

Methodology Of Experimental Testing Of The Effectiveness Of The Methodology For Developing Critical Thinking Of Philology Students On The Basis Of National Literature

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ABSTRACT

This article examines the comprehensive methodology employed in the experimental testing of an innovative pedagogical approach designed to develop critical thinking skills among philology students through engagement with national literature. The research presents a detailed framework for assessing the effectiveness of teaching methodologies that integrate literary analysis with critical thinking development. The study outlines the experimental design, participant selection criteria, assessment instruments, data collection procedures, and analytical methods used to evaluate the proposed methodology. Special attention is given to the integration of national literary works as foundational texts for fostering analytical reasoning, interpretive skills, and evaluative judgment. The article discusses both quantitative and qualitative approaches to measuring cognitive development, including pre-test and post-test comparisons, control and experimental group analyses, and longitudinal tracking of critical thinking competencies.

Keywords: Critical thinking, experimental methodology, philology education, national literature, pedagogical assessment, cognitive development.

INTRODUCTION

The development of critical thinking skills represents a fundamental objective in contemporary higher education, particularly within the humanities disciplines. For philology students, the ability to analyze texts critically, evaluate arguments, synthesize diverse perspectives, and construct well-reasoned interpretations constitutes essential competencies for both academic success and professional practice. National literature, with its rich cultural contexts, complex narratives, and multifaceted themes, provides an ideal medium through which these cognitive skills can be cultivated and refined. The experimental testing of pedagogical methodologies requires rigorous research design to ensure validity, reliability, and practical applicability of findings. This article delineates the comprehensive methodology employed to assess the effectiveness of a specialized teaching approach that integrates national literary texts

with structured critical thinking development activities. The experimental framework encompasses multiple dimensions of assessment, combining both quantitative metrics and qualitative observations to capture the complexity of cognitive development within the domain of literary studies.

Theoretical Framework and Research Design. The experimental methodology is grounded in constructivist learning theory and cognitive development principles, recognizing that critical thinking emerges through active engagement with challenging texts and guided reflective practice. The research design adopts a quasi-experimental approach with both control and experimental groups, allowing for comparative analysis of student outcomes under different instructional conditions. This design enables researchers to isolate the effects of the specialized methodology while accounting for potential confounding

variables inherent in educational settings. The theoretical foundation recognizes critical thinking as a multidimensional construct encompassing several interrelated competencies. These include analytical skills for deconstructing textual elements, interpretive abilities for understanding multiple layers of meaning, evaluative capacities for assessing arguments and evidence, inferential reasoning for drawing justified conclusions, and metacognitive awareness for monitoring one's own thinking processes. Within the context of national literature, these competencies are developed through systematic engagement with culturally significant texts that challenge students to consider historical contexts, cultural perspectives, linguistic nuances, and aesthetic dimensions simultaneously.

Participant Selection and Group Formation. The experimental study involves careful selection and assignment of participants to ensure group equivalence and minimize selection bias. Participants are recruited from undergraduate philology programs, specifically students in their second and third years of study who have completed foundational coursework in literary analysis. This population is selected because students at this level possess sufficient background knowledge to engage meaningfully with complex literary texts while still being in formative stages of critical thinking development, making them ideal candidates for pedagogical intervention. The sample size is determined through power analysis to ensure adequate statistical sensitivity for detecting meaningful differences between groups. Participants are randomly assigned to either the experimental group, which receives instruction through the specialized methodology incorporating national literature for critical thinking development, or the control group, which receives traditional instruction in literary analysis without the structured critical thinking components. Baseline assessments are administered to both groups prior to the intervention to establish initial equivalence in critical thinking abilities, literary knowledge, and academic performance.

Assessment Instruments and Measurement Tools. The experimental methodology employs a comprehensive battery of assessment instruments designed to capture multiple dimensions of critical thinking development within the literary studies context. These instruments include both standardized measures and discipline-specific tools tailored to the unique cognitive demands of philological analysis. The assessment battery combines objective tests, performance-based tasks, and reflective

writing assignments to provide a holistic picture of student competencies. Standardized critical thinking assessments provide baseline measures of general analytical reasoning abilities, including skills in argument analysis, assumption identification, inference evaluation, and logical reasoning. These instruments offer the advantage of established psychometric properties and normative data for comparison. However, recognizing that critical thinking manifests differently across disciplines, the methodology also incorporates discipline-specific assessment tools designed specifically for literary analysis contexts. Performance-based assessments require students to demonstrate critical thinking skills through authentic tasks involving analysis of national literary texts. These assessments include close reading exercises where students must identify and analyze literary devices, thematic elements, and stylistic features; comparative analysis tasks requiring synthesis of multiple texts or perspectives; interpretive essays demanding evidence-based argumentation; and oral presentations necessitating clear communication of analytical insights. Scoring rubrics are developed with explicit criteria for evaluating different aspects of critical thinking, including depth of analysis, quality of evidence, logical coherence, consideration of alternative interpretations, and metacognitive reflection.

Qualitative assessment methods complement quantitative measures by capturing nuanced aspects of cognitive development. These include structured observations of classroom discussions, analysis of student journals documenting thinking processes, and semi-structured interviews exploring students' metacognitive awareness and approaches to literary analysis. Think-aloud protocols are employed during textual analysis tasks, allowing researchers to access students' reasoning processes as they work through interpretive challenges.

Intervention Implementation and Instructional Procedures. The experimental intervention consists of a systematically designed instructional program integrating national literary texts with explicit critical thinking instruction. The program extends over a full academic semester, providing sufficient duration for meaningful cognitive development while maintaining feasibility within standard curricular structures. Each instructional session is carefully structured to promote active engagement with literary texts while simultaneously developing specific critical thinking competencies. The pedagogical approach employs scaffolded instruction, beginning with explicit teaching of critical thinking

strategies and gradually transferring responsibility to students for independent application. Initial sessions focus on developing foundational skills such as identifying assumptions, recognizing different types of evidence, and distinguishing fact from interpretation. As the semester progresses, activities become increasingly complex, requiring students to synthesize multiple sources, evaluate conflicting interpretations, and construct sophisticated arguments grounded in textual evidence. National literary texts are selected based on their potential to stimulate critical thinking through thematic complexity, stylistic sophistication, and cultural significance. The selection includes works from different historical periods, representing diverse genres and authorial perspectives. This variety ensures students encounter multiple contexts for applying critical thinking skills while deepening their understanding of national literary traditions. Each text is approached through structured analytical frameworks that prompt students to consider multiple interpretive possibilities, examine underlying assumptions, evaluate the strength of different readings, and reflect on their own interpretive processes.

Collaborative learning activities form an integral component of the methodology, as peer interaction provides opportunities for students to articulate their reasoning, consider alternative viewpoints, and refine their thinking through dialogue. Small group discussions, peer review of analytical essays, and collaborative interpretation projects create social contexts for cognitive development. The instructor facilitates these interactions through carefully designed prompts and questions that challenge students to deepen their analysis without providing definitive answers.

Data Collection Procedures and Timeline. Data collection follows a carefully planned timeline designed to capture both immediate and sustained effects of the intervention. Pre-intervention assessments are administered during the first week of the semester to establish baseline measures of critical thinking abilities, literary knowledge, and academic performance for both experimental and control groups. These initial assessments provide reference points for subsequent comparisons and allow verification of group equivalence prior to the intervention. Formative assessment data are collected throughout the semester to monitor ongoing development and identify patterns of change. This includes weekly assignments, participation in discussions, journal entries, and periodic performance tasks. These ongoing

assessments serve dual purposes of informing instructional adjustments and providing longitudinal data on skill development trajectories. Careful documentation of all classroom activities, including video recordings of selected sessions and detailed field notes, creates a comprehensive record of the instructional context. Post-intervention assessments parallel the pre-intervention measures, allowing direct comparison of changes in critical thinking competencies. These assessments are administered during the final week of the semester, immediately following completion of the instructional program. To examine retention and transfer of skills, delayed post-tests are conducted several weeks after the intervention concludes, assessing whether gains in critical thinking persist beyond the immediate instructional context.

Data Analysis Methods and Statistical Procedures. The analytical approach combines quantitative statistical methods with qualitative interpretive procedures to provide comprehensive understanding of the intervention effects. Quantitative analysis begins with descriptive statistics characterizing both groups on all measured variables. Preliminary analyses examine baseline equivalence between experimental and control groups using independent samples tests, ensuring that any post-intervention differences can be attributed to the methodology rather than pre-existing group differences. The primary analytical strategy employs repeated measures analysis examining changes from pre-test to post-test within each group, as well as between-group comparisons of these changes. This approach allows researchers to determine whether the experimental group demonstrates significantly greater improvement in critical thinking competencies compared to the control group. Effect sizes are calculated to quantify the magnitude of differences, providing practical significance alongside statistical significance. Subgroup analyses explore whether intervention effects vary based on student characteristics such as prior academic achievement, baseline critical thinking ability, or engagement level. Qualitative data analysis proceeds through systematic coding and thematic analysis of student work samples, classroom observations, and interview transcripts. This process begins with open coding to identify recurring patterns in student reasoning and approaches to literary analysis. Codes are then organized into broader themes representing different dimensions of critical thinking development. Constant comparative analysis examines similarities and differences in how students in experimental and control groups approach analytical tasks, revealing qualitative distinctions

in thinking processes beyond what quantitative measures capture. Integration of quantitative and qualitative findings occurs through triangulation, where different data sources are examined for convergent or divergent patterns. Cases where quantitative and qualitative data tell different stories receive particular attention, as discrepancies often reveal important nuances in how the intervention affects different students or aspects of critical thinking. This mixed-methods approach provides richer, more nuanced understanding than either method alone could achieve.

Validity, Reliability, and Methodological Rigor.

Ensuring methodological rigor requires systematic attention to threats to validity and reliability throughout the research process. Internal validity concerns are addressed through random assignment to groups, use of control groups, and careful documentation of implementation fidelity. Regular monitoring ensures that the experimental intervention is delivered as designed and that control group instruction does not inadvertently incorporate elements of the experimental approach. Standardized protocols for assessment administration minimize measurement error and ensure consistency across participants and time points. External validity is enhanced through purposive selection of literary texts representing the breadth of national literature traditions, ensuring that findings are not specific to particular works or genres. The diversity of assessment methods guards against construct under-representation, capturing the multidimensional nature of critical thinking rather than relying on single measures that might reflect only narrow aspects of the construct. Ecological validity is maintained by conducting the study in authentic classroom settings with regular course structures, increasing the likelihood that findings will generalize to typical educational contexts. Reliability of assessments is established through multiple approaches. Standardized instruments come with published reliability coefficients, while discipline-specific measures undergo pilot testing to examine internal consistency and inter-rater reliability. For performance-based assessments requiring subjective scoring, multiple trained raters independently evaluate a subset of student work to calculate inter-rater agreement. Regular calibration sessions ensure raters maintain consistency throughout the scoring process. Test-retest reliability is examined for selected measures by administering them at multiple time points under stable conditions.

CONCLUSION

The methodology described in this article provides a comprehensive framework for experimentally testing the effectiveness of pedagogical approaches designed to develop critical thinking in philology students through engagement with national literature. The multi-method design, combining quantitative and qualitative approaches, offers robust means of assessing both the measurable outcomes and the nuanced processes of cognitive development. The careful attention to validity, reliability, and ethical considerations enhances confidence in the findings and their applicability to broader educational contexts. This experimental methodology contributes to educational research by demonstrating rigorous approaches to assessing discipline-specific critical thinking development. The integration of literary content with explicit thinking skills instruction represents a promising direction for humanities education, potentially offering models for other disciplines seeking to enhance cognitive competencies through subject-matter engagement. The detailed procedural descriptions provided here enable replication and adaptation by other researchers, advancing collective understanding of effective pedagogical practices in higher education. Through systematic investigation of teaching methodologies, the field moves toward evidence-based practices that optimize student learning and development of essential cognitive capacities for academic and professional success.

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