

Relationship of Social Science Interest, Critical Thinking and Inquiry Skills with Social Science Achievement of Secondary School Students an Experimental Study

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Abstract—The present study investigates the relationship of Social Science Interest, Critical Thinking and Inquiry Skills with Social Science Achievement among secondary school students through an experimental approach. The study is framed using a quasi-experimental pre-test-post-test single-group design. A sample of 40 secondary school students was selected through purposive sampling. A six-week instructional intervention based on inquiry-oriented learning, source analysis, discussion, problem-based tasks, collaborative learning and reflective activities was designed to strengthen students' engagement with Social Science. Standardized or researcher-developed measures were proposed for Social Science Interest, Critical Thinking, Inquiry Skills and Social Science Achievement. For the model analysis presented in this manuscript, descriptive statistics, paired-sample t-test, Pearson's product-moment correlation and multiple regression were used. The illustrative results indicate improvement in Social Science achievement after the intervention and positive associations among interest, critical thinking, inquiry skills and achievement. The model findings suggest that Social Science learning can be strengthened when students move beyond memorisation towards evidence-based reasoning, questioning, interpretation and discussion. Because the numerical results in this manuscript are illustrative and not based on a newly supplied dataset, they should be replaced by the researcher's verified field data before journal submission.

Index Terms—Social Science Education, Secondary School Students, Social Science Interest, Critical Thinking, Inquiry Skills, Academic Achievement, Inquiry-Based Learning, Experimental Study.

I. INTRODUCTION

Social Science occupies an important position in school education because it helps learners understand

society, institutions, historical change, geographical processes, economic activity and civic life. The National Curriculum Framework for School Education 2023 describes Social Science as an interdisciplinary area drawing substantially from History, Geography, Civics/Political Science and Economics, while also connecting with disciplines such as Psychology, Anthropology, Philosophy and Law. At Grades 9 and 10, the curriculum gives greater disciplinary depth while retaining an integrated perspective. This makes the secondary stage particularly important for developing students' ability to interpret evidence, examine social issues and connect classroom knowledge with real-world contexts.

Despite its importance, Social Science is sometimes taught predominantly through textbook explanation, note-taking and recall-oriented examination preparation. Such approaches may provide factual knowledge but can provide fewer opportunities for students to formulate questions, compare sources, evaluate evidence, discuss alternative explanations and construct reasoned conclusions. Research on Social Science teaching has increasingly examined inquiry, argumentation and higher-level questioning as ways of strengthening students' engagement and thinking.

Interest is an important affective dimension of learning. Students who perceive Social Science as relevant to their lives and communities may be more willing to read, investigate and discuss social issues. Critical thinking is equally important because Social Science involves interpreting claims, assessing evidence, identifying relationships and considering competing viewpoints. Inquiry skills connect these dimensions by enabling learners to ask questions,

collect and interpret information, use evidence and communicate conclusions.

The present study therefore examines Social Science Interest, Critical Thinking and Inquiry Skills in relation to Social Science Achievement and considers whether an inquiry-oriented instructional intervention can improve achievement among secondary school students.

II. NEED AND SIGNIFICANCE OF THE STUDY

The need for the present investigation arises from the growing emphasis on competency-based, interdisciplinary and higher-order learning in school education. Social Science is not limited to remembering historical dates, geographical facts, constitutional provisions or economic terms. Learners are expected to understand relationships, interpret information, reason with evidence and participate thoughtfully in society.

The significance of the study lies in the following areas:

- Identifying psychological and cognitive variables associated with Social Science Achievement.
- Examining whether inquiry-oriented classroom practices can improve achievement.
- Providing teachers with a framework for integrating questioning, source analysis, discussion and reflection.
- Supporting learner-centred Social Science teaching at the secondary level.
- Contributing empirical evidence to research on Social Science education in the Indian context.
- Providing a basis for future studies using larger and more representative samples.

III. REVIEW OF RELATED LITERATURE

Inquiry-based learning has been examined across educational levels and subject areas. A meta-analysis reported that inquiry-based learning can have a positive effect on academic achievement, with meaningful effects at the high-school level. Research in Social Studies has also reported benefits from contextual and inquiry-oriented learning approaches, including improvements in achievement and motivation.

Studies of argumentation-based Social Studies teaching have linked classroom argumentation with

academic achievement, attitudes toward Social Studies and critical-thinking tendencies. Research on higher-level questioning in Social Studies has emphasized the importance of moving beyond surface-level recall toward questions that require analysis, evaluation and reasoning.

Recent work has also focused specifically on critical-thinking assessment in Grade 10 Social Studies. Such work highlights the need for assessment tasks that require students to verify information, formulate explanations and propose reasoned responses to social issues.

In the Indian context, the National Curriculum Framework for School Education 2023 places Social Science within an interdisciplinary framework and emphasizes disciplinary understanding alongside holistic perspectives. The framework is therefore consistent with pedagogies that encourage students to interpret social phenomena through multiple disciplinary lenses.

The literature indicates that inquiry, argumentation, higher-order questioning and active engagement can support meaningful learning. However, there remains scope for experimental studies examining the combined relationship of Social Science Interest, Critical Thinking and Inquiry Skills with achievement among secondary school students in Indian school contexts.

IV. OBJECTIVES OF THE STUDY

1. To determine the effectiveness of an inquiry-oriented instructional intervention on Social Science Achievement.
2. To study the relationship between Social Science Interest and Social Science Achievement.
3. To examine the relationship between Critical Thinking and Social Science Achievement.
4. To analyse the relationship between Inquiry Skills and Social Science Achievement.
5. To determine the combined contribution of Social Science Interest, Critical Thinking and Inquiry Skills to Social Science Achievement.

V. HYPOTHESES OF THE STUDY (NULL FORM)

H₀₁: There is no significant difference between the pre-test and post-test scores of Social Science Achievement.

H₀₂: There is no significant relationship between Social Science Interest and Social Science Achievement.

H₀₃: There is no significant relationship between Critical Thinking and Social Science Achievement.

H₀₄: There is no significant relationship between Inquiry Skills and Social Science Achievement.

H₀₅: Social Science Interest, Critical Thinking and Inquiry Skills do not significantly predict Social Science Achievement.

VI. VARIABLES AND OPERATIONAL DEFINITIONS

Independent/Predictor Variables

- Social Science Interest: The learner's interest, curiosity, engagement and positive disposition toward learning Social Science, measured through a Social Science Interest Inventory.
- Critical Thinking: The ability to analyse claims, evaluate evidence, compare viewpoints, identify relationships and reach reasoned conclusions, measured through a Critical Thinking Test.
- Inquiry Skills: The ability to formulate questions, locate information, interpret sources, analyse evidence and communicate conclusions, measured through an Inquiry Skills Test/Rubric.

Dependent Variable

- Social Science Achievement: Students' performance in selected secondary-level Social Science content, measured through a Social Science Achievement Test.

VII. METHODOLOGY

Research Design

A quasi-experimental pre-test–post-test single-group design is proposed, following the structure of the uploaded model study.

Sample

The model manuscript uses a sample of 40 secondary school students selected through purposive sampling. For an actual international publication, the researcher should report the exact school, grade, location, sampling procedure, inclusion criteria and demographic characteristics.

Tools Used

1. Social Science Interest Inventory

2. Critical Thinking Test

3. Inquiry Skills Test/Rubric

4. Social Science Achievement Test

Instructional Intervention

An inquiry-oriented instructional programme is proposed for six weeks. Activities may include:

- problem-based Social Science tasks;
- historical and contemporary source analysis;
- map, chart and data interpretation;
- structured classroom discussion and argumentation;
- collaborative investigation of local social issues;
- questioning and evidence-based reasoning;
- reflective writing and presentation of conclusions.

Statistical Techniques

Mean and Standard Deviation; paired-sample t-test; Pearson's product–moment correlation; multiple regression analysis; effect size (Cohen's d); and confidence intervals where the actual dataset permits their computation.

Ethical Considerations

Participation should be voluntary and based on appropriate institutional/parental permissions. Student identities should be protected, data should be reported in aggregate form, and participation or non-participation should not affect academic evaluation.

VIII. RESULTS AND DISCUSSION

IMPORTANT NOTE: The following numerical tables are an ILLUSTRATIVE MODEL created to demonstrate the statistical reporting format used in the uploaded paper. They are not verified observations from a new field study and must not be submitted as actual research findings. Replace them with results computed from the researcher's dataset before publication.

Table 1. Illustrative Comparison of Pre-test and Post-test Social Science Achievement (N = 40)

Pre-test: Mean = 42.10, SD = 6.24

Post-test: Mean = 55.35, SD = 5.91

Illustrative paired-sample $t = 8.10$, $p < .001$

Illustrative Cohen's $d = 2.18$

Interpretation of Table 1

The illustrative result shows a substantial increase in mean Social Science Achievement following the

intervention. If an actual study produces a statistically significant result with a comparable effect size, the finding would support the effectiveness of the instructional programme. However, statistical significance and effect size must be calculated from the actual paired observations.

Table 2. Illustrative Correlation Matrix (N = 40)

Social Science Interest with Critical Thinking: $r = .51$
 Social Science Interest with Inquiry Skills: $r = .56$
 Critical Thinking with Inquiry Skills: $r = .64$
 Social Science Interest with Social Science Achievement: $r = .62$
 Critical Thinking with Social Science Achievement: $r = .71$
 Inquiry Skills with Social Science Achievement: $r = .75$

Note: Values are illustrative only.

Interpretation of Table 2

The model pattern indicates positive relationships between the three predictor variables and Social Science Achievement. In an actual dataset, correlation coefficients should be tested for statistical significance and interpreted with attention to sample size, measurement reliability and the assumptions of Pearson correlation.

Table 3. Illustrative Multiple Regression Predicting Social Science Achievement

Predictor: Social Science Interest — $\beta = .24$, $t = 2.03$, $p < .05$
 Predictor: Critical Thinking — $\beta = .31$, $t = 2.71$, $p < .01$
 Predictor: Inquiry Skills — $\beta = .43$, $t = 3.55$, $p < .01$
 Illustrative $R = .79$; $R^2 = .62$

Note: Values are illustrative only.

Interpretation of Table 3

In the illustrative model, the three predictors jointly account for 62% of the variance in Social Science Achievement, with Inquiry Skills showing the largest standardized coefficient. In a real study, this conclusion should be made only after checking multicollinearity, linearity, residual assumptions and the statistical significance of the complete regression model.

IX. DISCUSSION

The conceptual pattern represented in this manuscript is consistent with research that emphasizes inquiry, higher-order questioning and argumentation in Social Studies/Social Science. Inquiry-oriented learning can provide students with opportunities to investigate questions, interpret evidence and construct explanations rather than simply reproduce information. Research has reported positive effects of inquiry-based approaches on academic achievement, while Social Studies research has identified potential benefits of argumentation and higher-level questioning for students' academic and critical-thinking development.

The role of interest is also important. When Social Science learning is connected with meaningful social, historical, geographical and civic contexts, students may have greater opportunities to see the relevance of classroom knowledge. Nevertheless, interest should not be treated as a substitute for systematic instruction; rather, it can support sustained engagement with demanding inquiry tasks.

Critical thinking is central to Social Science because students frequently encounter claims, interpretations, data and competing perspectives. Classroom activities that ask learners to compare sources, identify evidence, distinguish fact from interpretation and justify conclusions can therefore connect disciplinary knowledge with higher-order reasoning.

The inquiry dimension is especially relevant to the secondary stage. The NCF 2023 describes Social Science at Grades 9 and 10 as involving disciplinary depth in History, Geography, Political Science and Economics while retaining an integrated perspective. Inquiry-oriented teaching can operationalise this goal by asking students to approach social phenomena through evidence and multiple disciplinary perspectives.

X. CONCLUSION

The proposed study examines Social Science Interest, Critical Thinking and Inquiry Skills in relation to Social Science Achievement among secondary school students. The instructional framework moves Social Science teaching from predominantly recall-oriented learning toward questioning, investigation, evidence use, discussion and reflection.

The illustrative statistical model suggests how an experimental study could report improvement in achievement and positive relationships among affective, cognitive and inquiry variables. However, the numerical findings are placeholders for demonstration and should be replaced with verified field data before publication.

The broader educational implication is that effective Social Science education can provide learners with opportunities to understand disciplinary knowledge while also developing the capacity to question, analyse evidence, communicate reasoned conclusions and connect classroom learning with social realities.

XI. EDUCATIONAL IMPLICATIONS

Implications for Social Science Teachers

- Use inquiry questions rather than relying exclusively on factual recall.
- Integrate primary and secondary sources, maps, charts, photographs, timelines and local data.
- Encourage students to compare evidence and justify conclusions.
- Use structured discussion and argumentation around age-appropriate social issues.
- Provide opportunities for reflective writing and collaborative investigation.

Implications for Curriculum Developers

- Include inquiry tasks, source-based questions and interdisciplinary activities.
- Balance factual knowledge with conceptual understanding and higher-order thinking.
- Connect curriculum content with local, regional, national and global contexts.

Implications for Teacher Education

- Prepare teachers to design inquiry-based Social Science lessons.
- Train teachers in assessment of critical thinking and evidence-based reasoning.
- Develop competence in using authentic sources, digital resources and formative assessment.

Implications for Educational Administrators and Policymakers

- Support professional development in inquiry and competency-based pedagogy.

- Provide appropriate learning resources and instructional time.
- Encourage assessment practices that measure analysis, interpretation and reasoning alongside factual knowledge.

XII. LIMITATIONS OF THE STUDY

1. The model design uses a relatively small sample of 40 students, limiting generalizability.
2. A single-group design does not provide the same level of causal control as a randomized controlled design.
3. The intervention period is relatively short and does not establish long-term retention.
4. Self-report measures of interest may be affected by response bias.
5. Social Science achievement may vary according to the specific content area and assessment format.
6. The model numerical results are illustrative and cannot be treated as empirical findings until replaced with actual data.

XIII. SUGGESTIONS FOR FURTHER RESEARCH

1. Conduct studies with larger samples from multiple schools and districts.
2. Use randomized or matched control-group designs where feasible.
3. Examine differences across History, Geography, Political Science and Economics.
4. Include variables such as self-efficacy, civic engagement, digital literacy, reading comprehension and socioeconomic context.
5. Conduct longitudinal research to examine retention and transfer of inquiry skills.
6. Combine quantitative results with classroom observations, interviews and student work analysis.
7. Develop and validate culturally responsive Social Science inquiry and critical-thinking assessments for Indian secondary schools.

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