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Integration of Case Study-Based Experiential Learning to Improve Communication Skills and the Depth of Thinking of Vocational Students

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ABSTRACT

Despite the high demand for interpersonal excellence in the tourism industry, student engagement in Vocational High Schools remains hindered by conventional one-way instructional methods. This creates a critical gap between classroom outputs and the professional communication and analytical depth required by the sector. While Experiential Learning is a recognized pedagogical framework, its specific integration with case-study-based approaches to address the dual challenges of communication and cognitive complexity in Tourism Service programs remains under-explored. This study adopts a quasi-experimental non-equivalent control group design to evaluate the efficacy of case-study-based Experiential Learning. Involving 65 students from a Tourism Service Business Expertise Program in East Java, the research design balances rigorous statistical testing with conceptual alignment to vocational needs. Data were gathered through structured communication observations and SOLO Taxonomy-based essay tests to capture multifaceted cognitive growth. Analysis utilized Independent Samples t-test, Mann–Whitney U test, and Cohen's d to ensure both statistical significance and practical effect size. Results indicate a significant divergence between the experimental and control groups ($p < 0.001$), with the experimental group demonstrating superior outcomes in both variables. The calculated effect sizes confirm a robust impact, suggesting that this integration is not merely an alternative, but a necessary instructional shift. The study's novelty lies in demonstrating how the case-study-based experiential model acts as a catalyst for transforming passive vocational learners into industry-ready communicators with higher-order thinking depth, providing a scalable strategy for modernizing vocational tourism curricula.

Keywords: Experiential Learning; Case Study; Communication Skills; Depth of Thinking; SOLO Taxonomy.

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1. INTRODUCTION

In the contemporary tourism landscape, often characterized as a "people-to-people business," there is an escalating demand for vocational alumni who integrate technical expertise with sophisticated professional discourse and cognitive agility. This industry hinges on the caliber of human engagement, where the proficiency to manage diverse interpersonal dynamics serves as the benchmark for service excellence. In the Industry 4.0 epoch, mere technical aptitude is insufficient for ensuring graduate competitiveness within a saturated global marketplace (Li, 2024). Strategic verbal and non-verbal interaction acts as the vital conduit between service providers and international clientele, positioning it as a fundamental pillar for long-term career

viability (Andersson, 2019). Consequently, vocational pedagogical frameworks must transition toward ensuring that learners are not only theoretically grounded but also pragmatically adept in fluid professional environments (Fenwick, 2013). Mastery in communication facilitates superior management of service encounters, which correlates directly with enhanced guest retention and loyalty (Abu-ELSamen et al., 2011). Academic institutions are thus compelled to cultivate "high-touch" professionals capable of navigating intricate social textures (Gursoy, 2026). Ultimately, the mission of vocational tourism programs is to transform students into industry-ready ambassadors who articulate their organizational values with precision.

Nevertheless, a chronic misalignment persists between pedagogical outputs and the rigorous expectations of the industry, particularly within emerging economies. Contemporary field observations reveal that a significant proportion of Vocational High School graduates in Tourism Service programs continue to exhibit deficiencies in professional articulation and complex situational resolution (Hsu et al., 2017). This competency gap establishes a formidable obstacle as novices enter a workforce that mandates immediate operational fluency and professional decorum. Employers frequently highlight that while graduates possess fundamental theoretical knowledge, they lack the nuanced "soft skills" requisite for high-stakes strategic engagement (Tabassum et al., 2025). Such an imbalance indicates that current vocational curricula have yet to fully harmonize their learning outcomes with the volatile and unpredictable trajectories of the tourism sector. Students frequently experience cognitive overload when confronted with authentic industrial dilemmas that were absent from their classroom simulations (Khan & Haq, 2025). This persistent inability to bridge the skill gap leads to heightened employee turnover and diminished regional service competitiveness. Therefore, pinpointing the structural origins of these skill deficits is paramount for any meaningful curricular revitalization. Rectifying these disparities necessitates a foundational reconfiguration of how vocational competencies are delivered and scrutinized (Hou et al., 2025).

These identified deficiencies are fundamentally anchored in the enduring prevalence of unidirectional, teacher-led instructional paradigms that confine learners within a "surface learning" ambit (Nkulu-Ily, 2023). Such conventional methodologies prioritize mechanical rote memorization over the construction of meaningful conceptual linkages, leaving students ill-equipped for analytical rigor. When learners are conditioned as passive informational repositories, they fail to cultivate the professional agency essential for autonomous problem-solving (Kharroubi & ElMediouni, 2024). In an era necessitating high-order cognitive mobilization, a reliance on stagnant learning models restricts a student's capacity to internalize core professional ethics. This "surface-level approach" yields fragmented knowledge silos that are rapidly discarded once formal assessments conclude. Ideally, vocational training should migrate toward "deep learning" architectures, where students synthesize novel concepts with their experiential background and future professional aspirations (Boyle & Ravenscroft, 2012). The memorization trap serves as a cognitive ceiling that prevents students from attaining the complexity required for strategic industry maneuvers. Consequently, there is a pressing imperative to supplant these inert methods with vibrant, student-centric pedagogical blueprints. Transmuting passive recipients into proactive industry practitioners remains the quintessential challenge for modern vocational educators (Cai & Kosaka, 2024).

While the necessity of fostering communication skills is globally recognized as a catalyst for vocational distinction, the specific pedagogical architecture to realize this goal remains elusive. Existing scholarship posits that communicative development is positively associated with augmented cognitive performance (Brady et al., 2013), suggesting that these dual variables should

be integrated rather than isolated. Professional discourse is not merely a linguistic exercise; rather, it is a manifestation of structured, high-level cognitive processing. When students are empowered to interact effectively, they are concurrently mastering the organization of thought and the analysis of situational variables (McQuillan, 2005). However, most vocational frameworks still categorize communication as an ancillary "soft skill" rather than a core component of cognitive evolution. This compartmentalization hampers the student's ability to transpose classroom theory into the multifaceted service scenarios prevalent in the industry. Strategic responsiveness demands a level of cognitive maturity that conventional pedagogical techniques fail to nurture. By unifying communicative training with cognitive advancement, instructors can facilitate a more comprehensive and holistic developmental trajectory (Golombek & Doran, 2014). This synergy is indispensable for equipping students to satisfy the "high-touch" expectations of contemporary hospitality environments.

Despite these theoretical insights, a substantial research lacuna exists regarding how specific instructional designs, particularly case-study-driven Experiential Learning, can simultaneously reconcile the divide between practical discourse and cognitive profundity within tourism vocational settings. Although Experiential Learning is an established framework, its convergence with hierarchical cognitive metrics such as the SOLO Taxonomy remains under-researched in the vocational high school context (Chan et al., 2002). To address this void, the present study advocates for the implementation of a case-study-based Experiential Learning model. This paradigm transcends passive instruction by immersing students in an iterative cycle of concrete engagement, reflective scrutiny, abstract synthesis, and active validation. By leveraging authentic industrial case studies, students are compelled to refine their professional discourse within environments that accurately mirror the workplace (de Bruijn & Leeman, 2011). Such a methodology ensures that learning is not an abstract exercise but is deeply embedded in the empirical realities of the tourism market. This investigation aims to demonstrate that this integration can significantly accelerate both linguistic fluency and cognitive sophistication. Filling this academic void is vital for providing a scalable roadmap to revitalize vocational tourism education.

The novelty of this inquiry resides in its rigorous systematic appraisal of this pedagogical model through the lens of the SOLO (Structure of the Observed Learning Outcomes) Taxonomy. Diverging from previous research that often relies on generic academic grades or superficial performance metrics, this study operationalizes cognitive growth through calibrated tiers of comprehension. The SOLO framework permits an exacting measurement of progress, spanning from pre-structural fragments to extended abstract conceptualization (Gaid & Cahapay, 2025). This lens offers a more sophisticated appraisal of how knowledge is synthesized and recontextualized a methodological contribution that remains infrequent in vocational scholarship. By plotting student feedback against specific cognitive levels, educators can detect the precise inflection point where "surface learning" transitions into "deep understanding." This detailed assessment is critical for grasping the transformative influence of experiential pedagogy on student intellect (Wijnen-Meijer et al., 2022a). Furthermore, adopting a hierarchical evaluative lens resonates with the industry's prerequisite for graduates capable of managing escalating professional complexities. The study thus establishes a new empirical benchmark for quantifying vocational excellence.

By synchronizing instructional architecture with a hierarchical cognitive evaluative system, this research intends to: (1) examine the efficacy of case-study-based Experiential Learning in elevating cognitive depth via the SOLO Taxonomy, and (2) assess its impact on refining students'

professional communicative competencies. This study delivers a rigorous, data-centric instructional blueprint designed to modernize tourism vocational curricula and bolster graduate employability in the Industry 4.0 period (Wang et al., 2024). The conclusions are anticipated to offer tangible insights for vocational practitioners in tourism-based institutions in crafting more resonant learning experiences. By offering empirical validation of the model's utility, this inquiry advocates for a transition toward more authentic and academically rigorous vocational pedagogies. The contribution encompasses both theoretical evolution and practical utility within the hospitality and tourism sectors (Patiar et al., 2021). Ultimately, this effort seeks to empower vocational learners to emerge as industry-ready professionals possessing the cognitive endurance to thrive. This inquiry serves as a vital spark for evolving passive vocational students into strategic, high-level communicators.

2. METHOD

This study used a quantitative approach with a quasi-experimental, non-equivalent control-group design. This design was selected to evaluate the effectiveness of learning interventions within administratively established classroom settings, thereby maintaining the authenticity of the vocational learning context (Sagredo-Gallardo & Gonzalez-Campos, 2025). To ensure internal validity and mitigate selection bias, an initial equivalence test (*pre-test*) was conducted. The results confirmed no statistically significant differences in baseline communication skills and cognitive levels between the two groups ($p > 0.05$), ensuring that both groups started from a comparable baseline. Furthermore, to control for teacher bias, both the experimental and control groups were taught by the same instructor using the same curriculum duration (Dresel & Rindermann, 2011).

The research population included all 11th-grade students of the Tourism Service Business Expertise Program at Jember State Vocational High School. Using purposive sampling, the study involved 65 students: 32 students in the experimental group (Class A) and 33 students in the control group (Class B). Two primary instruments were employed: (1) A cognitive essay test structured according to the SOLO Taxonomy hierarchy to measure depth of thinking, and (2) An observation rubric to evaluate professional communication skills. To ensure scientific rigor, both instruments underwent expert judgment by two senior lecturers in tourism education to verify content and construct validity. The reliability of the communication observation sheet was assessed using inter-rater reliability, while the SOLO-based test's reliability was confirmed through a pilot study, achieving a Cronbach's Alpha of 0.82, indicating high internal consistency.

The intervention in the experimental group was conducted by integrating the four stages of Kolb's experiential cycle with authentic tourism industry case studies. This model emphasizes that knowledge is created through the transformation of experience in a continuous four-stage cycle (Morris, 2020). The implementation follows a systematic progression: (a) *Concrete Experience (CE),* where learners directly engage with authentic industry scenarios to evoke emotional involvement; (b) *Reflective Observation (RO)*, involving observation and reflection from multiple perspectives to seek meaning; (c) *Abstract Conceptualization (AC)*, where reflections are integrated into systematic thinking models and logical frameworks; and (d) *Active Experimentation (AE),* where these theories are tested and applied in new professional situations (Wijnen-Meijer et al., 2022b). To ensure transparency and replicability of the intervention, the specific learning activities associated with each stage in the context of Tourism Service Business are detailed in Table 1 below.

Table 1. Operationalization of Case-Study-Based Experiential Learning

Experiential Stage	Learning Activity (Tourism Case Study Context)	Targeted Competency
Concrete Experience	Students are presented with an authentic industry case (e.g., handling a difficult customer complaint or a sudden itinerary change).	Identifying situational facts (SOLO: Unistructural).
Reflective Observation	Students discuss in groups to reflect on the cause of the problem and the perspectives of the stakeholders involved.	Professional empathy and active listening.
Abstract Conceptualization	Students analyze the case using service excellence theories to formulate a systematic Standard Operating Procedure (SOP).	Logical reasoning and relational thinking (SOLO: Relational).
Active Experimentation	Students perform role-play simulations to test their formulated solutions in a professional communication setting.	Persuasive speaking and problem-solving (SOLO: Extended Abstract).

Data were processed using SPSS. The analysis followed a transparent three-stage protocol: (1) Prerequisite testing for normality (Shapiro-Wilk) and homogeneity (Levene's test). (2) Hypothesis testing using the Independent Samples T-Test for normally distributed data, or the Mann-Whitney U test as a non-parametric alternative. (3) Effect size calculation using Cohen's d to determine the practical significance of the treatment. The use of Cohen's d is essential to quantify the magnitude of the model's impact, ensuring that the results provide meaningful implication for vocational pedagogical practices.

3. RESULT AND DISCUSSION

3.1 Result

a. Instrument Validity and Reliability

The research instruments were rigorously validated to ensure they accurately measured the intended variables. Content validity was confirmed through expert judgment by two senior lecturers in tourism education, as shown in Table 1.

Table 1. Instrument Validation Results by Experts

Instruments	Number	Validity Category	Description
Communication Skills Questionnaire	20	Very Valid	Suitable for use
Cognitive Learning Outcome Test	4	Valid	Suitable for use

Reliability testing was performed to determine internal consistency. As shown in Table 2, the Cronbach's Alpha value far exceeds the minimum threshold of 0.70 (Edelsbrunner et al., 2025), indicating high reliability.

Table 2. Statistical Reliability Test Results

Variables	Cronbach's Alpha	N of Items	Description
Research Instruments	0,958	4	Highly Reliable

b. Prerequisite Analysis: Homogeneity and Normality

A prerequisite analysis was conducted to ensure the data met the assumptions for parametric testing, as shown in Table 3.

Table 3. Results of the Homogeneity of Variance Test (Levene's Test)

Variables	Levene Statistic	df1	df2	Sig.	Description
Student Learning Outcomes	0,388	1	63	0,535	Homogen

The Levene statistic (Table 3) confirmed that the variance between the experimental and control classes is homogeneous ($p > 0.05$). Furthermore, the Shapiro-Wilk test was utilized to assess normality.

Table 4. Results of the Shapiro-Wilk Normality Test

Group	Statistic	df	Sig.	Description
Experiment	0,951	32	0,149	Normal
Control	0,859	33	0,001	Abnormal

As shown in Table 4, the control group's data were not normally distributed ($p < 0.05$). Consequently, to maintain the consistency and integrity of the analysis, the Mann-Whitney U test was prioritized as the primary nonparametric evaluation to verify the results of the Independent Samples T-Test.

c. Hypothesis Testing and Effect Size

The following tables summarize the comparative analysis between the two groups, as shown in Table 5.

Table 5. Mann-Whitney U Test Results

Group	N	Mean Rank	Sum of Ranks	U	Z	Sig. (2-tailed)
Experiment	32	49,48	1583,50	0,500	-6,943	< 0,001
Control	33	17,02	561,50			

The Mann-Whitney U results (Table 5) confirm a highly significant difference between the classes ($p < 0.001$). This finding is further supported by the Independent Samples T-test and Cohen's d calculations in Table 6.

Table 6. Summary of Independent Samples T-Test and Cohen's d Analysis

Variables	t	Sig.(2-tailed)	Mean Difference	Cohen's d	Description
Cognitive (SOLO)	26.558	< 0.001	16.854	6.589	Very Large
Communication	12.570	< 0.001	8.833	3.119	Very Large

The results in Table 6 show that the case-study-based Experiential Learning model significantly outperforms the conventional approach ($p < 0.001$). The Cohen's d values for both variables (6.589 and 3.119) are categorized as "Very Large (Gignac & Szodorai, 2016)," indicating a robust practical impact. This magnitude reflects the effectiveness of the intervention in accelerating cognitive maturity and professional communication within the tourism service competency framework.

3.2 Discussion

a. Impact of Experiential Learning on Cognitive Depth and Communication

The results of this study demonstrate that integrating case-study-based experiential learning significantly enhances both the depth of thinking and professional communication skills of vocational students compared to conventional approaches. The "Very Large" effect size ($d > 3.0$) indicates that the intervention is not merely statistically significant but possesses profound practical implications for vocational pedagogy. This finding aligns with the assertion that active learning interventions employing authentic cases yield significantly higher student engagement and cognitive mastery compared to passive, lecture-based formats (Lakens, 2013).

Theoretically, this improvement is rooted in the synergy between Kolb's learning cycle and the hierarchical structure of the SOLO Taxonomy. During the *Reflective Observation* phase, students are forced to move beyond surface-level memorization to evaluate past communication interactions, identifying obstacles and refining their responses for future industry scenarios (Pimblett et al., 2026). This process facilitates a qualitative shift from unistructural or multistructural levels to the relational and extended abstract levels (Biggs, 2001). In the tourism sector, where human interaction is a core competency, this model ensures that communication is not just about speaking, but about responding strategically to complex service situations (Testa & Sipe, 2012).

b. The Role of Case Studies as a Cognitive Catalyst

The novelty of this research lies in the systematic application of the SOLO Taxonomy to evaluate the structural quality of students' cognitive responses (Stålne et al., 2016). While the control group remained trapped at a surface cognitive level likely due to the one-way nature of traditional instruction the experimental group demonstrated an ability to integrate multiple concepts and generalize solutions to unfamiliar problems (Ngu et al., 2026). The use of authentic case studies acts as a catalyst in this transformation. In the Abstract Conceptualization phase, students construct new mental frameworks based on their reflections, allowing them to build a coherent structure of understanding. This aligns with recent evidence suggesting that case-based instructional designs in vocational settings bridge the gap between classroom theory and industry reality, significantly enhancing students' self-efficacy (ELSamen et al., 2011).

c. Integration of Skills and Industry Readiness

From a pedagogical perspective, the findings reinforce the importance of authentic learning experiences that mirror professional environments. In the tourism industry, job-readiness is determined by the ability to navigate complex interpersonal demands (Kim et al., 2026). By simulating industry dynamics through active experimentation, students develop competencies holistically. The significant difference observed in the Mann-Whitney U test ($p < 0.001$) underscores that experiential models provide a robust framework for developing the "high-touch" skills required in the hospitality sector.

d. Research Limitations and Future Directions

Despite the strong empirical evidence, several limitations must be acknowledged to provide a reflective academic perspective. First, the quasi-experimental design used in this study lacks random assignment, which may introduce unobserved variables related to the pre-existing classroom climate that could influence the results (Al-Buraiki et al., 2025). Second, the geographical scope is limited to vocational schools in Jember, East Java; thus, the generalizability of the findings to different cultural or institutional contexts

should be approached with caution (Sadewo et al., 2018). Furthermore, this study focused on immediate post-intervention outcomes. Future research should consider longitudinal designs to evaluate the long-term retention of these communication skills and cognitive depth as student transition into internships or the workforce. Additionally, integrating digital simulations or Virtual Reality (VR) into the experiential cycle could be an interesting avenue to explore in the context of Society 5.0 (Ghobakhloo et al., 2025).

4. CONCLUSION

This study confirms that the integration of case-study-based experiential learning acts as a transformative pedagogical catalyst in vocational education. The empirical evidence demonstrates a highly significant improvement in student competencies ($p < 0.001$), with a remarkably large effect size for both cognitive depth ($d = 6.589$) and professional communication ($d = 3.119$). These findings affirm that a structured cycle of authentic experience and reflection is essential for bridging the gap between theoretical knowledge and industry-ready skills. By shifting the instructional paradigm from passive consumption to active conceptualization, this model effectively elevates students from surface-level memorization to the relational and extended abstract levels of cognitive complexity.

The novelty of this research lies in its methodological integration of the SOLO Taxonomy as a hierarchical lens to evaluate experiential outcomes. This approach provides a granular understanding of how vocational students reconstruct their communication patterns and cognitive structures when faced with authentic industry dilemmas. Scientifically, this study contributes to the vocational discourse by proving that professional communication is not an isolated soft skill but a derivative of deep, structurally integrated thinking. Practically, these results provide a strategic blueprint for vocational educators in the tourism sector. To produce graduates who meet the "high-touch" demands of the industry, instructional designs must prioritize authentic problem-solving scenarios that mirror workplace dynamics. Schools are encouraged to adopt the SOLO-based assessment to monitor qualitative shifts in student maturity rather than relying solely on conventional test scores. However, given the quasi-experimental nature of this study, further research is required to enhance the generalizability of these findings. Future studies should explore the integration of immersive technologies, such as Virtual Reality (VR) simulations, within the experiential cycle to further strengthen cross-cultural communication. Additionally, longitudinal tracking of graduates as they enter the workforce would provide robust evidence of the long-term sustainability of these learning outcomes.

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