orientation, Core Language Input, Task-Based Simulation, Assessment, and self-directed review. Rather than presenting English as a set of decontextualized language exercises, the module positioned learners as employees or interns who were required to communicate within a particular organizational context. This choice addressed the students' dissatisfaction with the relevance of current materials and the limited speaking practice they reported, and it translated their preference for authentic and simulation-based learning into a concrete pedagogical sequence.

The design also reflects the complementary roles of Workplace-Based Learning and Task-Based Simulation. Workplace-Based Learning provides the contextual dimension by situating learning within work-related situations, whereas Task-Based Simulation provides the activity structure through which students perform purposeful communication tasks. This combination is consistent with research highlighting the role of work-integrated learning in connecting classroom learning with workplace practice (Viona & Afrianti, 2024; Putra et al., 2025).

In the present study, the two approaches were not treated as separate instructional components; instead, they were operationalized through the same learning sequence, in which students first encountered a workplace situation, received relevant language input, and subsequently used the language to accomplish a simulated professional task. From a task-based perspective, this sequence mirrors the pre-task, task, and post-task cycle, in which meaning-focused performance is prepared by input and followed by reflection (Ellis, 2003).

4.2 Appropriateness and Practicality of the Developed E-Module

Expert judgment indicated that the e-module was highly appropriate in content and language and appropriate in media and design (Table 5). The stronger ratings for content and language suggest that the module's workplace focus and its language input were coherent, whereas the comparatively lower media and design rating, in which every statement received the same rating of 4, indicates that the digital presentation was acceptable but not yet optimal. These judgments are consistent with previous development studies reporting favorable expert evaluations of English learning materials (Astuti & Mulyawati, 2026; Makhroji et al., 2023) and with evidence that interactive materials can support contextualized language learning (Bella et al., 2025). Because each domain was judged by a single expert, however, the ratings are best understood as descriptive judgments that guided the trial rather than as strong evidence of validity.

The practicality results provide further insight into how students perceived the product during the limited trial. Students rated the e-module as practical, and the relevance of the workplace scenarios received the highest rating (Table 6). This result is particularly meaningful because workplace contextualization was one of the central design principles of the e-module. The relatively high rating suggests that students recognized the relevance of learning activities that reflected situations involving colleagues, supervisors, and clients. This finding supports the argument that contextualized vocational English materials can help reduce the distance between classroom activities and anticipated workplace communication.

However, the results also reveal an important area for improvement. The lowest rating was obtained for the overall practicality of using the e-module independently, although it remained within the practical category. This finding matters because e-modules are expected to support self-directed learning, yet learner autonomy, the capacity to take charge of one's own learning, does not develop simply because materials are available for independent use; it requires deliberate support (Benson, 2011). In this trial, the sessions were lecturer-guided, with the lecturer introducing scenarios, facilitating role plays, and giving oral feedback, so students may have had limited opportunity or confidence to use the module on their own.

This reading is consistent with the media and design rating for suitability for independent learning, which was acceptable but not high. Future revisions should therefore build autonomy support into the module itself, for example through clearer navigation, explicit learning goals and progress checklists, model performances for self-assessment, and automated feedback on interactive tasks. Thus, the practicality findings should not be interpreted simply as evidence that the product is universally easy to use; rather, they identify both the strengths and the areas requiring further refinement.

4.3 Improvement in Professional Communication Performance

The performance results provide preliminary evidence that students' professional communication improved during the limited trial. The group moved from the developing to the competent level, all six rubric dimensions showed positive mean changes, and the largest gains occurred in communication purpose and language accuracy (Table 9).

The pattern of improvement is relevant to the instructional structure of the e-module. The learning activities did not focus exclusively on grammatical accuracy or vocabulary acquisition. Instead, students were required to communicate for a defined workplace purpose, consider the appropriate register, use workplace-related vocabulary, and interact within simulated professional situations. The relatively strong improvement in communication purpose and language accuracy may therefore reflect the repeated movement from contextualized language input to purposeful communicative performance.

This interpretation is consistent with task-based approaches in ESP, where learners are expected to use language to accomplish meaningful outcomes rather than merely practice isolated linguistic forms (Ellis, 2003; Fujita & Shintani, 2025). It is also consistent with previous research reporting improvements in speaking performance through simulation-based activities in vocational English contexts (Parianson et al., 2023). The smaller gains in fluency and interaction are plausible given the short trial, because spontaneous, real-time interaction may develop more slowly than the ability to plan and structure a message for a known purpose.

The magnitude of the improvement should be read cautiously. The mean N-Gain fell in the moderate range, but its confidence interval extended into the low range, and the large effect size reflects the consistency of improvement across students, with 14 of 15 improving, more than the size of the gain itself. The single decrease came from the student with the highest pretest score, for whom the limited room for improvement makes the N-Gain unstable. The moderate gain is comparable to the moderate gain reported for an ESP module developed with the ADDIE model (N-Gain = 0.54; Astuti & Mulyawati, 2026) and to the moderate effectiveness reported for a flipbook-based speaking e-module (Makhroji et al., 2023) but lower than the high gain reported for simulation-assisted e-modules (Kusumaningrum et al., 2025, 2026), a difference that may partly reflect the short implementation in this study and its more demanding outcome, namely rubric-scored workplace performance in English rather than general communication skills.

Several alternative explanations must also be considered. Because the pretest and posttest used the same rubric and were built around similar workplace scenarios, part of the gain may reflect a testing effect, that is, familiarity with the assessment rather than improved competence (Shadish et al., 2002). The lecturer who taught the sessions also scored the performances without blinding, so expectations may have influenced the

ratings. Instructor guidance during the sessions, short-term practice effects from rehearsing similar scenarios, and students' ongoing English learning in other courses may also have contributed. Without a comparison group, these influences cannot be separated from the contribution of the e-module, which is why the results are treated as preliminary.

4.4 Contribution of the E-Module to ESP and Workplace Communication Instruction

The findings contribute to the discussion of interactive digital materials for vocational English by demonstrating how an e-module can integrate workplace context, language input, and simulated professional communication within a single instructional sequence. Previous studies have explored ESP-based modules, interactive learning, and simulation-assisted communication separately. For example, Astuti and Mulyawati (2026) developed an ESP-oriented English module using the ADDIE model, while Makhroji et al. (2023) developed a flipbook-based e-module to support speaking skills.

Similarly, Kusumaningrum et al. (2025, 2026) demonstrated the potential of simulation-assisted e-modules for developing communication skills in vocational education. The present study extends this line of work by explicitly connecting the e-module design to Workplace-Based Learning and Task-Based Simulation while maintaining professional English communication as the central learning outcome.

The findings add to three strands of literature. For Workplace-Based Learning, they suggest that a workplace context can be simulated within a digital module through a persistent organizational frame, comprising a fictional company, a role, a supervisor, and a deliverable, when authentic placements are not available, extending WBL beyond internships and teaching factories (Jufidah & Wellalangi, 2026; Viona & Afrianti, 2024). For Task-Based Simulation, they indicate that a digital module can supply the scenario, language input, and assessment that frame each simulation, while the role plays themselves are enacted in class; the smaller gains in interaction suggest that more extended interactive practice may be needed within this format.

For ESP, they show how a needs analysis can be translated directly into unit design, so that the target situations identified by learners become the organizing principle of the materials. The principal contribution therefore lies not in the digital format itself but in the integration of workplace context, language input, simulated performance, and self-assessment within one instructional sequence, which allows the e-module to function as a bridge between classroom-based language learning and simulated workplace practice.

4.5 Limitations and Implications for Further Research

Despite the positive findings, several limitations constrain the interpretation of the results. First, the trial involved only 15 students from one Business Administration program, and the implementation was short, comprising three 100-minute sessions. These sessions, covering register, greetings and self-introduction, and business correspondence, cannot represent the full range of professional communication that students anticipated, such as meetings, negotiations, and handling complaints, so the findings apply only to these communicative functions. The practicality findings similarly represent the perceptions of this limited group and should not be generalized to vocational students more broadly. Second, the study employed a one-group pretest-posttest design without a comparison group, so the statistically significant improvement demonstrates change within the participating group but does not establish that the e-module alone caused the observed improvement. Third, the validation and measurement

procedures were limited: each validation domain was judged by a single expert, the performances were scored by one rater who also taught the sessions, inter-rater reliability could not be estimated, and the practicality data were self-reported by students who may have responded favorably to a new learning resource.

These limitations suggest several directions for further research. Future studies should involve larger samples drawn from multiple vocational programs and institutions to examine whether the findings are transferable across different occupational contexts. A quasi-experimental or controlled design would also provide stronger evidence regarding the contribution of the e-module to professional communication development.

Validation should involve several experts per domain, and performances should be scored by at least two trained raters who are blind to test occasion, with inter-rater reliability reported. Longer implementation with additional units on meetings, negotiations, and complaint handling would show whether the gains extend to a broader range of workplace communication. In addition, future research could examine whether the improvement observed in simulated tasks transfers to authentic workplace communication and whether the learning gains are sustained over time, for example through delayed posttests.

4.6 Synthesis

Taken together, the findings support the proposed model as a chain of evidence. The needs analysis identified a workplace communication need centered on speaking; the e-module addressed this need by establishing a contextualized Workplace-Based Learning environment; Task-Based Simulation provided the communicative practice through which students used English for workplace purposes; and students' professional communication performance improved during the limited trial. Each link in this chain is supported by preliminary evidence, and the strength of the final link awaits confirmation through controlled studies.

5. Conclusion

This study developed and evaluated an interactive English e-module designed to bridge classroom learning and workplace communication through Workplace-Based Learning and Task-Based Simulation. The 40-student needs analysis established the instructional priorities, particularly the need to strengthen speaking and to provide authentic workplace scenarios, simulation-based practice, and interactive digital learning. These needs were translated into a coherent e-module structure consisting of Workplace Orientation, Core Language Input, Task-Based Simulation, Assessment, Answer Key, and References.

The evaluation produced three main findings. First, expert judgment rated the e-module as highly appropriate overall ($M = 4.25$; 85%), with content and language rated highly appropriate and media and design rated appropriate. Second, the 15 students in the limited trial rated it as practical (75.60%), with the relevance of the workplace scenarios rated highest and independent use rated lowest. Third, students' professional communication performance increased from 2.23 to 3.12 on the four-point rubric ($N\text{-Gain} = 0.43$, moderate), a statistically significant improvement with a large effect size (Wilcoxon signed-rank, $p < .001$, $r_{tb} = .98$). Together, these findings provide preliminary evidence that the e-module is appropriate and practical and was associated with improved professional communication performance within the limited trial.

The main contribution of the study lies in integrating workplace context, language input, simulated performance, and self-assessment within one interactive e-module, offering a practical model for ESP-oriented vocational English instruction where authentic workplace placements are limited. For practice, the findings suggest that vocational English courses can use such a module to give students structured rehearsal of workplace communication, provided that additional support for independent learning is built into the module.

These conclusions are subject to several limitations: the small single-program sample, the short three-session implementation, the one-group design without a comparison group, single-expert validation in each domain, scoring by a single rater who was not blind to test occasion, and self-reported practicality data. Accordingly, the observed improvement should be interpreted as preliminary evidence from the limited trial rather than as causal evidence. Future research should involve larger and more diverse samples, several experts per validation domain, two or more blinded raters, and longer implementation covering a broader range of workplace situations, together with, where feasible, a quasi-experimental or controlled design to examine the transfer and durability of professional communication gains.

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