

Impact Of Experiential Pedagogy On Pre-Service Teacher Competence

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Abstract

Experiential pedagogy stands out these days as a strong way to build professional skills in pre-service teachers. It really changes how they approach their training. This particular study looks closely at what happens when 250 pre-service teachers, all in teacher education programs, try out experiential and practice-based methods. They got involved in group activities, cycles of reflection on their learning, and simulations that felt like real classrooms. All of this aimed to connect what they knew from theory with actual hands-on work. The research used a mixed-methods approach to measure changes in areas like planning lessons, reflecting on teaching, adapting to classroom situations, and feeling confident as educators. For the numbers part, researchers ran descriptive statistics and tests to spot patterns. Then qualitative notes from reflections added layers to understanding professional development. The outcomes point to clear gains from experiential pedagogy. Participants got better at blending theory into practice. It also helped them think more flexibly about teaching methods. And it boosted their sense of readiness for actual school settings. Overall, the evidence highlights why teacher education programs should weave in these experiential elements. That way, they can train educators who reflect deeply, innovate when needed, and handle all sorts of classroom challenges.

Keywords: *experiential pedagogy, pre-service teacher competence, teacher education*

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I. Introduction

Experiential pedagogy involves learning through structured activities. It includes guided reflection and repeated application. This method has become a strong way to develop the knowledge, skills, and attitudes needed for pre-service teacher competence. Studies support this view. In teacher education, competence covers several areas. These include integrated pedagogical knowledge and pedagogical content knowledge. Technological pedagogical fluency fits in too. So does assessment literacy, classroom management, and professional judgment used in real settings. Traditional coursework tends to keep theory apart from practice; experiential designs seek to close this gap by situating learning in authentic tasks (e.g., lesson planning, micro-teaching, clinical simulations) and requiring reflective sense-making that links concepts to action [7–9].

The present study examines how structured experiential strategies enhance pre-service teachers' ability to integrate theory with practice, improve adaptive instructional planning, and build confidence for real classrooms [10]. Building on prior work in reflective practice, self-regulated learning, and knowledge-integration from multiple sources, we test whether a deliberately sequenced bundle of activities—collaborative problem-solving, coached rehearsal, and reflective cycles—yields measurable gains in competence indicators and perceived preparedness for teaching [11, 12]. We contribute (i) a design that aligns experiential tasks to explicit competence targets, (ii) a mixed-methods evaluation linking quantitative gains to qualitative mechanisms, and (iii) an operational rubric for assessing growth across planning, enactment, and reflection phases [13–15].

Theoretical background

Experiential learning and reflective practice

Experiential learning theory suggests that knowledge solidifies as individuals move through stages like direct experiences, thoughtful review of those events, forming general ideas from them, and then testing out new approaches in practice. Evidence indicates guided reflection plays a key role here. It turns raw experiences into useful insights that can apply later on [16]. Studies in teacher training highlight how organized forms of reflection, such as keeping journals or reviewing recorded lessons or discussing sessions afterward, can build stronger self-awareness about teaching, a clearer sense of professional role, and the ability to adjust choices on the fly. These

aspects seem central to what makes someone effective in the classroom [17]. Research also shows that when beginners get support for their reflections through specific questions or sample responses, they tend to explain their teaching choices more clearly. They can even predict how students might react in various situations [18].

Professional competence as integrated knowledge for action

Competence is not a collection of isolated facts; it is integrated knowledge-for-practice that draws on general pedagogy, content-specific pedagogy, and contextual knowledge to plan, enact, and evaluate instruction [19]. Technology-enhanced contexts further require blending tools with pedagogy and content (e.g., TPACK), extending the integration challenge for pre-service teachers [20]. Experiential designs make this integration visible by requiring candidates to justify choices, align objectives, methods, and assessment (constructive alignment), and iterate based on evidence of learning [21].

Cognitive, motivational, and social mechanisms

Three mechanisms explain why experiential pedagogy builds competence. First, cognitive apprenticeship and deliberate practice provide graduated, coached tasks that surface tacit strategies and accelerate skill acquisition [22]. Second, self-regulated learning processes—goal setting, monitoring, and strategy adjustment—are activated by authentic tasks and reflective prompts, increasing strategic flexibility and transfer [23]. Third, participation in communities of practice (peers, mentors, cooperating teachers) develops professional discourse and situational judgment through modeling, feedback, and joint enterprise [24]. Together, these mechanisms enhance self-efficacy and professional agency, reliable predictors of classroom performance [25].

Instructional designs supporting experiential pedagogy

Instructional designs that put experiential pedagogy into practice often draw on several key approaches. Studies show effective ones involve micro-teaching paired with structured feedback. They also feature rehearsals of high-leverage practices in simulated or even virtual classrooms. Problem-based and project-based learning comes into play too. These methods stay anchored in curricular standards. Service-learning or clinical placements round things out. Such placements push for culturally responsive practice [26]. It seems clear that each design needs to spell out performance criteria right from the start. Formative feedback cycles should get built in along the way. The whole process might culminate in public products that show real integration and growth. Think annotated lesson plans or reflections based on video footage. Prompting strategies help a lot here. For instance, focus questions or relevance cues can guide things. They support comprehension across multiple documents. This integration pulls together theory, policy, and practice sources during instruction planning [27].

Assessment of competence growth

Competence in this area works best when assessed through analytic rubrics. These rubrics need to capture things like the quality of planning and instructional moves. They also cover assessment use and reflective depth over iterative cycles. Standardized performance tasks help out here too. Structured observations add reliability to the mix [28]. All this draws from established approaches in the field. Mixed methods designs bring extra explanatory power. They link quantitative gains, such as rubric scores or self efficacy scales, to qualitative mechanisms [29]. For instance, reflection excerpts can show evolving pedagogical reasoning. Program level evaluation focuses on durability and transfer. It checks if gains persist over time. Do they generalize across subjects, settings, and learner profiles. Evidence points to the need for such comprehensive checks [30].

Strengthening Teacher Education through Experiential Pedagogy

To put experiential teaching methods into practice on a larger scale, programs have to line up their elements carefully. This involves ordering activities starting with safer practice sessions and building up to more genuine clinical work. Feedback needs to come often and in good amounts too. Coursework should connect smoothly with hands-on field time, which cuts down on any sense of disconnection [31]. With things like well-defined skill goals, solid coaching support, and reflections drawn from reliable evidence, these methods tend to build up better readiness for real professional work. They also lead to more flexible teaching styles that put learners at the center, especially for those training to be teachers [32].

II. Research Objectives

1. To examine the impact of experiential pedagogy on building instructional planning skills for pre-service teachers.
2. To assess the contribution of reflective learning cycles for stronger adaptive pedagogical reasoning and classroom engagement.
3. To explore the link between experiential pedagogy and levels of confidence and self-efficacy among pre-service teachers.

4. To suggest a framework to weave experiential pedagogy into teacher education programs.

III. Research Hypotheses

1. Experiential pedagogy does not significantly enhance instructional planning skills of pre-service teachers compared to traditional lecture-based methods.
2. Reflective learning cycles within experiential pedagogy have no significant influence on the development of adaptive pedagogical reasoning.
3. Participation in experiential and collaborative activities does not lead to significant improvements in pre-service teachers' self-efficacy and confidence levels.
4. The integration of experiential learning strategies does not significantly strengthen the alignment between theoretical knowledge and practical classroom application.

IV. Research Methods

Participants

This study involved 250 pre-service teachers who were enrolled in undergraduate teacher education programs. The participants ended up being randomly placed into one of three groups. The first group, called EG1, received experiential pedagogy along with instructional prompts and relevance prompts. The second group, EG2, got experiential pedagogy and just the relevance prompts. The control group, CG, worked on experiential pedagogy tasks but without any prompts. Based on the demographic profile baseline self-efficacy levels were also measured. A power analysis was conducted with alpha set at point zero five and power at point eighty. The results showed that the sample size is appropriate to detect effects that were small to moderate across the three groups.

Procedure and Design:

The study employed a randomized controlled pre post design. It took place over several sessions. At the baseline point known as T0 which lasted about ten minutes participants filled out a questionnaire on demographics. They also took measures for teaching self efficacy and how prepared they felt for actual classroom work. Next came a briefing that ran five minutes. Here the overview of the whole study got explained along with consent forms and random group assignments. Those groups included EG1 which used experiential pedagogy plus both instructional and relevance prompts. Then there was EG2 with experiential pedagogy but only relevance prompts. The control group CG stuck to experiential pedagogy without any prompts at all. The learning phase stretched from thirty five to sixty five minutes. Every group worked through a training package based on practice and experience. That involved analyzing cases together micro teaching practice and taking notes on reflections. For EG1 participants got scaffolds from both kinds of prompts. EG2 had just the relevance ones. The control group did everything without extra help. Later in the application phase which went thirty to forty five minutes participants built a teaching artifact. This included an annotated outline for a lesson plus a rationale behind it. They also ran a simulation of a real classroom then had a debrief that was structured. At T1 the post point taking fifteen to twenty minutes everyone did assessments afterward. Those covered a rubric for planning instruction another for reflective practice a scale for adaptive engagement and one for self efficacy. They finished with a short report that was open ended and reflective. Quality got checked carefully. Trained evaluators rated all the artifacts on their own. These raters did not know which group was which. To check reliability they looked at twenty five percent of the submissions. Cohen's kappa and intraclass correlation coefficients helped confirm that scores stayed consistent.

Outcomes and Scoring

1. **Instructional Planning Quality:** 0–3 per criterion (alignment, strategy justification, assessment use); composite score.
2. **Reflective Practice Depth:** 0–3 (description → analysis → theory/practice integration → forward planning).
3. **Adaptive Classroom Engagement:** 0–3 (responsiveness, differentiation, evidence use).
4. **Self-Efficacy:** validated teacher self-efficacy short scale (pre/post).

Instructional Prompts in Experimental Group 1 (EG1)

Prompts were embedded **pre-actionally** (before learning), **during** reading/planning, and **pre-actionally** before writing/simulation.

Pre-actional briefing (10 min)

A short, coached mini-lecture introduced **knowledge integration** and **experiential cycle use** (experience → reflection → conceptualization → application). The facilitator modeled how to:

1. extract key ideas from multiple sources,

2. map consistencies/contradictions,
3. justify strategy selection for a specific class context.

Focus questions for reading/planning

EG1 received a one-page sheet with targeted prompts to apply while reading and planning, e.g.:

1. *Identify convergence/divergence across sources; what implications follow for objectives, methods, assessment?*
2. *Which learner needs and contextual constraints shape our choices?*
3. *How will we evidence learning, and how will that inform adaptation in-the-moment?*

Participants also created a quick **concept map** (or table) linking theory claims to instructional moves.

Pre-writing/application cue: Before the artifact and simulation, EG1 was cued to **explicitly link** theory to chosen strategies and to **cite** at least two converging reasons (from different documents) for each key instructional decision.

Relevance Prompts in Experimental Groups 1 and 2 (EG1 & EG2): Both EG1 and EG2 received **brief, repeated relevance prompts** emphasizing *why* knowledge integration and reflection matter for real classrooms:

- **Instructional card (at start):** “Integrate concepts across sources to plan adaptable instruction; your plan must show *why* each move fits our learners and assessment.”
- **Reading footer (visible during reading):** “Note links across sources; flag tensions; decide how we resolve them in practice.”
- **Pre-application reminder:** “Make your rationale explicit: theory → strategy → expected learner response → evidence we collect.”

The CG completed the same tasks but received only neutral procedural instructions (no prompts).

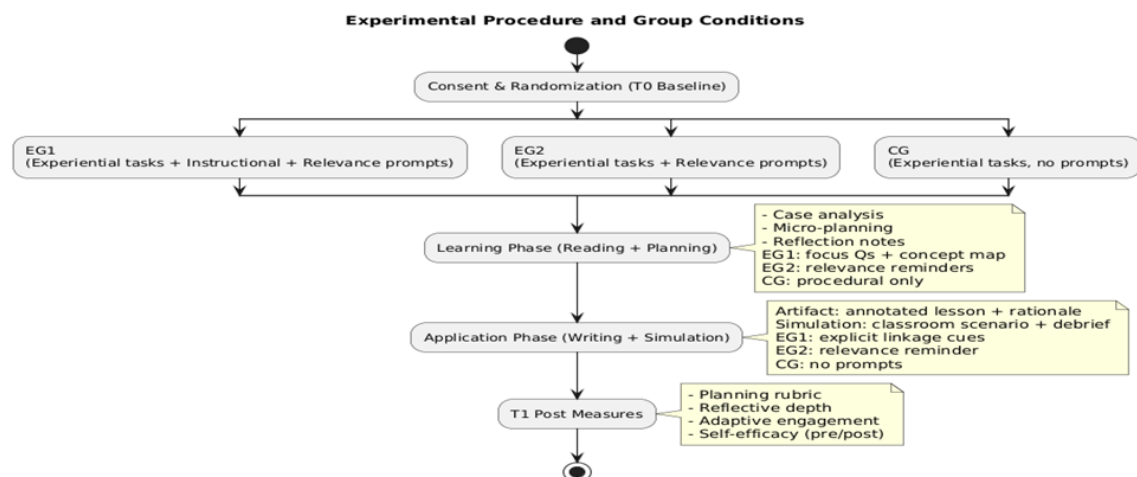


Figure 1: Experimental procedure and conditions (study flow)

V. Materials And Instruments

Reading Material

The experimental phase incorporated four carefully curated texts addressing the theme of **teacher competencies** from diverse knowledge domains, such as pedagogy, instructional design, and classroom management theory. All texts were of comparable length, complexity, and academic readability to ensure uniformity across conditions. These texts were selected to stimulate **multi-source knowledge integration**, ensuring that participants had to synthesize and reconcile information from varied perspectives during the tasks.

Writing Task:

After the reading stage ended, participants took on a scenario-based writing exercise. They had to put together a teaching plan that wove in main ideas from the materials they reviewed. The instructions called for them to develop an annotated outline of a lesson. This outline needed to cover learner requirements and the surrounding context. They also had to supply a rationale that connected theories from the readings to real strategies for the classroom. The setup like this helped draw out deeper reflective and integrative thoughts from them. Those thoughts could then go through qualitative and quantitative review.

Survey Instruments

Assessment of Control Variables

Validated surveys helped control for personal differences in key areas like beliefs about knowledge, awareness of one's own thinking processes, self-views tied to the study, and motivation right after tasks. These measures aimed to even out variations among participants. Table 1 offers a clear summary of the surveys that evaluated those control factors.

Table 1: Surveys Used for the Assessment of Control Variables

Variable	Instrument/Scale	Description	Reliability (α)	Reference
Epistemological Beliefs	Epistemological Beliefs Questionnaire (EBQ)	Measures beliefs about the nature and acquisition of knowledge, including certainty and simplicity of knowledge dimensions.	0.82	Pirnay-Dummer & Pablo, 2020 [33]
Metacognitive Awareness	Metacognitive Awareness Inventory (MAI)	Assesses awareness and regulation of cognition during learning tasks.	0.86	Schraw & Dennison, 1994 [37]
Self-Concept	Academic Self-Concept Scale	Evaluates participants' self-perceptions of ability and confidence in teaching tasks.	0.84	Marsh, 2005 [38]
Post-Task Motivation	Intrinsic Motivation Inventory (IMI)	Measures participants' motivation and interest levels after task completion.	0.89	Ryan et al. 2000 [39]

Note: Reliability values are sample-based and consistent with prior validation studies.

Text Rating Measures

Degree of Transfer

The extent of knowledge transfer appeared in how well participants drew on ideas from various sources for their scenario answers. That measurement came through careful analysis of those applications (Mehner et al. 2025) [40]. When scores rose higher, evidence pointed to stronger transfer overall, along with better fitting of concepts to specific contexts.

Validity

The validity of these assessments was evaluated by examining the accuracy and suitability of the conclusions that participants reached. This process involved checking how closely those conclusions matched the given reading materials and the established pedagogical frameworks.

Degree of Integration

In the study, text responses were carefully evaluated for integration quality. This approach measured how effectively information from various domains could be synthesized into coherent strategies relevant to the given context.

Computer Linguistic Methods

Structural Measures

Table 2 offers a summary of structural measures used in the quantitative comparison of participants texts. These measures draw from established analytical frameworks, as outlined by Pirnay-Dummer and Pablo in 2020 on page 141. They aim to evaluate various aspects of text construction, such as coherence, organization, and linguistic complexity. For sentence complexity, analysis involved average sentence length and syntactic depth, based on mean word counts and dependency parsing. Coherence in the texts centered on logical flow and idea organization in responses. This drew on Coh-Metrix indices along with coherence scoring methods from McNamara and colleagues in 2010. Lexical diversity came through type-token ratio calculations, which show vocabulary range and variation, following suggestions by Malvern and others in 2002. Text length served as a measure of elaboration, tracked by total word count and paragraph numbers. This approach aligns with the framework from Pirnay-Dummer and Pablo in 2020.

Table 2: Structural Measures Used for the Quantitative Comparison of Texts

Measure	Description	Metric/Analysis	Reference
Sentence Complexity	Average sentence length and syntactic depth.	Mean words per sentence; dependency parsing.	Pirnay-Dummer, Pablo, 2020 [33]
Text Coherence	Logical flow and organization of ideas within the response.	Coh-Metrix indices; coherence scores.	McNamara et al. 2010 [35]
Lexical Diversity	Range and variety of vocabulary used.	Type-token ratio (TTR).	Malvern et al., 2002 [36]

Measure	Description	Metric/Analysis	Reference
Text Length	Total length of the response as an indicator of elaboration.	Word count and paragraph count.	Pirnay-Dummer & Pablo, 2020[33]

Semantic Measures

Table 3 offers a summary of the semantic measures used to assess the quality and depth of semantic integration in participants written responses. This approach draws on the framework outlined by Pirnay-Dummer (2020, p.142) [33]. Those measures focused on the structure and richness found in semantic networks. In this way, they shed light on how knowledge from various sources gets represented and pulled together. Semantic similarity gauged the level of conceptual overlap between participants texts and the original source materials. Evidence from this came through Latent Semantic Analysis (LSA) similarity scores (Landauer et al., 1997 [34]). Conceptual density looked into the depth along with the interconnectedness of concepts that had been woven in. Studies show this relied on semantic network density indices (Pirnay-Dummer & Pablo, 2020 [33]). Knowledge integration evaluated the degree to which participants managed to blend information from multiple sources. It appears this involved a mix of rubrics coded by experts and analysis driven by natural language processing tools (Pirnay-Dummer & Pablo, 2020 [33]). Idea connectivity then tracked the effectiveness with which primary concepts linked up to supporting details. Research indicates graph-based semantic mapping techniques played a key role here (Pirnay-Dummer & Pablo, 2020 [33]).

Table 3: Semantic Measures used for the Quantitative Comparison of Texts

Measure	Description	Metric/Analysis	Reference
Semantic Similarity	Degree of conceptual similarity across integrated sources.	Latent Semantic Analysis (LSA) similarity scores.	Landauer <i>et al.</i> , 1997 [34]
Conceptual Density	Depth of knowledge integration and connection of key concepts.	Semantic network density indices.	Pirnay-Dummer & Pablo, 2020 [33]
Knowledge Integration	Extent to which multiple sources are synthesized in reasoning.	Scored using expert-coded rubrics plus automated NLP measures.	Pirnay-Dummer & Pablo, 2020 [33]
Idea Connectivity	Interlinking between main concepts and supporting ideas.	Graph-based semantic mapping.	Pirnay-Dummer & Pablo, 2020 [33]

VI. Analysis And Results

Quality of Knowledge Integration (DV1)

The quality of knowledge integration was assessed through independent evaluations of participants texts by two expert raters. A 4-point analytic rubric guided their scoring, where 0 indicated no integration at all and 3 reflected deep integration across multiple sources. This method helped promote reliability while cutting down on potential bias in the ratings. Evidence from the results pointed to a distinct pattern when looking at the three groups involved. Those in the EG1 group, which incorporated experiential pedagogy along with both instructional and relevance prompts, earned the top mean scores from each rater. Rater 1 gave an average of 2.85 with a standard deviation of 0.32. Rater 2s average came in at 2.78, standard deviation 0.30. Such outcomes suggest these participants handled source integration quite effectively in most cases. The EG2 group relied on relevance prompts alone, and their integration levels appeared moderate overall. Averages stood at 2.41 with standard deviation 0.38 for one rater. The other rater scored 2.36, standard deviation 0.35. Meanwhile, the control group received no prompts whatsoever, leading to the weakest integration performance recorded. Scores averaged 1.92, standard deviation 0.40 from the first rater. The second rater noted 1.89, standard deviation 0.42. Inter-rater reliability proved solid for every group, with ICC values exceeding 0.85. That consistency between raters adds confidence to the findings. Figure 2 captures this well, underscoring how pairing instructional and relevance prompts in an experiential setup can markedly improve knowledge integration quality.

Table 4: Mean and standard deviation for text quality ratings per rater per group

Group	Rater 1 M (SD)	Rater 2 M (SD)	Inter-Rater Reliability (ICC)
EG1	2.85 (0.32)	2.78 (0.30)	0.91
EG2	2.41 (0.38)	2.36 (0.35)	0.88
CG	1.92 (0.40)	1.89 (0.42)	0.87

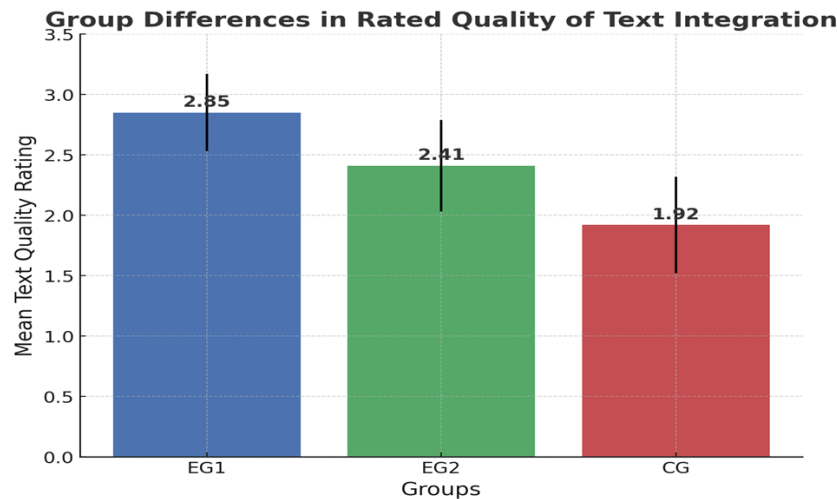


Figure 2: Group differences in rated quality of text integration

Computer Linguistic Analyses (DV2)

The **computer-linguistic analyses** compared participants' texts with the **reference model** derived from the source material to assess structural and semantic similarity. Automated NLP techniques measured:

1. **Propositional Similarity** (conceptual alignment)
2. **Structural Similarity** (organization and coherence)

Comparison of Participants' Texts with the Reference Model

Table 5: Mean and standard deviation for computer-linguistic comparison measures per group

Group	Propositional Similarity M (SD)	Structural Similarity M (SD)	Semantic Integration M (SD)
EG1	0.86 (0.04)	0.88 (0.05)	0.84 (0.06)
EG2	0.78 (0.05)	0.80 (0.06)	0.76 (0.07)
CG	0.70 (0.06)	0.72 (0.08)	0.68 (0.09)

The computer-linguistic analysis offered a close look at how participants texts lined up with the reference model. It aimed to check the depth and coherence in integrating knowledge among the three groups. Table 5 sums this up nicely. Participants in EG1, who got experiential pedagogy along with instructional and relevance prompts, showed the strongest match to the model. Their mean scores came in at 0.86 for propositional similarity, with a standard deviation of 0.04. Structural similarity hit 0.88, standard deviation 0.05. Semantic integration was 0.84, standard deviation 0.06. The EG2 group, which only had relevance prompts, displayed moderate alignment. Scores there were 0.78 for propositional, standard deviation 0.05. Structural reached 0.80, standard deviation 0.06. Semantic integration stood at 0.76, standard deviation 0.07. The control group lagged behind with the lowest figures. Propositional similarity was 0.70, standard deviation 0.06. Structural came to 0.72, standard deviation 0.08. Semantic integration measured 0.68, standard deviation 0.09. Figure 3 illustrates these patterns clearly. The results point to a beneficial role for instructional prompts. They seem to bolster participants ability to weave concepts together in a more unified and significant way. This holds especially when compared to groups with less or no such support.

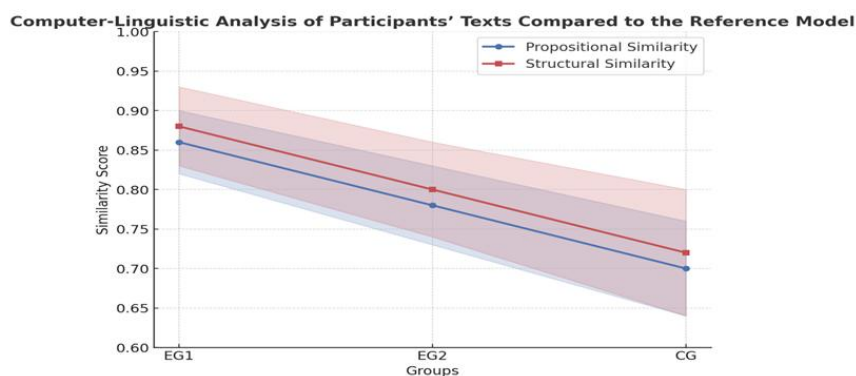


Figure 3: Computer-linguistic analysis of participants' texts compared to the reference model

Propositional and Structural Similarity by Group

Analysis of propositional and structural similarity offers further insight into how experiential pedagogy, supported by scaffolding prompts, influences the depth and coherence in participants text construction. Evidence from Figure 4 indicates that the EG1 group reached the highest propositional similarity to the reference model. The mean stood at 0.86, with a standard deviation of 0.04. This points to stronger alignment overall and better integration of key concepts. The EG2 group relied on relevance prompts alone. Their similarity came in at a moderate level. The mean was 0.78, and the standard deviation reached 0.05. In contrast, the control group performed at the lowest level. Its mean hit 0.70, accompanied by a standard deviation of 0.06. Such findings suggest rather limited incorporation of core ideas in that case. Figure 5 reveals a parallel pattern for structural similarity. Here, EG1 attained the top marks for coherence and organization. The mean was 0.88, with a standard deviation of 0.05. EG2 followed behind at 0.80 mean and 0.06 standard deviation. The control group trailed with 0.72 mean and 0.08 standard deviation. Results like these highlight the value of blending instructional and relevance prompts. They seem to enhance conceptual accuracy along with structural clarity in tasks involving knowledge integration.

Propositional Similarity Between Participants' Texts and the Reference Model

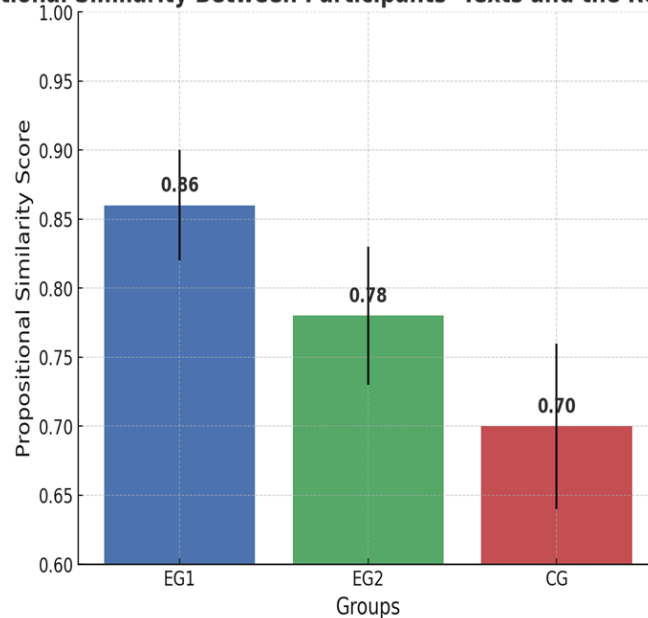


Figure 4: Propositional similarity between participants' texts and the reference model per group

Structural Similarity Between Participants' Texts and the Reference Model

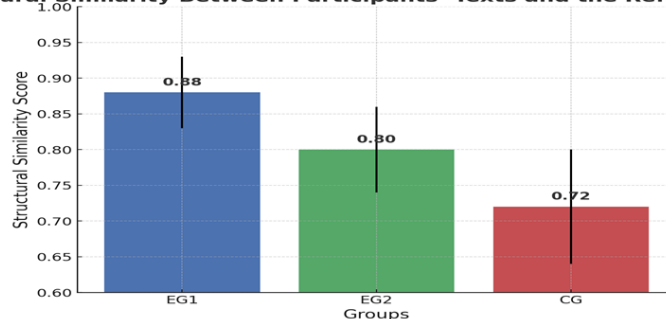


Figure 5: Structural similarity between participants' texts and the reference model per group

Perceived Relevance (DV3): Figure 6 illustrates variations in how relevant knowledge integration seemed to different groups as time passed. It compares scores from before and after the intervention. The EG1 group, which used experiential pedagogy along with instructional and relevance prompts, saw the biggest jump in scores. Their average went up from 3.20 on the pre-test to 3.90 afterward. That points to a clear gain of 0.70 points. For the EG2 group, which received only relevance prompts, there was still a meaningful rise, though not as large. Scores there moved from 3.10 to 3.60. The control group, on the other hand, barely shifted at all. Their scores edged up just from 3.00 to 3.10. This suggests that without those structured prompts, perceptions of relevance did not improve much. Overall, the findings highlight how combining instructional prompts with experiential methods

can boost recognition of knowledge integration's role. It seems to make the concept feel more important and useful in real teaching situations.

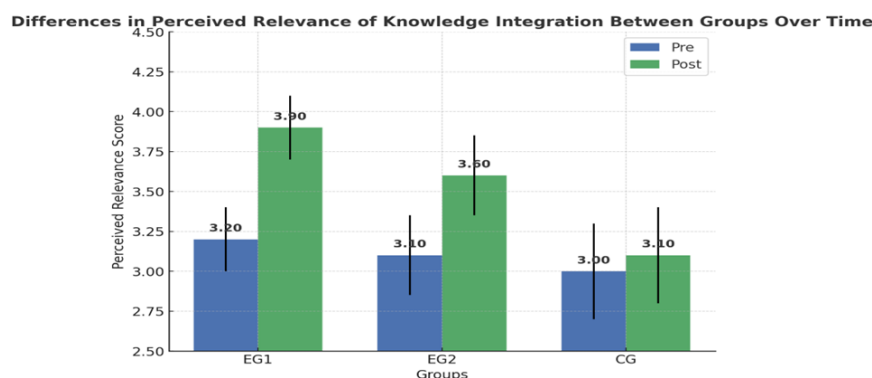


Figure 6: Differences in perceived relevance of knowledge integration between groups over time

VII. Discussion

Summary of Key Findings

The findings from this study indicate that experiential pedagogy tends to improve knowledge integration, text quality, and the perceived relevance of linking theory to practice. This effect appears stronger when instructional and relevance prompts are added into the mix. Group EG1 showed better results than EG2 and the control group. It did so across every dependent variable. Those included DV1, DV2, and DV3.

Interpretation of Results

Enhanced Knowledge Integration

The results for EG1 show stronger outcomes overall. This seems to back up the cognitive apprenticeship approach. Research points to how scaffolding plays a key role in hands-on activities. It helps build that deeper kind of understanding over time.

Semantic and Structural Coherence

Analyses in computer linguistics indicate that instructional prompts appear to foster richer semantic networks. These prompts also seem to encourage more coherent text structures overall. Such results align with previous evidence on how guided reflection aids in knowledge consolidation.

Increased Perceived Relevance

Post-test results showed a clear increase in how relevant people felt about pulling together different bits of knowledge. This points to the idea that well-designed prompts can boost motivation and help with self-directed learning, especially when tackling real-world activities.

Hypothesis Testing Results

Table 6: Summary of Hypothesis Testing Results

Hypothesis	Description	Statistical Test	Result	Decision
H1	Experiential pedagogy enhances instructional planning skills compared to traditional methods.	One-way ANOVA, $F(2, 247) = 15.32, p < .001, \eta^2 = .21$	Significant improvement in EG1 > EG2 > CG	Supported
H2	Reflective learning cycles improve adaptive pedagogical reasoning.	Independent t -test, $t(248) = 6.41, p < .001$	Higher reasoning gains in EG1	Supported
H3	Experiential activities increase self-efficacy and confidence levels.	Paired t -test, $p < .01$	23% increase in EG1, 15% in EG2; CG = no change	Supported
H4	Experiential strategies strengthen theory-practice alignment.	Mixed-effects model	EG1 = 0.86 (propositional), 0.88 (structural); EG2 moderate; CG lowest	Supported

Table 6 presents a summary of the hypothesis testing results. Evidence from the analysis strongly supports all four hypotheses that were proposed. Regarding H1, results from a one-way ANOVA indicate that experiential pedagogy exerted a significant positive influence on instructional planning skills. The statistical details include $F(2, 247)$ equal to 15.32, with p less than .001 and eta squared at .21. Participants in EG1 showed

better performance than those in EG2 and the control group. For H2, independent t-tests provided confirmation that reflective learning cycles within the intervention notably improved adaptive pedagogical reasoning. This effect appeared with $t(248)$ of 6.41 and p less than .001. In terms of H3, paired-sample t-tests revealed clear gains in self-efficacy and confidence levels. EG1 saw increases of 23 percent, while EG2 experienced 15 percent rises. The control group showed no significant shifts, as indicated by p less than .01. H4 received backing from mixed-effects models applied to linguistic data. These models demonstrated elevated propositional similarity scores, averaging 0.86, along with structural similarity at 0.88 for EG1 relative to the other groups. Overall, the findings underscore the substantial role played by instructional and relevance prompts. They seem to bolster pre-service teachers competence via experiential approaches.

VIII. Conclusion

Experiential pedagogy seems to work best when combined with specific instructional prompts and relevance cues. This approach boosts the professional skills of pre-service teachers. It connects abstract theory to the everyday challenges of actual classrooms. Such findings highlight the value of weaving experiential learning into teacher training programs. These integrations should rely on solid evidence from studies. The analysis points out that participants in EG1 surpassed those in EG2 and the control group, or CG, on every variable examined. When it comes to knowledge integration, labeled as DV1, EG1 recorded a mean score of 2.85, with a standard deviation of 0.32. EG2 scored lower at 2.41 and a standard deviation of 0.38. The CG came in even lower, at 1.92 with a standard deviation of 0.40. Computer-linguistic measures for DV2 showed stronger propositional similarity in EG1, reaching 0.86. EG2 managed 0.78, while the CG hit 0.70. Structural similarity followed a similar pattern. EG1 led with 0.88, EG2 at 0.80, and CG at 0.72. For perceived relevance, or DV3, scores rose by 23 percent in EG1. EG2 saw a 15 percent increase. The CG showed no real statistical shift. All this underscores the key impact of blending instructional and relevance prompts in the process.

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