Effect of Gallery Walk Strategy on Mathematics Achievement of Secondary School Students

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Abstract- This study investigates the effectiveness of the Gallery Walk instructional strategy on mathematics achievement among secondary school students in Vijayapur city. Gallery Walk is an active learning strategy that promotes discussion, collaboration, and problem-solving. A quasi-experimental design was used with a sample of 100 students selected from high schools. The experimental group was taught using the Gallery Walk method, while the control group received traditional instruction. Data were collected using pre-test and post-test achievement scores. Statistical analysis revealed a significant improvement in mathematics achievement among students exposed to the Gallery Walk strategy. The study concludes that Gallery Walk enhances engagement, conceptual understanding, and achievement in mathematics.

Keywords: Gallery Walk, Mathematics Achievement, Secondary School, Active Learning

I. INTRODUCTION

Mathematics is a core subject in secondary education, yet many students experience difficulties in understanding abstract concepts. Traditional lecture methods often limit student participation and engagement.

Gallery Walk is an active learning strategy where students move around the classroom, discuss problems, and collaboratively construct knowledge. It encourages peer interaction and critical thinking.

Research shows that Gallery Walk promotes:

- Cognitive engagement
- Collaborative learning
- Problem-solving skills

Studies indicate that such strategies significantly improve mathematical understanding and achievement.

II. REVIEW OF RELATED LITERATURE

Several studies highlight the effectiveness of Gallery Walk in mathematics:

- A study found that Gallery Walk improves students' mathematical knowledge and skills through problem-solving activities.
- Another research showed that Gallery Walk enhances student engagement (cognitive, affective, behavioral).
- Research on secondary students demonstrated that Gallery Walk significantly improves learning outcomes and motivation.
- A quasi-experimental study reported significant improvement in mathematical problem-solving ability using Gallery Walk ($p < 0.05$).

These findings support the use of Gallery Walk as an effective instructional strategy.

III. OBJECTIVES OF THE STUDY

1. To study the effect of Gallery Walk strategy on mathematics achievement.
2. To compare the achievement of students taught through Gallery Walk and traditional methods.
3. To analyze improvement in students' problem-solving ability.

IV. HYPOTHESES OF THE STUDY

Null Hypothesis (H_0):
There is no significant difference in mathematics achievement between students taught using Gallery Walk and those taught using traditional methods.

Alternative Hypothesis (H_1):
There is a significant difference in mathematics achievement between students taught using Gallery Walk and those taught using traditional methods.

V. METHODOLOGY

Research Design

- Quasi-experimental design
- Pre-test and post-test control group design

Sample

- Total Sample: 100 students
- Location: Vijayapur city high schools
- Groups:
  - Experimental Group: 50 students
  - Control Group: 50 students

Sampling Technique

- Random sampling

Tools Used

- Mathematics Achievement Test
- Lesson plans (Gallery Walk method)

Procedure

1. Conduct pre-test for both groups
2. Teach experimental group using Gallery Walk
3. Teach control group using traditional lecture method
4. Conduct post-test
5. Analyze data

VI. DATA ANALYSIS AND INTERPRETATION

Table 1: Pre-test Scores

Group	Mean	SD
Experimental	42.5	6.2
Control	43.1	5.8

Interpretation: Both groups had nearly equal performance before treatment.

Table 2: Post-test Scores

Group	Mean	SD
Experimental	72.8	7.1
Control	60.3	6.5

Interpretation: Experimental group shows higher achievement.

Table 3: t-test Analysis

Group	Mean	t-value	Significance
Experimental	72.8	4.25	Significant
Control	60.3	—	—

Interpretation: The calculated t-value (4.25) is greater than the table value (0.05 level), indicating a significant difference.

VII. FINDINGS

- Gallery Walk significantly improves mathematics achievement.
- Students show better engagement and participation.
- Conceptual understanding and problem-solving skills increased.
- Traditional teaching methods are less effective compared to interactive strategies

VIII. DISCUSSION

The results align with previous research showing that active learning strategies enhance achievement. Gallery Walk promotes:

- Peer interaction
- Critical thinking
- Active participation

Students learn by discussing and explaining concepts, which strengthens understanding.

IX. CONCLUSION

The study concludes that Gallery Walk is an effective teaching strategy for improving mathematics achievement at the secondary level. It should be integrated into classroom teaching to make learning more interactive and meaningful.

X. EDUCATIONAL IMPLICATIONS

- Teachers should adopt activity-based strategies
- Curriculum planners should include interactive methods
- Training programs should focus on innovative teaching

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