

Performed Microlearning as a Learning Model to Improve the Students' Professional Correspondence Skills

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Received: August 3, 2026 Accepted: September 25, 2026 Published: October 5, 2026

doi:10.5296/jei.v12i2.23967 URL: <https://doi.org/10.5296/jei.v12i2.23967>

Abstract

This study examines the challenges faced by Indonesian vocational students in developing professional correspondence skills, particularly in preparing documents such as emails, invoices, and purchase orders that meet workplace standards. Conventional lecture-based instruction may provide limited opportunities for students to apply theoretical knowledge to practical correspondence tasks. To address this issue, this study developed and tested the Performed Microlearning (PM) which exposes short microlearning videos (3-7 minutes). This experimental study involved 100 Office Administration students, consisting of 50 students in the experimental group and 50 students in the control group, over seven weeks. The study examined differences in correspondence skills between students who participated in PMM and those who received conventional instruction. The results showed that the experimental

group achieved a higher posttest score (86.03) than the control group (82.30). The experimental group also obtained a higher N-Gain score (0.45) compared with the control group (0.29). An independent samples T-Test indicated a significant difference between the two groups ($t = -4.181$; $p < 0.001$). Qualitative findings also indicated increased student engagement and positive responses to the contextual learning activities. These findings suggest that PMM can support the development of vocational students' professional correspondence skills.

Keywords: Performed microlearning, Correspondence skills, Vocational education, Office administration

1. Introduction

Vocational Education in Indonesia faces significant challenges in preparing competent graduates, particularly in office administration, where professional correspondence skills are a core competency. According to Tusyanah et al. (2025), commercial correspondence encompasses the ability to communicate precisely, ethically, and contextually across various formats for information exchange between organizations. This challenge is further complicated in the era of digital transformation, with an Education First (EF) report ranking Indonesia 34th out of 44 countries in English proficiency, the foundation for professional correspondence. This reflects a skills gap that could potentially hinder graduates' competitiveness in the global job market.

Correspondence involves more than just letter writing; it also encompasses the ability to communicate precisely, ethically, and contextually in various formats, from formal letters to digital communications. This aligns with broader educational perspectives emphasizing that the modern landscape demands the active development of functional literacy through targeted, context-rich task designs rather than rote memorization (Maleska, 2025).

The fundamental problem lies in the conventional learning approach that still dominates universities. Data from *Universitas Negeri Jakarta* supports this finding: the effectiveness of conventional learning is only 62% for complex material, such as negotiating business correspondence. Consequently, 73% of students struggle when faced with real-world case studies, such as writing responses to customer complaint emails or drafting collaboration contracts (Damayanti & Puspasari, 2020). However, *the Independent Curriculum* explicitly emphasizes experiential learning and links to industry principles, which have not been optimally accommodated (Azizah & Tusyanah, 2025).

Microlearning emerged as an innovative solution to address this challenge. This micro-segment-based learning concept (3-10 minutes) leverages the flexibility of digital formats (videos, infographics, interactive quizzes) to improve focus and memory retention by up to 17%. Damayanti and Puspasari (2020) found that microlearning increases the effectiveness of practice-based learning by 76%, far surpassing conventional methods. However, microlearning implementations have tended to focus on passive content delivery (one-way instruction), making it less effective for kinesthetic skills such as correspondence, which require realtime feedback and performative simulations.

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In response to this gap, this study proposes the Performed Microlearning Model (PMM), which integrates micro-content chunking principles with performance-based kinesthetic activities. This model adopts the essence of non-formal Education such as vocational training and workshops, where each learning unit is designed as a triadic cycle: (1) micro-content exposure (e.g., a 5-minute video on official memo drafting techniques), (2) performative simulation (document drafting role-play with an industrial scenario), and (3) evaluation (analysis of grammatical errors, language tone, and structure). This approach aligns with (Vaishnav, 2013) findings that effective learning must accommodate a variety of learning styles: visual (demonstration videos), auditory (case study podcasts), and kinesthetic (document drafting simulations), which is further reinforced by studies showing that multimodal learning environments improve students' engagement, conceptual understanding, and knowledge retention through the integration of sensory modalities and experiential processes (Fleming & Mills, 1992; Kolb, 2015; Moreno & Mayer, 2007; Paivio, 1991; Pashler et al., 2009).

PMM is also designed to align with the implementation of *the Independent Curriculum*, particularly regarding self-paced learning and project-based assessment. Previous studies have shown that similar instructional models can significantly enhance vocational student engagement and improve communication-related competencies, particularly through active, collaborative, and practice-based learning approaches (Niittylahti et al., 2021; Díaz-Lauzurica & Moreno-Salinas, 2025). Thus, the PMM not only addresses low correspondence skills but also serves as an adaptive learning model that bridges the curriculum with industry dynamics. Based on the background and focus of the study, the research questions are formulated as follows: 1) Is there any significant difference in students' office correspondence skills between those taught using the PMM and those taught using the traditional method? 2) How effective is PMM in improving students' ability in office correspondence?

2. Literature Review

2.1 Theoretical Foundation: Constructivism and Cognitive Load Theory

This research is rooted in the constructivist theories of Piaget (1972), and Vygotsky (1978), which emphasize learning as an active process of building knowledge through concrete experiences. In the context of correspondence, students build competencies through interactions with real-world scenarios (e.g., a sales email-writing simulation), in which knowledge is not transmitted but constructed through reflection on practice. This theory is reinforced by Sweller's (1988) Cognitive Load Theory (CLT), which explains that the human brain has a limited capacity to process information. PMM aligns with the principles of CLT by breaking complex correspondence material into 3-7-minute micro-units (e.g., the 3-minute "Elements of Email" video) to minimize extraneous cognitive load and maximize retention. The integration of these two theories creates a framework in which micro-segments serve as cognitive scaffolding, while kinesthetic activities (simulated invoice/purchase order creation) serve as the medium for knowledge construction.

2.2 Performed Microlearning Model (PMM): Design and Implementation

The Performed Microlearning Model (PMM) represents a significant evolution of traditional microlearning concepts (Gagne et al., 2019) by integrating three interrelated key elements. First, digital microcontent is packaged in short, thematic video formats (3-7 minutes), such as “Sales Email” (6 minutes), which focuses on mastering the AIDA structure, and “Purchase Order” (5 minutes), which highlights the analysis of fatal errors in purchase orders. Each unit is designed with a problem-based approach and applies Mayer’s (2021) segmentation principle to maximize cognitive processing, breaking the material into manageable segments aligned with human working memory capacity.

The second element, the active performance cycle, requires students to immediately apply their knowledge after exposure to micro-content through industry-based, scenario-based simulations within a tight time limit (15 minutes). Examples include writing a pitch email with a real-time implementation of the AIDA structure or designing an invoice using a provided digital template. This kinesthetic phase fosters the deeper learning through active engagement and practice-based instruction that support knowledge transfer to real-world tasks (Prince, 2013; Wiggins & McTighe, 2005).

The third element, assessment, was conducted to evaluate grammar, language use, professional tone, and document structure. At the same time, students evaluated important aspects of their work, such as the effectiveness of email subject lines and the completeness of purchase order elements, using a standardized rubric. Zhang and West (2019), for example, reported up to a 41% improvement in practical skill transfer compared with traditional approaches, particularly in learning activities involving the preparation of procedural business documents. This finding is also consistent with research emphasizing the role of structured practice in supporting the transfer and application of procedural knowledge in authentic work contexts (Grossman & Salas, 2011; Sitzmann & Ely, 2011).

The PMM triadic cycle (exposure→simulation→feedback) creates a learning mechanism that links cognitive processing to the development of practical competency. The limited duration of micro-content (6 minutes for the “Sales Email” video) reduces extraneous cognitive load (Sweller, 1988), allowing optimal allocation of mental resources for kinesthetic activation. The simulation’s time limit (15 minutes) replicates workplace pressures while reinforcing deliberate, focused practice on specific competency areas. Moreover, peer feedback serves as a cognitive mirror, mapping errors into structured categories (linguistic, structural, pragmatic), thereby accelerating the refinement cycle. Recent research on office administration students showed this combination improved business document accuracy by an average of 34% in just three implementation sessions.

2.2.1 Practical Implementation of the Performed Microlearning Model

Participant Level: Office administration education students (Semester III-IV).

Correspondence Topic: Writing professional sales emails.

Supporting Technologies: LMS (Google classroom/moodle).

2.2.2 Email Simulation Platform

Duration: 90 minutes.

Learning Objectives:

- (1) Analyzing the AIDA (Attention-Interest-Desire-Action) principle in writing professional sales emails.
- (2) Applying effective call-to-action writing techniques according to the business context.
- (3) Evaluate the quality of sales emails using an industry-standard rubric.

Table 1. Learning structure 150 minutes (2 × 75 minutes/credits)

Phase & Duration	Activity	Operational Details
1. Motivation & Concept (20 Minutes)	- Urgency-presentation sales email in the context of digital marketing. - Real case demonstration of the impact of effective email on business conversion.	Data analysis: Emails with personalized subject lines increase open rates by 50% (Kirkpatrick, 2017). Today, we will master the technique in 3 steps: Mini-Study→Practice→Evaluation.
2. Micro Content Exposure (30 minutes)	- Video viewing “Sales Email” (6 minutes). - Distinguished discussion problem-based learning based on MSME scenarios.	Discussion Scenario: “How do you structure an email offering accounting software to MSME owners who are not tech-savvy?” Guide: Video analysis of AIDA structure and fatal subject line errors.
3. Kinesthetic Simulation (50 Minutes)	Writing sales emails on the simulation platform (Microsoft Outlook/Google Workspace).	Instructions: “In 25 minutes, create an offer email for product XYZ with the following conditions: (1) Use the AIDA structure (2) Attach brochure (download) here (3) Professional tone check with AI”
4. Structured Peer Review (30 minutes)	- Random grouping (4 people/group). - Cross-evaluation using digital rubrics. - Discussion constructive feedback based on critical points.	Heading Digital: - Attention (0-5): Attractive subject line - Clarity (0-5): Precision call-to-action - Compliance (0-5): Format compliance Guide: “Give 1 specific suggestion to improve attention score!”
5. Reflection & Reinforcement (20 Minutes)	- Presentation of best examples & areas of improvement (anonymous). - Collaborative analysis of common error patterns. - Distribution microlearning kit (video, template, rubric).	Critical Questions: Why is the subject line ‘40% Off Accounting Solutions’ more effective than ‘Software Promo’?”

Table 2. Example simulation instructions

PMM components	Tools/Technology	Function
Micro Content	“Sales Email” Video (6 minutes)	AIDA principles & template presentation.
Simulation	Platform email dummy (Gmail/Outlook)	Real-time email writing practice.
Peer Review	LMS (Google Classroom)	Random grouping & document sharing.

2.3 Correspondence Skills in the Vocational Paradigm

Correspondence skills in vocational Education are core competencies that include the ability to compose professional written communications—from business emails and official letters to transactional documents such as invoices and purchase orders—by meeting standards of clarity, compliance, and contextual appropriateness (Arputhamalar & Kannan, 2018). These competencies are multidimensional and interrelated: the linguistic dimension requires mastery of professional grammar and vocabulary (*e.g.*, effective sentences in emails requesting information), the structural dimension requires an understanding of document organizational patterns (*e.g.*, the 7 mandatory elements of a purchase order), and the pragmatic dimension requires the ability to adapt the tone of communication based on the hierarchy of relationships and business objectives (Bachman & Palmer, 1996). Further supported by research emphasizing that effective professional communication depends on contextual awareness, audience sensitivity, and the strategic use of language to achieve organizational goals (Cornelissen, 2020; Spitzberg, 1997). The integration of these three dimensions is a marker of vocational graduates’ readiness to face the dynamics of the world of work, especially in the digital era, where 89% of business communication is conducted in writing.

Arévalo et al. (2021) revealed that students’ correspondence errors stem from failing to integrate the linguistic, structural, and pragmatic dimensions in authentic situations. For example, students can write grammatically perfect emails (linguistics), but fail to adjust the tone to the recipient’ status (pragmatics) or to attach relevant supporting documents (structure). This gap is exacerbated by three factors: (1) the dominance of textual learning that focuses on memorizing document formats without application context, (2) minimal exposure to complex industry cases such as negotiating payment terms via email or drafting multi-clause contracts, and (3) the absence of real-time feedback to correct procedural errors. As a result, field studies show that only 52% of office administration graduates can compose effective sales emails in their first month on the job.

PMM model addresses these challenges through a just-in-time learning approach that provides contextual solutions. First, micro-content, such as the “Docs of Sales Email” video, provides concrete examples of integrating the structural (brochure-attachment layout) and pragmatic (product-benefit-mentioning strategies) dimensions. Second, time-pressured simulations (*e.g.*, “Compose a pitch email in 15 minutes!”) train students to make quick decisions in combining all three competency dimensions. Third, a multidimensional evaluation rubric for the peer review phase, which includes linguistic (clarity), structural (compliance), and pragmatic (tone

adaptation) parameters, guides students in systematically diagnosing errors. Correspondence was identified as one of the most needed Business English topics among students with a relevance score of 1.54% (Hardiningsih et al., 2012).

3. Method

This study uses a quantitative, experimental design to test the effectiveness of PMM in improving students' correspondence skills. The design used was a pretest-posttest control group design, with two randomly selected groups: the experimental and the control groups.

3.1 Experimental Design

The research design is described as follows:

R O1 X O2

R O3 O4

where, R = Subject randomization; O1 and O3 = Pretest in the experimental and control groups; X = Treatment in the form of an application PM; O2 and O4 = Posttest in the experimental and control groups.

3.2 Population and Sample

The study population comprised students in the Office Administration Education program at a university in Semarang City. The sampling technique was purposive, and the sample was randomly divided into two groups (50 students in the experimental class and 50 in the control class).

3.3 Treatment

The experimental group was given treatment in the form of learning using a model, which consists of:

- (1) Segmentation of correspondence content in the form of micro-videos, infographics, and practical simulations.
- (2) Practical activities include writing business letters and offer letters, managing professional emails, and handling email attachments.
- (3) Rubric-based evaluation to measure the quality of student practical results.
- (4) Meanwhile, the control group received correspondence learning using conventional methods.

Table 3. Treatment procedure

Week	Micro Video (Experiment)	Duration	Performed Microlearning Activities	Control Activities
1	Signature Block By Brand <u>Video 1</u>	4 minutes	- Simulation of manufacturing email signature for 3 different company scenarios - Test responsiveness on various devices - Peer review with professional design rubric	Lecture on component theory signature Manual writing exercises in books
2	Elements of Email <u>Video 2</u>	3 minutes	- Drafting formal/semi-formal email based on case studies - Format error analysis with AI Checker - Role-play reply to emergency emails	Analysis of email examples from textbooks Multiple choice quiz
3	Inquiry Email <u>Video 3</u>	5 minutes	- Simulation of writing a product quotation request email - Practice follow-up via simulation platform - Real-time feedback of language tone (AI)	Case study without practice Presentation of the theory of the “opening-closing formula”
4	Sales Email <u>Video 4</u>	6 minutes	- Writing competition subject line AIDA (15 minutes) - Drafting the small enterprise’s product sales email - Conversion analysis with simulation open rate	Copy sales email template Discussion of the AIDA principle theory
5	Docs of Sales Email <u>Video 5</u>	4 minutes	- Design digital brochures with Canva - Document attachment simulation + file compression - Cross-review the eligibility of supporting documents	Lecturer demonstration on how to make a brochure Passive observation
6	Purchase Order <u>Video 6</u>	5 minutes	- Filling out PO templates for B2B transactions - Identify fatal legal errors - Simulation of PO terms negotiation via email	Memorize the 7 elements of PO Paper form-filling practice
7	Making Invoice <u>Video 7</u>	7 minutes	- Digital invoice generation via Zoho - Analysis of VAT components and legal requirements - Role-play invoice complaint resolution	Lecture on the difference between an invoice and a receipt Manual invoice creation

3.4 Research Instruments

The instruments in this study are:

- (1) The Correspondence Test, divided into the Pretest and Posttest, is a case study of writing business documents (sales emails, purchase orders, invoices). Respondents' letters are assessed using a rubric based on the Business Communication Assessment (BCA) standards, which includes the following dimensions: Linguistics (grammar and professional vocabulary), Structural (document format compliance), and Pragmatics (suitability for the business context).
- (2) Student Perception Questionnaire to measure responses to the PMM (Microlearning Usability Scale). This questionnaire uses a 1-5 Likert scale with the following indicators: engagement, ease of access, and industry relevance.
- (3) Observation Sheet to record learning activities during the kinesthetic simulation. This activity focuses on the following aspects: participation, punctuality, and collaboration.

3.5 Measurement Techniques

Correspondence skill scores were measured using an analytical rubric (adapted from Arputhamalar & Kannan, 2016).

Table 4. Correspondence assessment criteria

Dimensions	Indicator	Score (1-5)
Linguistics	Grammatical correctness, professional vocabulary	□□□□□
Structural	Format compliance, completeness of document elements	□□□□□
Pragmatics	Tone appropriateness, business context, and cultural sensitivity	□□□□□

Final Value Conversion:

$$\text{Total Score} = (\text{Linguistic} + \text{Structural} + \text{Pragmatic Score}) \times 6.67$$

Competency Criteria:

- (a) 90-100: Very Excellent (professional).
- (b) 80-89: Excellent (ready to work).
- (c) 70-79: Sufficient (needs assistance).
- (d) < 70: Needs development.

3.6 Research Hypothesis

Null Hypothesis (H_0):

There was no significant difference in the improvement in correspondence skills between students taught using PMM and those taught using traditional methods.

Alternative Hypothesis (H_1):

The Performed Microlearning Model (PMM) is significantly more effective in improving correspondence skills than traditional methods.

3.7 Data Analysis Techniques

The pretest and posttest data were analyzed using:

- (1) The normality (Shapiro-Wilk) and homogeneity (Levene's Test) tests are prerequisites for the analysis.
- (2) An independent sample T-Test to see the differences in learning outcomes between the experimental group and the control group.
- (3) Gain score test to measure significant improvement in correspondence skills after treatment. Effect Size: Cohen's d to measure the strength of the intervention.

4. Results

4.1 Research Data

This study collected data through pretests and posttests in the experimental (PM) and control (traditional method) groups. The pretest-posttest comparison aimed to assess the intervention's effectiveness in improving students' correspondence skills. The sample consisted of 100 fourth-semester Office Administration Education students at *Universitas Negeri Semarang*, with the following composition:

- (1) Experimental Group: 50 students.
- (2) Control Group: 50 students.

4.2 Instrument Trial (Try-Out)

Before the research instrument was applied to the main sample, a pilot test was conducted to ensure validity and reliability. The pilot test involved 30 students from a parallel population who met the following criteria:

- (1) Currently taking a correspondence course.
- (2) Not part of the research sample.

4.2.1 Instrument Validity

Correspondence test instruments are assessed through two approaches:

- (1) Content Validity: Evaluated by three experts (correspondence lecturers and industry

practitioners). The results show an Aiken V Index of 0.87 (highly valid), with the following agreement:

- Material relevance: 92%.
- Difficulty level suitability: 89%.
- Clarity of instructions: 94%.

(2) Construct Validity: Measured by Pearson Correlation (item-total score). Of the 15 items, 13 were valid ($r > 0.361$), and 2 items were revised ($r = 0.28$ and 0.31).

4.2.2 Instrument Reliability

Reliability is measured by:

Cronbach's Alpha Coefficient: 0.812 (high category)

- Inter-Rater Reliability (2 independent raters).
- Intraclass Correlation Coefficient (ICC) = 0.78 (good category).
- Percentage of agreement (agreement rate): 91%.

The trial results showed that the instrument was reliable ($\alpha > 0.70$) and statistically valid (r -table, $\alpha = 5\%$; $df = 28 = 0.361$).

Table 5. Summary table of trial results

Aspect	Analysis Method	Results	Criteria
Content Validity	Aiken's V	0.87	Very Valid ($V \geq 0.75$)
Item Validity	Pearson Correlation	13/15 grains	Valid ($r > 0.361$ ($\alpha = 5\%$))
Reliability	Alpha Cronbach	0.812	High ($\alpha \geq 0.70$)
Appraiser Agreement	ICC	0.78	Good ($ICC \geq 0.75$)

Source: Data processed by researchers, 2025.

4.2.3 Trial Procedure Appendix

(1) Instrument: Business document writing simulation test (sales email + purchase order).

(2) Duration: 60 minutes.

(3) Assessment Rubric: Adapted Business Correspondence Assessment Scale (Arputhamalar & Kannan, 2018).

(4) Statistical Analysis:

(a) Item validity is calculated by biserial correlation.

(b) Reliability was tested with SPSS v.26.

The test results confirm that the instrument is suitable for primary measurements.

4.3 Pretest and Posttest

4.3.1 Normality Test

Table 6. Normality test results

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Experiment Pretest	.164	49	.002	.954	49	.053
Experiment Posttest	.098	49	.200	.961	49	.106
Pretest Control	.124	49	.059	.961	49	.105
Posttest Control	.102	49	.200	.972	49	.291

Source: Data processed by researchers, 2025.

Based on the table, the significance value of the Shapiro-Wilk normality test results for the pretest and Posttest of the experimental class are respectively 0.053 and 0.106 > 0.05 , so it can be concluded that the data is normally distributed, in addition to the results of the pretest and Posttest of the control pretest and Posttest are respectively 0.105 and 0.291 > 0.05 , so based on the results of the normality test in the control and experimental classes it was found that the data is normally distributed.

This finding is in line with research by Ockta et al. (2026), which also found that learning outcome data using innovative learning media followed a normal distribution, thus supporting the use of advanced parametric analysis.

4.3.2 Homogeneity Test

Table 7. Results of homogeneity test

		Levene Statistic	df1	df2	Sig.
Results	Based on Mean	.071	1	96	.790
	Based on Median	.074	1	96	.787
	Based on Median and with adjusted df	.074	1	95.541	.787
	Based on the trimmed mean	.071	1	96	.790

Source: Data processed by researchers, 2025.

Based on the results of the homogeneity-of-variance test using Levene's Test, a p-value of 0.790 was obtained using the average-based approach (mean). Since the significance value is greater than 0.05, the data from both groups have homogeneous variance, so the assumption of homogeneity of variance is met for conducting the Independent Samples T-Test.

This result is supported by Ockta et al. (2026) research, which states that data homogeneity is crucial for ensuring the validity of T-Test results and that when the data variance is uniform, the analysis results become more reliable.

4.3.3 Analysis of Learning Outcome Improvement (Paired Sample T-Test)

Table 8. Paired samples T-Test

95% Confidence Interval of the Difference								
	Mean	Std.Dev	Std. Er	Lower	Upper	T	df	sig (2-tailed)
Pre-Post Experiment	-10.510	3.495	.499	-11.514	-9.506	-21.052	48	.000
Pre-Post Control	7.429	4.057	.580	-8.594	-6.263	-12.818	48	.000

Source: Data processed by researchers, 2025.

Based on the Paired Sample T-Test results, there is a significant difference between the pretest and posttest scores in the experimental group, with a p-value of 0.000 ($p < 0.05$). In the experimental group, there was a significant increase in learning outcomes after treatment, specifically the use of microlearning media. This indicates that the microlearning strategy was effective in improving participants' learning outcomes.

4.3.4 Intergroup Comparison (Independent Samples T-Test)

Table 9. Independent samples T-Test

		<i>Levene's Test</i> for Equality of Variances		T-Test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Results	Equal variances assumed	71	.790	-4.181	96	.000	-3.612	.864	-5.327	-1.897
	Equal variances not assumed.			4.181	95.578	.000	-3.612	.864	-5.327	-1.897

Source: Data processed by researchers, 2025.

Based on the Independent Samples T-Test, the significance value was 0.000 (< 0.05), indicating a significant difference in the average scores between the experimental and control groups. Thus, the treatment given to the experimental group was proven to have a significant impact on student learning outcomes.

The Independent-Samples T-Test results showed a significant difference between the experimental (PM) and control groups, with *Levene's Test* ($p = 0.790 > 0.05$) confirming homogeneity of variance and a t-value of -4.181 ($p = 0.000$) indicating a significant difference ($p < 0.05$). The mean difference of 3.612 points (95% CI: [-5.327, -1.897]) proved the superiority of the PMMM over traditional methods, in line with the findings of Sirwan Mohammed et al. (2018) that the microlearning approach accelerates the understanding of complex concepts such as the AIDA structure in sales emails or the legal components of invoices through focused material segmentation and contextual simulation.

4.3.5 Learning Effectiveness (N-Gain Analysis)

Table 10. N-Gain Test results

Class	Average Score		Skor N-Gain	Category
	Pretest	Posttest		
Experiment	75.64	86.03	0.435	Moderate
Control	74.92	82.3	0.299	Low

Source: Data processed by researchers, 2025.

Based on the N-Gain analysis, the increase in student learning outcomes in the experimental group was classified as moderate (N-Gain = 0.44). In contrast, the control group was classified as low (N-Gain = 0.29). This indicates that the treatment given to the experimental group was more effective at improving learning outcomes than the treatment given to the control group, which did not receive it.

The experimental group's N-Gain of 0.44 (medium category) was significantly higher than the control group's (0.29; low category), indicating that the Performed Microlearning Model (PMM) was not only statistically significant ($p = 0.000$), but also had a meaningful practical impact (moderate effect size) in improving correspondence competency. This 14.69% N-Gain difference reflects the structural superiority of PMM, where the combination of focused micro-content (e.g., a 5-minute "Purchase Order" video), time-pressured kinesthetic simulations, and AI feedback created a learning environment that optimized knowledge retention and skill transfer to real-world contexts.

The research's key findings confirm the high effectiveness of PMM through two main pieces of evidence: (1) an increase in experimental scores (+10.51 points) that significantly exceeded those of the control group (+7.43 points), and (2) consistency with recent empirical research (Zhang & West, 2019; Sirwan Mohammed et al., 2018) on the ability of microlearning to accelerate mastery of complex concepts such as the integration of linguistic-structural-pragmatic dimensions in correspondence. Pedagogically, PMM is worthy of widespread adoption in vocational education as a 3-7-minute video duration can minimize cognitive load (Sweller, 1988) while facilitating just-in-time learning aligned with industry demands.

4.4 PMM Contribution

The results of statistical analysis prove the significant superiority of the Performed Microlearning Model (PMM) in improving correspondence skills. The T-Test value of -4.181 ($p = 0.000$) and the average difference of 3.612 points between the experimental and control groups confirm the effectiveness of this model (Zhang & West, 2019). Theoretically, this finding aligns with the core principle of Cognitive Load Theory (Sweller, 1988): a micro-video duration of 3-7 minutes (e.g., a 5-minute "Purchase Order") optimally reduces extraneous cognitive load, facilitating the processing of complex materials such as the integration of linguistic (terminology precision), structural (document format compliance), and pragmatic (business context adaptation) dimensions.

5. Discussion

The success of the Performed Microlearning Model (PMM) in improving correspondence skills is explained through the lens of Vygotsky's (1978) constructivist theory. Kinesthetic simulations (such as drafting a sales email within a 15-minute time limit or role-playing a purchase order negotiation) create an authentic, situated learning environment in which knowledge is actively constructed through interaction with real-world work scenarios. These performative activities establish the zone of proximal development (ZPD), where feedback and peer-review mechanisms serve as cognitive scaffolding that accelerates the internalization of

competence, as confirmed by research by (Sirwan Mohammed et al., 2018).

An N-Gain analysis of 0.44 (moderate category) indicates a substantial practical impact of PMM, with a 14.69% increase compared to traditional methods. This figure reflects the model's responsiveness to the learning characteristics of Generation Z, particularly through the flexibility of anytime access to micro-content via (Sirwan Mohammed et al., 2018), personalized digital feedback that provides specific corrections without stigmatization, and collaboration in structured peer review that hones critical evaluation skills. The combination of these elements creates a learning ecosystem that is intrinsically aligned with the dynamics of contemporary professional communication.

The seven-week implementation of the PMM revealed three key challenges and adaptive solutions. Infrastructure dependency experienced by 15% of the sample was addressed by providing offline backups via Google Drive and emergency sessions in the computer lab. Student-level variability was addressed through an adaptive pretest mechanism for ability-based grouping. Psychological stress due to simulation time constraints was mitigated by introducing a technical warm-up before the core activity, ensuring cognitive readiness before facing complex scenarios, as supported by research indicating that adaptive assessment enhances learning effectiveness through tailored instruction and that preparatory activities can reduce cognitive load and anxiety in performance-based tasks (Martin et al., 2020; Xie et al., 2019).

Multisource feedback, which combines AI-driven feedback technology with a structured peer review mechanism, personalized coaching frameworks, in this age demographic, is well-documented, showing that self-regulated learning and skill internalization are significantly optimized when students receive continuous, formative guidance (Underwood et al., 2025).

The PMM offers transformative pedagogical implications for contemporary vocational Education. First, the model establishes an ideal 1:2 ratio between micro-content exposure and kinesthetic simulation (Boland et al., 2021), ensuring a theoretical-practical balance. Second, industry-based design scenarios, such as "Docs of Sales Email," directly bridge the gap between the curriculum and job-market needs, preparing students for the complexities of real-world business communication.

Essentially, PMM represents a paradigmatic evolution of vocational Education transforming passive learning into a dynamic skill-building ecosystem. The convergence of focused microcontent, performance-based simulation, and multisource feedback not only measurably improves correspondence skills but, more importantly, shapes a professional mindset that adapts to the dynamics of the workplace. As implied by constructivist theory, this model demonstrates that authentic competence arises from the dynamic interaction among declarative knowledge, contextual experience, and critical reflection, which PMM actualizes through its visionary pedagogical design.

6. Conclusion

Based on the results of statistical analysis and comparison of pretest and posttest values, it can

be concluded that:

(1) The null hypothesis (H_0), which states that there is no significant difference in correspondence skills between students taught using the Performed Microlearning Model (PM) and those taught using the traditional method, is rejected. The results of the Independent Samples T-Test ($t = -4.181$; $p = 0.000$) indicate a significant difference in learning outcomes between the experimental and control groups.

(2) The Performed Microlearning Model (PMM) improved the correspondence skills of office administration students. The average score of the experimental group increased from 75.64 on the pretest to 86.03 on the Posttest, with an N-Gain of 0.44, categorized as moderate. Meanwhile, the control group increased from 74.92 to 82.30, with an N-Gain of 0.29, categorized as low. The greater improvement in the experimental group indicates that integrating focused micro-content (3-7 minutes), performance-based simulations, and multisource feedback, including peer review, can help students develop practical correspondence skills.

Practical Implications:

(1) Vocational Education: PMM is a worthy model for correspondence learning, especially for performance-based courses.

(2) Industrial Design: Educational institutions can collaborate with industry to develop a micro-video library of real-world cases, such as Invoice Complaint Handling.

(3) Curriculum Policy: A 1:2 ratio of theory (microcontent) to practice (simulation) is recommended for 3-credit vocational courses.

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Acknowledgments

The authors would like to express their gratitude to Universitas Negeri Semarang (UNNES) and students who contributed in this study.

Authors Contributions

TT and II designed the study. HP contributed to the validation of research instruments. DAK, NC, ENR, and LAF were responsible for data collection and data curation. TT and II performed the analysis and interpretation of the data. TT drafted the manuscript. II, HP, DAK, NC, ENR, and LAF reviewed and edited the manuscript critically for important intellectual content. All authors approved the final manuscript and agree to be accountable for all aspects of the work.

Funding

This work was supported by Universitas Negeri Semarang through the Basic Research (University) Contract No. 78.14.3/UN37/PPK.11/2025.

Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethics Approval

The Publication Ethics Committee of the Macrothink Institute.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and Peer Review

Not commissioned; externally double-blind peer reviewed.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

Data Sharing Statement

No additional data are available.

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