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EFFECTIVENESS OF COOPERATIVE LEARNING STRATEGY ON ACADEMIC ACHIEVEMENT IN GEOGRAPHY AMONG SECONDARY SCHOOL STUDENTS: AN EXPERIMENTAL STUDY IN BIRBHUM DISTRICT, WEST BENGAL

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ABSTRACT

The present study examined the effectiveness of cooperative learning strategy on the academic achievement of secondary school students in Geography. A quasi-experimental post-test-only control group design was adopted. The study was conducted among 149 Class VIII students from three secondary schools in the Bolpur subdivision of Birbhum district, West Bengal. Students were assigned to either a cooperative learning group (n = 72) or a traditional teaching group (n = 77). An achievement test comprising 40 items was administered following a three-day instructional intervention. Data were analysed using descriptive statistics and an independent-samples t-test. The findings revealed that students taught through cooperative learning achieved significantly higher scores (M = 26.33, SD = 6.21) than those taught through traditional teaching methods (M = 20.45, SD = 4.73), t (147) = 7.54, p < .05. The results support the effectiveness of cooperative learning in enhancing academic achievement in Geography. The study highlights the importance of collaborative instructional approaches in secondary education and provides implications for classroom teaching practices.

KEYWORDS: *Cooperative Learning, Academic Achievement, Geography Education, Secondary School Students, Social Constructivism.*

1. INTRODUCTION

Teaching and learning are dynamic processes through which knowledge, skills, values, and attitudes are transmitted and acquired. Over time, educational practices have evolved from teacher-centred approaches towards learner-centred pedagogies that actively engage students in the construction of knowledge. Contemporary educational theories emphasize the importance of interaction, collaboration, and active participation in learning.

Cooperative learning is one such instructional strategy that promotes active engagement through structured group activities. It involves students working together in small groups to achieve common learning goals while supporting one another's academic progress. Unlike traditional teacher-centred methods, cooperative learning encourages communication, problem-solving, peer interaction, and shared responsibility for learning.

According to Slavin (1980), cooperative learning is an instructional approach in which students work in heterogeneous groups and use collaborative activities to enhance their understanding of subject matter. Johnson and Johnson (1999) argue that cooperative learning creates positive interdependence among learners, leading to improved academic achievement and interpersonal relationships. Similarly, Gillies (2016) observed that cooperative learning enhances student engagement, critical thinking, and classroom participation.

Geography is an important component of secondary education because it helps students understand environmental processes, human-environment interactions, and spatial relationships. However, Geography teaching in many schools continues to rely heavily on lecture-based instruction, which often limits student participation and collaborative learning opportunities.

Although numerous studies have demonstrated the effectiveness of cooperative learning across different educational settings, limited empirical evidence exists regarding its application in Geography education among secondary school students in West Bengal. Therefore, the present study seeks to examine whether cooperative learning strategy significantly improves academic achievement in Geography compared with traditional teaching methods.

2. THEORETICAL FRAMEWORK

The present study is grounded in the Social Constructivist Theory of learning developed by Lev Vygotsky. Social constructivism views learning as a socially mediated process in which knowledge is constructed through interaction with others rather than transmitted directly from teacher to student. Vygotsky emphasized that cognitive development occurs through social interaction and collaborative problem-solving.

A central concept of social constructivism is the Zone of Proximal Development (ZPD), which refers to the gap between what learners can accomplish independently and what they can achieve with guidance from more knowledgeable peers or teachers. Cooperative learning facilitates movement within the ZPD by allowing students to share ideas, provide feedback, and support one another's learning.

The theoretical proposition underlying this study is that students engaged in cooperative learning are likely to demonstrate higher academic achievement because collaborative interactions enhance understanding, retention, and application of knowledge. Consequently, cooperative learning is expected to produce superior learning outcomes compared with traditional lecture-based instruction.

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3. REVIEW OF LITERATURE

A substantial body of research supports the effectiveness of cooperative learning in improving educational outcomes.

Johnson and Johnson (1999) reported that cooperative learning promotes higher achievement, stronger interpersonal relationships, and greater psychological well-being than competitive or individualistic learning environments.

Slavin (2015) found that cooperative learning enhances academic performance through peer interaction, group accountability, and positive interdependence. Students working cooperatively tend to demonstrate better achievement than those receiving traditional instruction.

Brady and Tsay (2010) observed that students who actively participated in cooperative group activities were more likely to achieve higher examination scores and overall course grades.

Gillies (2016) reviewed several classroom-based studies and concluded that cooperative learning improves student engagement, communication skills, and conceptual understanding across multiple subjects.

Abramczyk and Jurkowski (2020) highlighted that cooperative learning supports both academic and social development by providing opportunities for individualized learning and peer support.

Van Ryzin, Roseth, and Espelage (2022) demonstrated that cooperative learning contributes positively to academic achievement while simultaneously promoting social competence and reducing peer conflict.

Silva et al. (2022) found that cooperative learning significantly enhances students' critical and creative thinking abilities by encouraging active participation and collaborative problem-solving.

Despite the growing body of evidence supporting cooperative learning, studies focusing specifically on Geography education at the secondary school level in West Bengal remain limited. The present study seeks to address this gap.

4. OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

i. To compare the achievement of Class VIII students in Geography taught through cooperative learning strategy and traditional teaching method.
ii. To compare the achievement of male and female students taught through cooperative learning strategy.

5. HYPOTHESES

H01

There is no significant difference in Geography achievement between students taught through cooperative learning strategy and those taught through traditional teaching methods.

H02

There is no significant difference in Geography achievement between male and female students taught through cooperative learning strategy.

6. METHODOLOGY

Research Design

The study employed a quasi-experimental post-test-only control group design. Two instructional treatments were administered: cooperative learning strategy and traditional teaching method.

Population

The population comprised all Class VIII students enrolled in secondary schools in the Bolpur subdivision of Birbhum district, West Bengal.

Sampling Design

A multistage purposive sampling procedure was adopted. In the first stage, three secondary schools were purposively selected from the Bolpur subdivision. In the second stage, Class VIII sections from the selected schools were included in the study. Existing classroom sections were assigned to either the cooperative learning group or the traditional teaching group. The final sample consisted of 149 students, including 75 boys and 74 girls.

Table 1: Sampling design

Group	Students
Cooperative Learning	72
Traditional Method	77
Total	149

Instructional Intervention

The Geography unit "Some Important Types of Climate" was selected for instruction. The unit included: Tropical Monsoon Climate, Mediterranean Climate, Tundra Climate. The intervention lasted for three instructional days, with each session lasting approximately 45 minutes.

7. DEVELOPMENT OF ACHIEVEMENT TEST

An achievement test consisting of 40 items was developed to assess students' learning outcomes.

The test included:

i. Multiple-choice questions
ii. Fill-in-the-blanks
iii. True-false items
iv. One-word answers
v. Map-based questions

Each correct response carried one mark, resulting in a maximum score of 40.

Validity of the Instrument

Content validity was established through expert review. The achievement test and lesson plans were examined by experienced Geography teachers and teacher educators to ensure alignment with curriculum objectives and learning outcomes.

Reliability of the Instrument

A pilot study should ideally be conducted before the main study to establish reliability using KR-20 or Cronbach's alpha. Since reliability statistics were not calculated during the present study, this limitation should be acknowledged. Future studies should formally establish reliability coefficients before implementation.

8. Data Analysis and Results

Table 2: Descriptive Statistics

Group	N	Mean	SD
Cooperative Learning	72	26.33	6.21
Traditional Method	77	20.45	4.73

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Independent-samples t-test results indicated a statistically significant difference between the two groups:
$t(147) = 7.54$, $p < .05$
The findings indicate that students taught through cooperative learning achieved significantly higher scores than those taught through traditional teaching methods. The estimated effect size (Cohen's $d \approx 1.07$) indicates a large educational effect.

9. DISCUSSION

The findings demonstrate that cooperative learning strategy significantly improves students' achievement in Geography. Students exposed to collaborative learning activities obtained substantially higher scores than those taught through traditional instructional methods.

The results are consistent with the findings of Johnson and Johnson (1999), Slavin (2015), Gillies (2016), and Abramczyk and Jurkowski (2020), who reported positive effects of cooperative learning on academic achievement.

The findings may be explained through the lens of social constructivist theory. Cooperative learning provides opportunities for peer interaction, collaborative problem-solving, and knowledge construction within learners' zones of proximal development. These interactions facilitate deeper understanding and retention of concepts.

The large effect size further suggests that cooperative learning is not only statistically significant but also educationally meaningful in improving student achievement.

10. EDUCATIONAL IMPLICATIONS

The findings have several implications for educational practice. Geography teachers should incorporate cooperative learning activities into regular classroom instruction. Teacher education programmes should provide training in cooperative learning techniques. Schools should encourage collaborative classroom environments that promote peer learning. Curriculum developers should integrate cooperative learning activities into Geography textbooks and instructional materials. Educational administrators should support professional development programmes focusing on learner-centred pedagogies.

11. LIMITATIONS OF THE STUDY

The study was confined to three schools in one subdivision. The sample was selected purposively. The intervention lasted only three instructional days. Only one subject area (Geography) was examined. Reliability statistics for the achievement test were not established. The study employed a post-test-only design without pre-test measures.

12. FUTURE RESEARCH DIRECTIONS

Future studies may:

i. Include larger and more diverse samples.
ii. Employ randomized experimental designs.
iii. Examine long-term effects of cooperative learning.
iv. Investigate gender differences in greater detail.
v. Explore the impact of cooperative learning on motivation, critical thinking, and social skills.
vi. Compare cooperative learning across different school subjects.

13. CONCLUSION

The study concludes that cooperative learning strategy is significantly more effective than traditional teaching methods in improving Geography achievement among Class VIII students. Students taught through cooperative learning demonstrated higher achievement scores and benefited from collaborative interactions that enhanced understanding and knowledge retention. The findings support the principles of social constructivist theory and underscore the value of learner-centred instructional approaches in secondary education. Cooperative learning therefore represents a promising pedagogical strategy for improving academic outcomes and fostering meaningful classroom engagement.

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