ACTION RESEARCH IN EDUCATION

Bridging ideas, inspiring innovations

E- RESEARCH JOURNAL VOL. II

May 2026

EDITED BY: DR. SANDHYA SARWADE

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PERFACE

This book is a compilation of student-led action research projects undertaken across diverse educational settings. It reflects the curiosity, commitment, and innovative spirit of emerging researchers who have engaged thoughtfully with real-world challenges in education. Each study demonstrates a distinctive and meaningful approach to problem-solving within classrooms and communities.

The action research projects presented in this volume highlight the importance of reflective practice and evidence-based interventions in the teaching-learning process. Through these research endeavours, students not only strengthened their academic and analytical skills but also gained a deeper understanding of their professional responsibilities as educators and researchers.

This collection seeks to inspire educators, teacher trainees, and researchers to embrace continuous inquiry, critical reflection, and ongoing improvement in educational practice. We sincerely commend the students for their dedication, perseverance, and contribution to meaningful, context-based research.

I extend my heartfelt gratitude to the management of HKCE for their constant encouragement and support. Special appreciation to Principal Dr Varsha Maru, Dr Avani Kanakia, Assistant Professor Shenaz Khan, and Dr. Madhuri Bendale for their invaluable guidance, mentorship, and unwavering support throughout every stage of the research process. I also acknowledge the cooperation of the participating educational institutions and the students whose involvement made these studies possible.

It is my sincere hope that this book will encourage further exploration, innovation, and excellence in the field of action research, ultimately contributing to the advancement of educational practices and learner development.

Dr. Sandhya Sarwade
Editor

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A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING TYPES OF NUTRITION IN ANIMALS IN SCIENCE AMONG STANDARD VII STUDENTS.

JAIRAJPURI AQSA FAIZAN

RESEARCH GUIDE: DR. MADHURI BENDALE

ABSTRACT:

THIS ACTION RESEARCH STUDY EXAMINES THE EFFECTIVENESS OF INSTRUCTIONAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES FACED BY STANDARD VII STUDENTS WHILE STUDYING THE TOPIC TYPES OF NUTRITION IN ANIMALS IN THE SCIENCE SUBJECT. DUE TO THE PRESENCE OF MULTIPLE CATEGORIES, SCIENTIFIC TERMINOLOGY, AND ABSTRACT CONCEPTS, STUDENTS OFTEN EXPERIENCE DIFFICULTY IN UNDERSTANDING THIS TOPIC WHEN TAUGHT THROUGH TRADITIONAL TEACHING METHODS. THE STUDY AIMS TO ENHANCE CONCEPTUAL CLARITY AND IMPROVE LEARNING OUTCOMES THROUGH INTERACTIVE AND ACTIVITY-BASED TEACHING STRATEGIES.

THE RESEARCH WAS CONDUCTED AT FAROOQ HIGH SCHOOL FOR GIRLS, JOGESHWARI, UNDER THE MAHARASHTRA STATE BOARD CURRICULUM, WITH A SAMPLE OF 20 STANDARD VII STUDENTS. A SINGLE-GROUP PRE-TEST AND POST-TEST EXPERIMENTAL DESIGN WAS ADOPTED FOR THE STUDY. THE INTERVENTION PROGRAMME INCLUDED NUTRITION SORTING GAME (CARD CLASSIFICATION ACTIVITY), ROLE PLAY – BE THE NUTRITION TYPE, FLOWCHART BUILDING RELAY, AND DIGITAL QUIZ WITH EXIT TICKET REFLECTION, WHICH WERE DESIGNED TO PROMOTE ACTIVE PARTICIPATION AND MEANINGFUL LEARNING. DATA WERE COLLECTED THROUGH OBSERVATION, QUESTIONNAIRES, AND ACHIEVEMENT TESTS. THE PRE-TEST RESULTS INDICATED LIMITED UNDERSTANDING OF THE TOPIC, WHEREAS THE POST-TEST RESULTS SHOWED A SIGNIFICANT IMPROVEMENT IN STUDENTS' PERFORMANCE AND CONCEPTUAL UNDERSTANDING. THE FINDINGS OF THE STUDY REVEAL THAT WELL-PLANNED INSTRUCTIONAL INTERVENTIONS ENHANCE STUDENTS' INTEREST, PARTICIPATION, AND COMPREHENSION OF BIOLOGICAL CONCEPTS, EMPHASIZING THE IMPORTANCE OF STUDENT-CENTERED APPROACHES IN SCIENCE TEACHING.

KEYWORDS:

TYPES OF NUTRITION IN ANIMALS, INTERVENTION PROGRAMME, ACTIVITY-BASED LEARNING, SCIENCE EDUCATION

INTRODUCTION

Science education plays a crucial role in developing scientific attitude, observation skills, and conceptual understanding among students at the upper primary level. However, certain biology topics such as Types of Nutrition in Animals often create learning difficulties for Standard VII students due to abstract concepts, unfamiliar terminology, and lack of real-life visualization. Students frequently face confusion while differentiating between various types of nutrition such as holozoic, saprozoic, and parasitic nutrition. The present action research focuses on identifying these learning difficulties and examining the effectiveness of planned, activity-based instructional interventions in improving students' understanding and academic performance in the topic Types of Nutrition in Animals in Science.

REVIEW OF RELATED LITERATURE

Review of related literature reveals that students learn biological concepts more effectively when teaching is supported by activity-based and learner-centered strategies. Previous studies highlight that the use of visual aids, role play, classification activities, flowcharts, and digital assessments enhances conceptual clarity and long-term retention. Research also emphasizes that intervention programmes are useful in addressing misconceptions and making abstract biological concepts more meaningful for middle school learners. Literature supports the idea that active student participation and experiential learning significantly reduce
learning difficulties in Science.

RESEARCH OBJECTIVES

- To identify the difficulties faced by Standard VII students in learning Types of Nutrition in Animals.
- To design and implement suitable instructional interventions to overcome these difficulties.
- To assess the effectiveness of the intervention strategies in improving students' learning outcomes in Science.

RESEARCH METHODOLOGY

Research Design: Experimental method using Single Group Pre-test and Post-test Design.

Sample: The sample consisted of 20 students of Standard VII from Farooq High School for Girls, Jogeshwari.

Tools Used: Observation, Questionnaire, Pre-test, Post-test, Checklist.

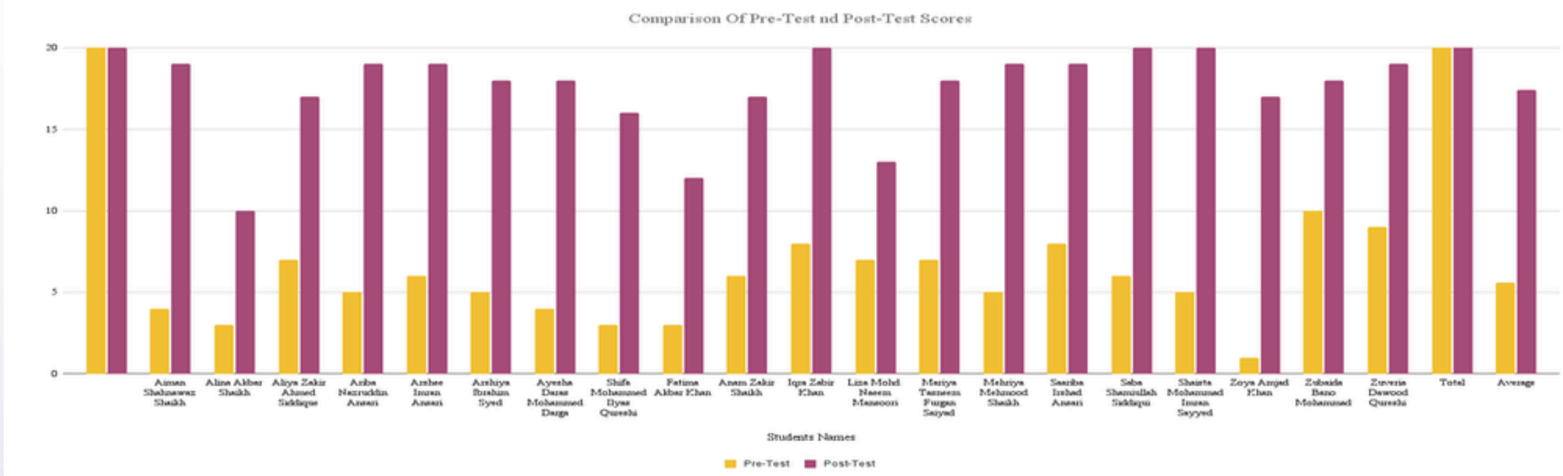
INTERVENTIONS

- Nutrition Sorting Game (Card Classification Activity): Students classified picture cards of animals into holozoic, saprozoic, and parasitic nutrition categories, which helped them understand differences through visual association.
- Role Play – Be the Nutrition Type: Students enacted different types of nutrition by demonstrating feeding habits of various animals, which improved understanding through dramatization and peer learning.
- Flowchart Building Relay: Students constructed flowcharts of types of nutrition in a relay format, reinforcing sequencing and conceptual organization.
- Digital Quiz and Exit Ticket Reflection: Online quizzes were conducted to assess understanding, followed by exit ticket reflections to identify learning outcomes and remaining doubts.

DATA ANALYSIS AND GRAPH

Pre-Test Average: 28% Post-Test Average: 87% Mean Gain: 11.8 marks

Graphical representation of pre-test and post-test scores indicated a significant improvement in students' performance after the intervention programme. Majority of students scored in the higher mark range in the post-test.



FINDINGS AND DISCUSSION

- The findings of the study indicate that: Students showed significant improvement in understanding Types of Nutrition in Animals. Activity-based interventions enhanced students' engagement and participation. Role play and sorting activities helped clarify differences between nutrition types. Flowcharts and quizzes improved retention and recall of concepts.
- The discussion reveals that learner-centred and interactive teaching methods were effective in overcoming learning difficulties and promoting meaningful learning in Science.

CONCLUSION

The intervention programme was successful in reducing learning difficulties related to Types of Nutrition in Animals and improving students' academic performance. Teaching Science through activity-based strategies, visual aids, and reflective assessments proved effective in enhancing understanding and sustaining interest among Standard VII students.

RECOMMENDATIONS

Based on the findings of the present study, it is recommended that Science teachers adopt activity-based and student-centered instructional strategies while teaching abstract biological concepts such as Types of Nutrition in Animals. The use of interactive activities like sorting games, role play, flowcharts, and digital quizzes can enhance conceptual understanding, active participation, and long-term retention among students. Students should be encouraged to engage actively in classroom activities, revise concepts regularly, and use visual representations to strengthen their learning. Parents can support learning by relating classroom concepts to real-life examples and encouraging curiosity about animals and their feeding habits. Such collaborative efforts among teachers, students, and parents can significantly improve learning outcomes in Science education.

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A STUDY OF EFFECT OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING AXIAL SKELETON IN HUMAN BEINGS IN SCIENCE SUBJECT OF STANDARD VI STUDENTS.

KHAN NAZIYA IMRAN RESEARCH
RESEARCH GUIDE: DR. SANDHYA SARWADE

ABSTRACT:
THE STUDY INVESTIGATES THE EFFECTIVENESS OF TARGETED PEDAGOGICAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES ENCOUNTERED BY STANDARD VI STUDENTS WHILE STUDYING THE TOPIC OF THE AXIAL SKELETON IN SCIENCE. THE COMPLEXITY OF THE HUMAN SKELETAL SYSTEM, ANATOMICAL TERMINOLOGY, AND SPATIAL ORGANIZATION OFTEN HINDERS STUDENTS' CONCEPTUAL UNDERSTANDING, PARTICULARLY WHEN TAUGHT USING TRADITIONAL LECTURE-BASED METHODS. THIS ACTION RESEARCH WAS CONDUCTED AT FAROOQ HIGH SCHOOL FOR GIRLS, CLASS 6B, WITH A SAMPLE OF 20 STUDENTS, AND A SINGLE-GROUP PRE-TEST AND POST-TEST EXPERIMENTAL DESIGN WAS USED. INITIALLY, A DIAGNOSTIC PRE-TEST REVEALED THAT THE MAJORITY OF STUDENTS SCORED LESS, INDICATING SIGNIFICANT GAPS IN CONCEPTUAL CLARITY. IN RESPONSE, A STRUCTURED INTERVENTION PROGRAM WAS IMPLEMENTED, INCORPORATING SKELETAL MODELS, ANIMATED VIDEOS, RIDDLES, AND INTERACTIVE QUIZZES. THE RESULTS DEMONSTRATE THE EFFECTIVENESS OF MULTIMODAL, STUDENT-CENTERED TEACHING METHODS IN ENHANCING STUDENTS' UNDERSTANDING AND RETENTION OF SKELETAL CONCEPTS. FURTHERMORE, THE STUDY HIGHLIGHTS THE POTENTIAL OF SUCH INTERVENTIONS IN REDUCING LEARNING DIFFICULTIES AND FOSTERING A MORE ENGAGING SCIENCE LEARNING ENVIRONMENT.

KEYWORDS:
AXIAL SKELETON, CONCEPTUAL UNDERSTANDING, INTERACTIVE LEARNING, SCIENCE EDUCATION.

INTRODUCTION

Science education plays a vital role in developing scientific thinking, observation skills, and awareness of the human body among students. At the upper primary level, science helps learners understand human body systems and their functions, which are closely connected to everyday life. The topic Axial Skeleton in Human Beings is a fundamental part of the Standard VI science curriculum, as it explains the structure, composition, and functions of the human skeleton. This knowledge also helps students develop awareness about posture, movement, and overall health.

However, many Standard VI students face learning difficulties while studying the axial skeleton due to the involvement of numerous bones, complex anatomical terminology, and spatial organisation of the skeletal system. Traditional lecture-based methods often fail to provide clear visualisation and active engagement, resulting in confusion and weak conceptual understanding. Therefore, the present action research focuses on examining the effectiveness of planned instructional interventions such as skeletal models, interactive quizzes, riddles, and multimedia resources to overcome these difficulties and enhance students' understanding, interest, and academic performance in science.

REVIEW OF RELATED LITERATURE

Previous research indicates that students develop a better understanding of human body systems when taught through activity-based and interactive teaching methods. Studies highlight that the use of skeletal models, visual aids, animated videos, riddles, and interactive quizzes improves conceptual clarity, retention, and engagement in learning science. These methods make abstract and complex topics, such as the human skeletal system, more accessible to students at the upper primary level.

RESEARCH OBJECTIVES

- To identify the difficulties faced by Standard VI students in learning the Axial Skeleton in science.
- To design and implement suitable instructional interventions such as skeletal models, animated videos, riddles, and interactive quizzes to overcome these difficulties.
- To assess the effectiveness of the intervention strategies in improving students' understanding, retention, and academic performance in the topic of the Axial Skeleton.

RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design)
Sample: 20 students of Standard VI, from Farooq High School for Girls
Tools Used: Observation, Pre-test and Post-test, Questionnaire, Interview

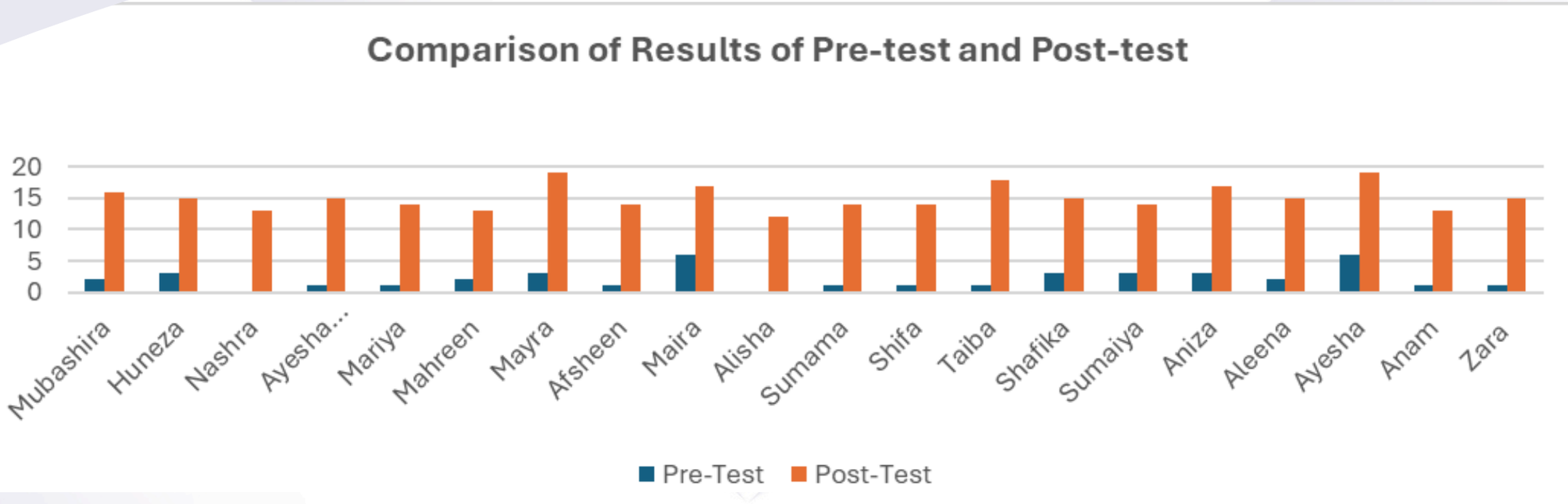
INTERVENTIONS

 Videos: Multimedia videos demonstrating the axial skeleton, its parts, and functions to enhance conceptual clarity.
 Skeletal Models: Hands-on use and observation of human skeletal models to provide visual and tactile understanding of bone structures.
 Riddles: Thought-provoking riddles to stimulate critical thinking and recall of skeletal terms and functions.
 Quiz Activities: Reinforcement of skeletal system concepts through interactive quizzes .

DATA ANALYSIS AND GRAPH

- Pre-Test Average: 10.25%
- Post-Test Average: 75.25%
- Improvement: Mean gain of 13.4 marks

A bar graph showed a significant increase in scores, with all students scoring above 60% post-intervention, indicating a clear improvement in understanding of the Axial Skeleton in Human Beings.



FINDINGS AND DISCUSSION

• Students showed a significant improvement in understanding the Axial Skeleton in Human Beings.

• Interactive teaching methods such as Videos, Skeleton Models, Riddles, and Quizzes enhanced engagement and helped students retain information effectively.

• Activity-based interventions supported comprehension of key concepts like bones, structure, and functions of the skeletal system.

CONCLUSION

The intervention program was successful in clarifying the complex structure and functions of the Axial Skeleton and improving students' performance. Teaching Science through videos, skeletal models, riddles, and quizzes proved highly effective in enhancing understanding and sustaining interest among Standard VI students.

RECOMMENDATIONS

• For Teachers: Use videos, skeletal models, riddles, and quizzes to make learning interactive.

• For Students: Revise regularly, practice with models, and participate actively.

• For Parents: Discuss the skeleton at home, use videos and models, and encourage curiosity.

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A STUDY OF EFFECT OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING WOMEN'S SELF-HELP GROUPS IN ORGANIZATION OF COMMERCE AND MANAGEMENT SUBJECT OF STANDARD XI STUDENTS

KHAN SHAMA FAROOQ RESEARCH
RESEARCH GUIDE: ASST. PROF. SHENAZ KHAN

ABSTRACT:
THE PRESENT STUDY INVESTIGATES THE EFFECTIVENESS OF TARGETED PEDAGOGICAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES ENCOUNTERED BY STANDARD XI COMMERCE STUDENTS WHILE STUDYING THE TOPIC OF WOMEN'S SELF-HELP GROUPS (SHGS) IN THE SUBJECT ORGANISATION OF COMMERCE AND MANAGEMENT (OCM). THE THEORETICAL NATURE OF THE TOPIC, UNFAMILIAR TERMINOLOGY SUCH AS MICROCREDIT, BANK LINKAGE, AND DEMOCRATIC SETUP, AND THE LACK OF REAL-LIFE EXPOSURE OFTEN CREATE CONCEPTUAL CONFUSION AMONG STUDENTS, ESPECIALLY WHEN TAUGHT USING TRADITIONAL LECTURE-BASED METHODS. THIS ACTION RESEARCH WAS CONDUCTED AT RAVINDRA BHARATI JR. COLLEGE, GOREGAON, WITH A SAMPLE OF 20 STUDENTS OF STANDARD XI. A SINGLE-GROUP PRE-TEST AND POST-TEST EXPERIMENTAL DESIGN WAS ADOPTED. THE DIAGNOSTIC PRE-TEST REVEALED THAT THE MAJORITY OF STUDENTS HAD LOW CONCEPTUAL CLARITY, WITH AN AVERAGE SCORE OF 27.5%. IN RESPONSE, WE IMPLEMENTED A STRUCTURED INTERVENTION PROGRAM THAT INCLUDED DISCUSSION, CONCEPT MAPPING, CASE-STUDY SOLVING, AND QUIZ ACTIVITIES. THE POST-TEST RESULTS SHOWED SIGNIFICANT IMPROVEMENT, WITH THE AVERAGE SCORE INCREASING TO 81.25%. THE FINDINGS HIGHLIGHT THE EFFECTIVENESS OF STUDENT-CENTRED AND ACTIVITY-BASED TEACHING METHODS IN REDUCING LEARNING DIFFICULTIES AND IMPROVING UNDERSTANDING, RETENTION, AND ACADEMIC PERFORMANCE IN COMMERCE EDUCATION.

KEYWORDS: WOMEN'S SELF-HELP GROUPS, LEARNING DIFFICULTIES, ACTIVITY-BASED LEARNING, COMMERCE EDUCATION, CONCEPTUAL UNDERSTANDING.

INTRODUCTION

Commerce education plays a vital role in developing business awareness, financial literacy, and understanding of socio-economic structures among students. At the higher secondary level, Organization of Commerce and Management (OCM) helps learners understand business organisations, management principles, and economic development. The topic Women's Self-Help Groups (SHGs) is an important part of the Standard XI OCM syllabus. It focuses on women empowerment, savings habits, micro-finance, entrepreneurship, and collective decision-making. Understanding SHGs helps students connect commerce concepts with real-life rural and urban economic development.

However, many students face learning difficulties while studying this topic. The abstract nature of concepts, theoretical explanations, unfamiliar terminology, and limited practical exposure reduce student engagement and conceptual clarity. Traditional lecture-based teaching methods often fail to create meaningful understanding. Therefore, the present action research focuses on examining the effectiveness of structured instructional interventions such as the discussion method, concept mapping, case-study solving, and quiz activities to overcome these learning difficulties and improve students' academic performance.

REVIEW OF RELATED LITERATURE

Previous studies on Women's Self-Help Groups mainly focus on women's empowerment, micro-finance, and socio- economic development. Research indicates that SHGs improve the financial independence, decision-making ability, and social status of women. Studies in education highlight that activity-based and interactive teaching methods improve conceptual clarity, retention, and engagement among students. Techniques such as group discussion, case-study method, concept mapping, and quizzes make theoretical subjects more understandable and relatable. However, very limited research has been conducted on teaching SHGs from an educational perspective at the higher secondary commerce level. This gap justifies the need for the present study.

RESEARCH OBJECTIVES

- To identify the difficulties faced by Standard XI students in learning Women's Self-Help Groups in OCM.
- To design and implement suitable instructional interventions such as discussion method, concept mapping, and case study solving, and quiz activities.
- To assess the effectiveness of the intervention strategies in improving students' understanding, retention, and academic performance.

RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design)
Sample: 20 students of Standard XI (Commerce) from Ravindra Bharati Jr. College, Goregaon
Tools Used: Observation, Pre-test, Post-test
Statistical Techniques: Average and Percentage

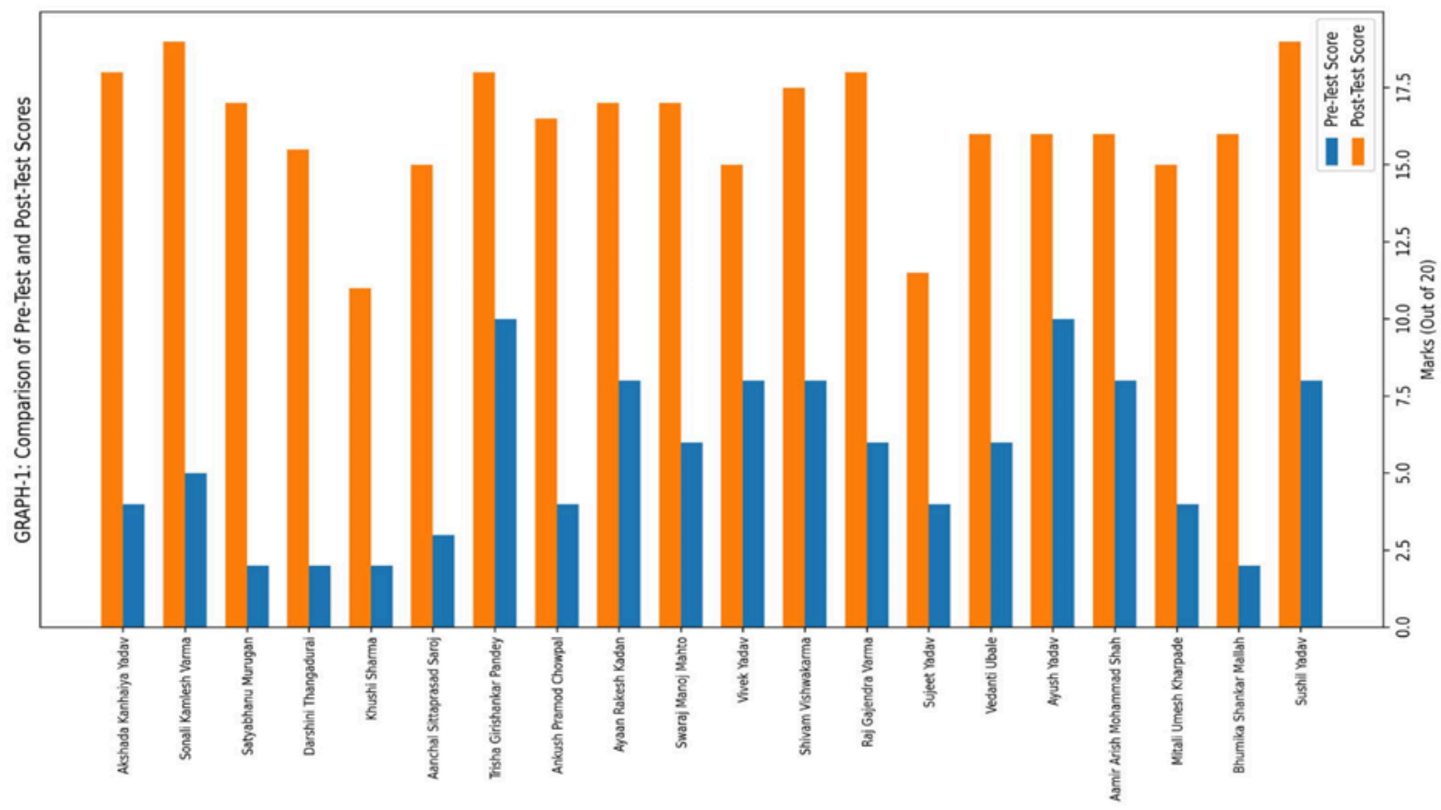
INTERVENTIONS

- Discussion Method: Interactive classroom discussion on meaning, formation, features, and importance of Women's SHGs to improve clarity.
- Concept Mapping: Visual representation of SHG structure, membership, democratic setup, savings system, and bank linkage programme.
- Case-Study Solving: Real-life examples of rural women forming SHGs and starting small enterprises to connect theory with practice.
- Quiz Activities: Reinforcement and revision of concepts through interactive question-answer sessions and group participation.

DATA ANALYSIS AND GRAPH

- Pre-Test Average: 27.5%
- Post-Test Average: 81.25%
- Improvement: Mean gain of 10.5 marks

Graphical representation: A bar graph comparison showed a significant increase in student performance after the intervention. In the pre-test, no student scored above 10 marks, whereas in the post-test, 90% of students scored between 15–20 marks. This clearly indicates substantial improvement in conceptual understanding of Women's Self- Help Groups.



FINDINGS AND DISCUSSION

- Students showed significant improvement in understanding Women's Self-Help Groups.
- Activity-based teaching methods enhanced engagement and classroom participation.
- Students were able to understand formation, savings system, loan procedures, and women empowerment benefits more clearly.
- The intervention programme successfully reduced learning difficulties related to theoretical concepts.
- The improvement in post-test scores confirms the effectiveness of structured teaching strategies

CONCLUSION

The intervention programme was successful in improving students' understanding of Women's Self-Help Groups and reducing conceptual difficulties. Teaching OCM through discussion, concept mapping, case studies, and quizzes proved highly effective in enhancing understanding, retention, and academic performance among Standard XI students. The study highlights the importance of adopting student-centred and activity-based teaching approaches in commerce education to make learning more meaningful and engaging.

RECOMMENDATIONS

Teachers should adopt activity-based and learner-centred teaching methods while teaching Women's Self-Help Groups to improve conceptual clarity. Real-life examples and visual aids should be used to make the topic more understandable and practical. Regular diagnostic testing and remedial teaching should be conducted to reduce learning difficulties.

Students should be encouraged to actively participate in classroom discussions and activities for better retention and performance.

- For Teachers: Use discussion, concept mapping, case studies, and quizzes to make OCM learning interactive and practical.
- For Students: Participate actively in classroom discussions and relate SHG concepts to real-life examples.
- For Parents: Encourage discussion about savings, entrepreneurship, and women empowerment at home to strengthen understanding.

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A STUDY OF THE EFFECTIVENESS OF TEACHING INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING FRICTION IN THE SCIENCE SUBJECT OF STANDARD VIII STUDENTS

SAYYED RAFAT AALIYA SUJAUDDIN
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ABSTRACT:
LEARNING PHYSICS CONCEPTS AT THE UPPER PRIMARY LEVEL OFTEN POSES CHALLENGES FOR STUDENTS DUE TO ABSTRACT IDEAS AND LIMITED PRACTICAL EXPOSURE. FRICTION, AN IMPORTANT TOPIC IN THE STANDARD VIII SCIENCE SYLLABUS, IS CLOSELY RELATED TO DAILY LIFE, YET MANY STUDENTS EXPERIENCE CONCEPTUAL DIFFICULTIES IN UNDERSTANDING ITS MEANING, TYPES, FACTORS AFFECTING FRICTION, AND APPLICATIONS. THE PRESENT ACTION RESEARCH STUDY AIMS TO IDENTIFY THE DIFFICULTIES ENCOUNTERED BY STANDARD VIII STUDENTS IN LEARNING FRICTION AND TO EXAMINE THE EFFECTIVENESS OF PLANNED TEACHING INTERVENTIONS IN OVERCOMING THESE DIFFICULTIES.
THE STUDY WAS CONDUCTED USING A SINGLE GROUP PRE-TEST POST-TEST EXPERIMENTAL DESIGN ON A SAMPLE OF 20 STANDARD VIII STUDENTS STUDYING UNDER THE SSC SYLLABUS. A PRE-TEST WAS ADMINISTERED TO ASSESS STUDENTS' PRIOR KNOWLEDGE, FOLLOWED BY THE IMPLEMENTATION OF VARIOUS TEACHING INTERVENTIONS SUCH AS ACTIVITY-BASED LEARNING, PPT PRESENTATIONS, DEMONSTRATIONS, QUIZZES, RIDDLES, WORKSHEETS, AND HANDS-ON CLASSROOM ACTIVITIES. AFTER THE INTERVENTION, A POST-TEST WAS CONDUCTED TO EVALUATE IMPROVEMENT IN LEARNING OUTCOMES.
THE RESULTS REVEALED A SIGNIFICANT IMPROVEMENT IN STUDENTS' UNDERSTANDING OF FRICTION. THE AVERAGE PRE-TEST SCORE OF 20.25% INCREASED TO 82.5% IN THE POST-TEST, INDICATING THE EFFECTIVENESS OF THE INTERVENTION PROGRAMME. THE STUDY CONCLUDES THAT LEARNER-CENTERED AND ACTIVITY-BASED TEACHING STRATEGIES PLAY A VITAL ROLE IN REDUCING LEARNING DIFFICULTIES AND ENHANCING CONCEPTUAL CLARITY IN SCIENCE EDUCATION.
KEYWORDS: ACTION RESEARCH, FRICTION, TEACHING INTERVENTIONS, ACTIVITY-BASED LEARNING, SCIENCE EDUCATION

INTRODUCTION

Science education at the upper primary level plays a crucial role in developing scientific thinking, curiosity, and problem-solving skills among students. At this stage, students are introduced to basic physics concepts that serve as a foundation for higher learning. One such essential concept is friction, which explains the resistance to motion between two surfaces in contact.

Although friction is related to everyday experiences such as walking, writing, and braking of vehicles, many Standard VIII students find the topic difficult to understand. This difficulty arises due to abstract explanations, confusion between different types of friction, limited practical activities, and traditional lecture-based teaching methods. As a result, students often develop misconceptions, show poor academic performance, and lose interest in the science subject.

Action research provides an effective framework for teachers to identify classroom problems and apply suitable interventions to improve the teaching–learning process. Therefore, the present study focuses on identifying students' learning difficulties related to friction and evaluating the effectiveness of planned teaching interventions.

REVIEW OF RELATED LITERATURE & NEED OF THE STUDY

Friction is a fundamental physics concept that supports the understanding of motion and force in higher classes. If difficulties related to this topic are not addressed at an early stage, students may face long-term learning problems in science. Classroom observations revealed that many students struggle with identifying types of friction, understanding factors affecting friction, and applying concepts to real-life situations.

The importance of this research lies in its focus on improving conceptual understanding through activity-based and learner-centered teaching methods. The study benefits students by enhancing academic performance and interest in science, teachers by improving instructional practices, and institutions by contributing to quality education.

RESEARCH OBJECTIVES

1. •To find out the problems faced by students and the reasons behind the difficulties encountered in learning the concept of Friction in the Science subject of Standard VIII students.
- To develop and implement appropriate instructional interventions to overcome the difficulties encountered in learning the concept of Friction in the Science subject of Standard VIII students.
- To find out the effectiveness of the instructional interventions on the difficulties encountered in learning the concept of Friction in the Science subject of Standard VIII students.

RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design)
Sample: 20 Standard VIII students selected through convenience sampling from a secondary school following the SSC syllabus.
Tools Used: Observation, Pre-test, Post-test Pre-test and post-test, Observation, Worksheets, Quizzes and classroom activities
Statistical Techniques: Average and Percentage

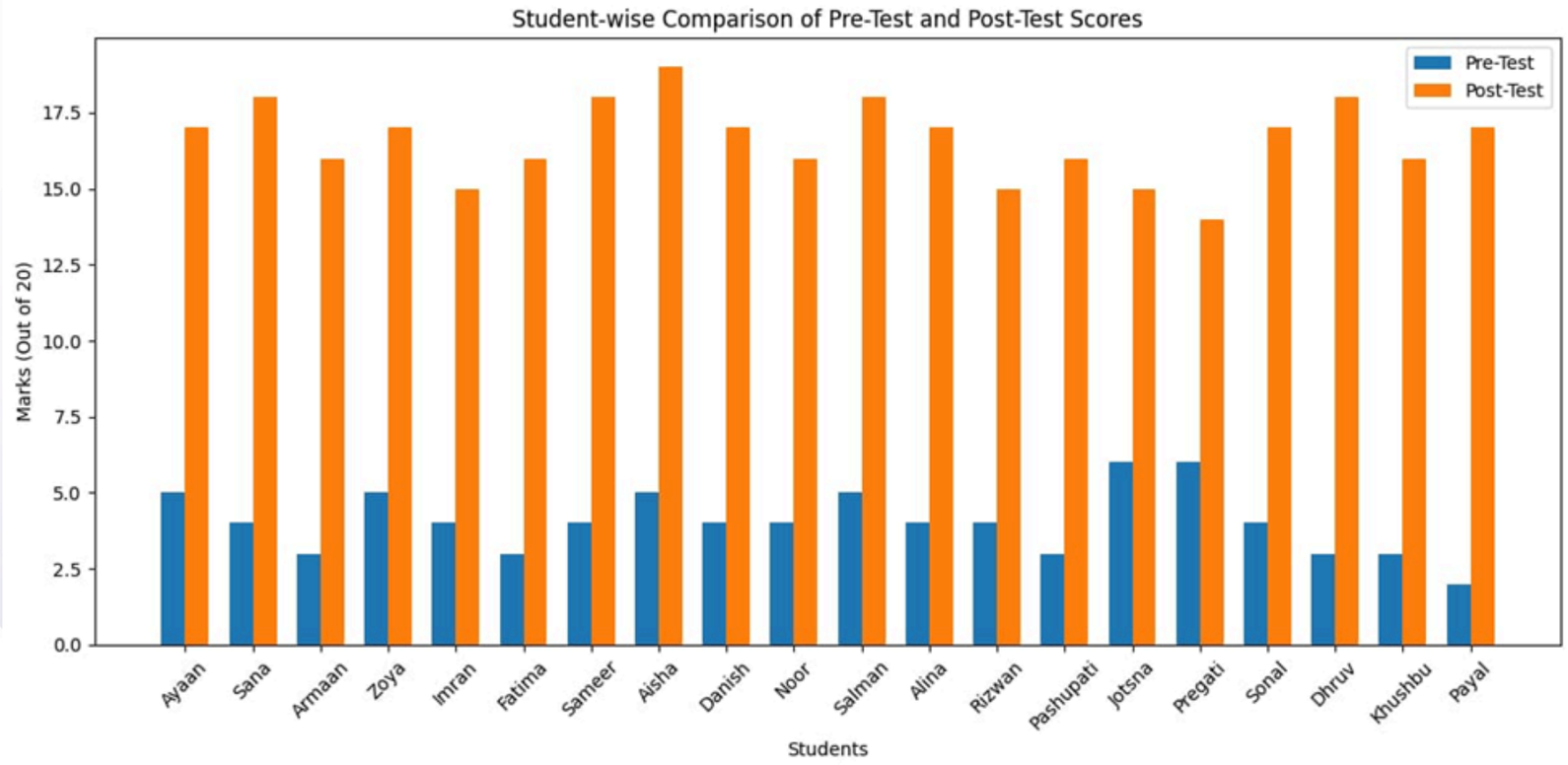
INTERVENTIONS

• The intervention included PPT presentations, demonstrations, activity-based learning, riddles, crossword puzzles, quizzes, and worksheets. These activities were designed to promote active participation and conceptual clarity.

DATA ANALYSIS AND GRAPH

• The pre-test results showed that most students scored below average, with an overall mean score of 20.25%, indicating poor understanding of friction. After the intervention, the post-test results revealed significant improvement, with an average score of 82.5%.
The comparison of pre-test and post-test scores clearly indicates that activity-based teaching methods effectively reduced learning difficulties and improved students' understanding of friction.

Graphical representation: A bar graph comparison showed a significant increase in student performance after the intervention. In the pre-test, no student scored above 10 marks, whereas in the post-test, 90% of students scored between 15 and 20 marks. This clearly indicates substantial improvement in the conceptual understanding of Women's Self- Help Groups.



FINDINGS AND DISCUSSION

• The findings of the present study are derived from the analysis of diagnostic tests, pre-test and post-test scores, classroom observations, and students' responses. The findings are presented in relation to the stated objectives of the study.

1. The study revealed that Standard VIII students faced several problems while learning the concept of friction. Major difficulties included a lack of conceptual clarity, confusion between different types of friction, an inability to understand the causes of friction, and difficulty in applying the concept to real-life situations.
2. It was found that many students relied on rote memorisation rather than meaningful understanding. They were able to recall definitions but struggled to explain concepts in their own words or solve application-based questions related to friction.
3. The reasons behind the learning difficulties were identified as the abstract nature of the concept, insufficient use of experiments and demonstrations, limited connection between theory and daily life examples, and teacher-centred traditional teaching methods.

CONCLUSION

The present action research study concludes that planned teaching interventions are highly effective in overcoming learning difficulties related to friction among Standard VIII students. Learner-centred strategies such as demonstrations, activities, and interactive teaching methods help students connect theoretical concepts with real-life experiences.

The study highlights the importance of reflective teaching and action research in improving classroom practices. It emphasises that innovative and activity-based teaching approaches can enhance students' understanding, interest, and academic achievement in science.

RECOMMENDATIONS

1. Intervention strategies should be incorporated regularly in science teaching, especially for difficult and abstract topics.
2. Activity-based and experiential learning should be an integral part of the science curriculum at the upper primary level.
3. Continuous assessment techniques should be used to monitor students' progress and learning difficulties.

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A STUDY OF THE EFFECTIVENESS OF INTERVENTION OF THE DIFFICULTIES ENCOUNTERED IN LEARNING KHADI AND VILLAGE INDUSTRIES COMMISSION (KVIC)IN ORGANISATION OF COMMERCE AND MANAGEMENT SUBJECT OF STANDARD XI

SONI MOHD UMAR FAROOK SHAIKH
RESEARCH GUIDE: PROF SHENAZ KHAN

ABSTRACT:
THE PRESENT ACTION RESEARCH STUDY INVESTIGATES THE EFFECTIVENESS OF ACTIVITY-BASED TEACHING STRATEGIES IN ENHANCING STUDENTS' UNDERSTANDING OF THE TOPIC KHADI AND VILLAGE INDUSTRIES COMMISSION (KVIC) IN THE SUBJECT ORGANISATION OF COMMERCE AND MANAGEMENT (OCM) AMONG XI STANDARD STUDENTS. MANY LEARNERS EXPERIENCE DIFFICULTY IN COMPREHENDING INSTITUTIONAL AND ECONOMIC CONCEPTS THROUGH TRADITIONAL LECTURE-BASED INSTRUCTION. TO ADDRESS THIS ISSUE, THE RESEARCHER IMPLEMENTED STRUCTURED CLASSROOM INTERVENTIONS INCLUDING THINK–PAIR–SHARE, FEATURE SORTING ACTIVITY, CASE STUDY METHOD, AND POSTER–SLOGAN ACTIVITIES. A PRE-TEST AND POST-TEST RESEARCH DESIGN WAS EMPLOYED TO MEASURE STUDENTS' ACADEMIC PROGRESS AND CONCEPTUAL CLARITY. THE FINDINGS INDICATE SIGNIFICANT IMPROVEMENT IN STUDENTS' PERFORMANCE, ENGAGEMENT, PARTICIPATION, AND REAL-LIFE APPLICATION OF KNOWLEDGE. THE STUDY HIGHLIGHTS THE IMPORTANCE OF LEARNER-CENTRED AND EXPERIENTIAL APPROACHES IN COMMERCE EDUCATION.

KEYWORDS: ACTIVITY-BASED LEARNING, ACTION RESEARCH, COMMERCE EDUCATION, COLLABORATIVE LEARNING, EXPERIENTIAL LEARNING, KVIC

INTRODUCTION

The Khadi and Village Industries Commission (KVIC) is a statutory organisation established under the Ministry of Micro, Small and Medium Enterprises (MSME), Government of India. It plays a vital role in promoting rural employment, self-reliance, entrepreneurship development, and sustainable economic growth. The topic forms an important part of the XI standard Organisation of Commerce and Management (OCM) curriculum. Despite its economic and national significance, students often find the topic abstract and difficult to understand due to its institutional nature and theoretical explanations. Traditional lecture methods tend to limit active participation and fail to establish meaningful connections between theory and real-life applications. Therefore, innovative and activity-based instructional strategies are necessary to enhance conceptual clarity and student engagement.

REVIEW OF RELATED LITERATURE & NEED OF THE STUDY

Previous research in the field of MSMEs and rural industries highlights the importance of Khadi and village industries in employment generation and economic development. Studies that KVIC significantly contributes to rural industrialisation, income generation, emphasise and skill development. However, the sector also faces challenges such as a lack of awareness, financial constraints, and limited market access. Educational research strongly supports the use of collaborative and experiential learning strategies. Think–Pair–Share has been found effective in improving communication and peer interaction. Feature sorting activities enhance analytical thinking and conceptual organisation. The case study method connects theoretical knowledge with practical situations, while creative tasks such as poster making encourage value internalisation and active learning. However, limited studies have examined the integration of multiple activity-based strategies in teaching institutional topics like KVIC at the higher secondary level. This study attempts to fill this gap.

RESEARCH OBJECTIVES

1. To identify the difficulties faced by XI standard students in learning the KVIC topic.
2. To design and implement activity-based instructional strategies.
3. To evaluate the effectiveness of these interventions on students' academic achievement and conceptual understanding.

RESEARCH METHODOLOGY

1 Research Design

The study adopted an Action Research design using a pre-test and post-test method to measure learning improvement.

2 Research Sample

The sample consisted of 30 XI standard commerce students from Ravindra Bharati Jr. College, Goregaon, Mumbai. The students were selected using purposive sampling.

TOOLS FOR DATA COLLECTION

- Pre-test and Post-test (Achievement Test)
- Classroom Observation
- Student Participation Records

INTERVENTION STRATEGIES

The following activity-based methods were implemented:

- Feature Sorting Activity: Helped students classify objectives, functions, and features of
Think–Pair–Share (TPS): Encouraged peer discussion and collaborative understanding.
- KVIC.
- Case Study Method: Connected theoretical concepts to real-life rural economic situations.

 Poster and Slogan Activity: Promoted creativity, value education, and awareness of rural empowerment.

DATA ANALYSIS AND RESULTS

The pre-test results indicated that a majority of students had moderate to low conceptual clarity regarding KVIC. Many students scored in lower achievement ranges, demonstrating incomplete understanding of objectives, functions, and significance of the commission. After implementing the activity-based interventions, the post-test results revealed a noticeable improvement in student performance. The average score increased significantly, and students demonstrated better conceptual clarity, analytical ability, and application skills.

Classroom observations further indicated:

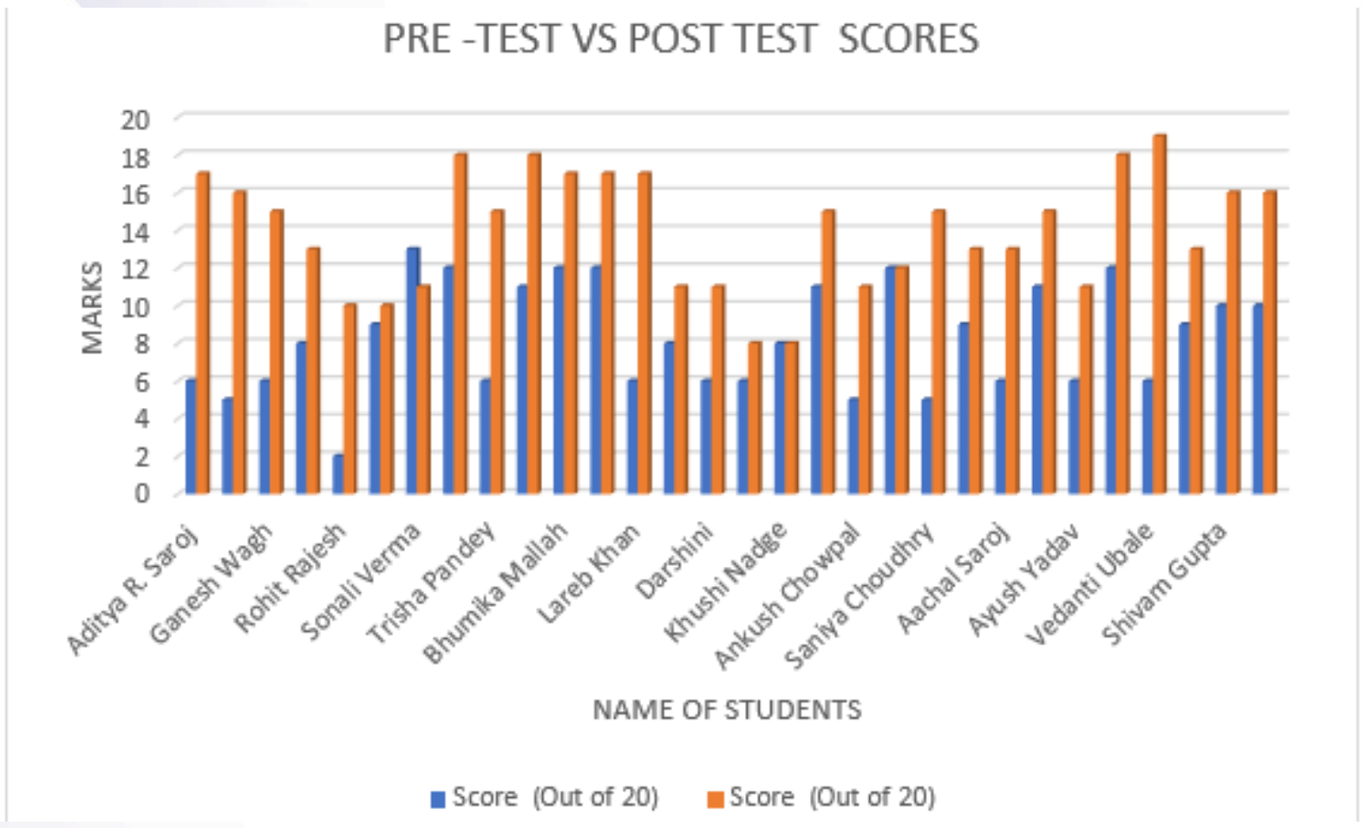
 Increased student participation and engagement.

 Improved communication and teamwork skills.

 Enhanced confidence in expressing ideas.

 Better differentiation between features, objectives, and functions of KVIC.

Graphical representation: A bar graph comparison showed a significant increase in student performance after the intervention. In the pre-test, no student scored above 10 marks, whereas in the post-test, 90% of students scored between 15 and 20 marks. This clearly indicates substantial improvement in the conceptual understanding of Women's Self- Help Groups.



FINDINGS AND DISCUSSION

• The findings of the present study are derived from the analysis of diagnostic tests, pre-test and post-test scores, classroom observations, and students' responses. The findings are presented in relation to the stated objectives of the study.

1. The study revealed that Standard VIII students faced several problems while learning the concept of friction. Major difficulties included a lack of conceptual clarity, confusion between different types of friction, an inability to understand the causes of friction, and difficulty in applying the concept to real-life situations.

2. It was found that many students relied on rote memorisation rather than meaningful understanding. They were able to recall definitions but struggled to explain concepts in their own words or solve application-based questions related to friction.

3. The reasons behind the learning difficulties were identified as the abstract nature of the concept, insufficient use of experiments and demonstrations, limited connection between theory and daily life examples, and teacher-centred traditional teaching methods.

CONCLUSION

The present action research study concludes that planned teaching interventions are highly effective in overcoming learning difficulties related to friction among Standard VIII students. Learner-centred strategies such as demonstrations, activities, and interactive teaching methods help students connect theoretical concepts with real-life experiences.

The study highlights the importance of reflective teaching and action research in improving classroom practices. It emphasises that innovative and activity-based teaching approaches can enhance students' understanding, interest, and academic achievement in science.

RECOMMENDATIONS

1. Intervention strategies should be incorporated regularly in science teaching, especially for difficult and abstract topics.
2. Activity-based and experiential learning should be an integral part of the science curriculum at the upper primary level.
3. Continuous assessment techniques should be used to monitor students' progress and learning difficulties.

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A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING THE NON-COOPERATION MOVEMENT IN THE HISTORY SUBJECT OF STANDARD VIII STUDENTS

HASINA ASHTIKAR

RESEARCH GUIDE: DR. AVANI KANAKIA

ABSTRACT:

THIS ACTION RESEARCH STUDY EXAMINES THE EFFECTIVENESS OF INSTRUCTIONAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES FACED BY STANDARD VIII STUDENTS WHILE LEARNING THE TOPIC NON-COOPERATION MOVEMENT IN THE HISTORY SUBJECT. DUE TO THE PRESENCE OF MULTIPLE EVENTS, LEADERS, DATES, AND ABSTRACT POLITICAL CONCEPTS, STUDENTS OFTEN FIND THIS TOPIC DIFFICULT WHEN TAUGHT THROUGH TRADITIONAL LECTURE METHODS. THE STUDY AIMS TO IMPROVE CONCEPTUAL UNDERSTANDING AND STUDENT ENGAGEMENT THROUGH INTERACTIVE AND ACTIVITY-BASED TEACHING STRATEGIES. THE RESEARCH WAS CONDUCTED AT H.M.W. ENGLISH HIGH SCHOOL UNDER THE MAHARASHTRA STATE BOARD CURRICULUM, WITH A SAMPLE OF 20 STANDARD VIII STUDENTS. A SINGLE-GROUP PRE-TEST AND POST-TEST EXPERIMENTAL DESIGN WAS ADOPTED. THE INTERVENTION PROGRAMME INCLUDED PPT PRESENTATIONS, QUIZZES, RIDDLES, CROSSWORD PUZZLES, AND GUIDED CLASSROOM DISCUSSIONS TO PROMOTE ACTIVE LEARNING. DATA WERE COLLECTED THROUGH OBSERVATION, QUESTIONNAIRES, AND ACHIEVEMENT TESTS. THE PRE-TEST RESULTS SHOWED LIMITED UNDERSTANDING OF THE NON-COOPERATION MOVEMENT, WHILE POST-TEST FINDINGS REVEALED A SIGNIFICANT IMPROVEMENT IN STUDENTS' ACADEMIC PERFORMANCE AND CLARITY OF HISTORICAL CONCEPTS. THE STUDY HIGHLIGHTS THE EFFECTIVENESS OF STUDENT-CENTRED INSTRUCTIONAL INTERVENTIONS IN ENHANCING INTEREST, PARTICIPATION, AND UNDERSTANDING IN HISTORY EDUCATION.

KEYWORDS: NON-COOPERATION MOVEMENT, INSTRUCTIONAL INTERVENTIONS, HISTORY EDUCATION, ACTIVITY-BASED LEARNING, CONCEPTUAL UNDERSTANDING.

INTRODUCTION

History education plays a crucial role in developing students' understanding of national movements, social changes, and democratic values. However, topics such as the Non-Cooperation Movement pose learning difficulties for Standard VIII students due to the complexity of events, causes, consequences, and unfamiliar historical terminology. Many students rely on rote memorisation without developing a clear understanding of the movement's significance. This study focuses on identifying students' learning difficulties related to the Non-Cooperation Movement and examines the effectiveness of planned instructional interventions such as quizzes, riddles, PPT presentations, and crossword puzzles in improving students' comprehension and interest in History.

REVIEW OF RELATED LITERATURE

Previous studies in History education suggest that activity-based and learner-centred teaching methods significantly improve students' understanding and attitude towards the subject. Research indicates that inquiry-based learning, visual aids, debates, quizzes, and interactive activities enhance engagement and help students grasp historical concepts more effectively. Literature also emphasises that intervention programmes play an important role in overcoming learning difficulties and reducing students' dependence on rote learning in History classrooms.

RESEARCH OBJECTIVES

- To identify the difficulties faced by Standard VIII students in learning the Non-Cooperation Movement.
- To design and implement suitable instructional interventions to overcome these difficulties.
- To assess the effectiveness of intervention strategies in improving students' learning outcomes in History.

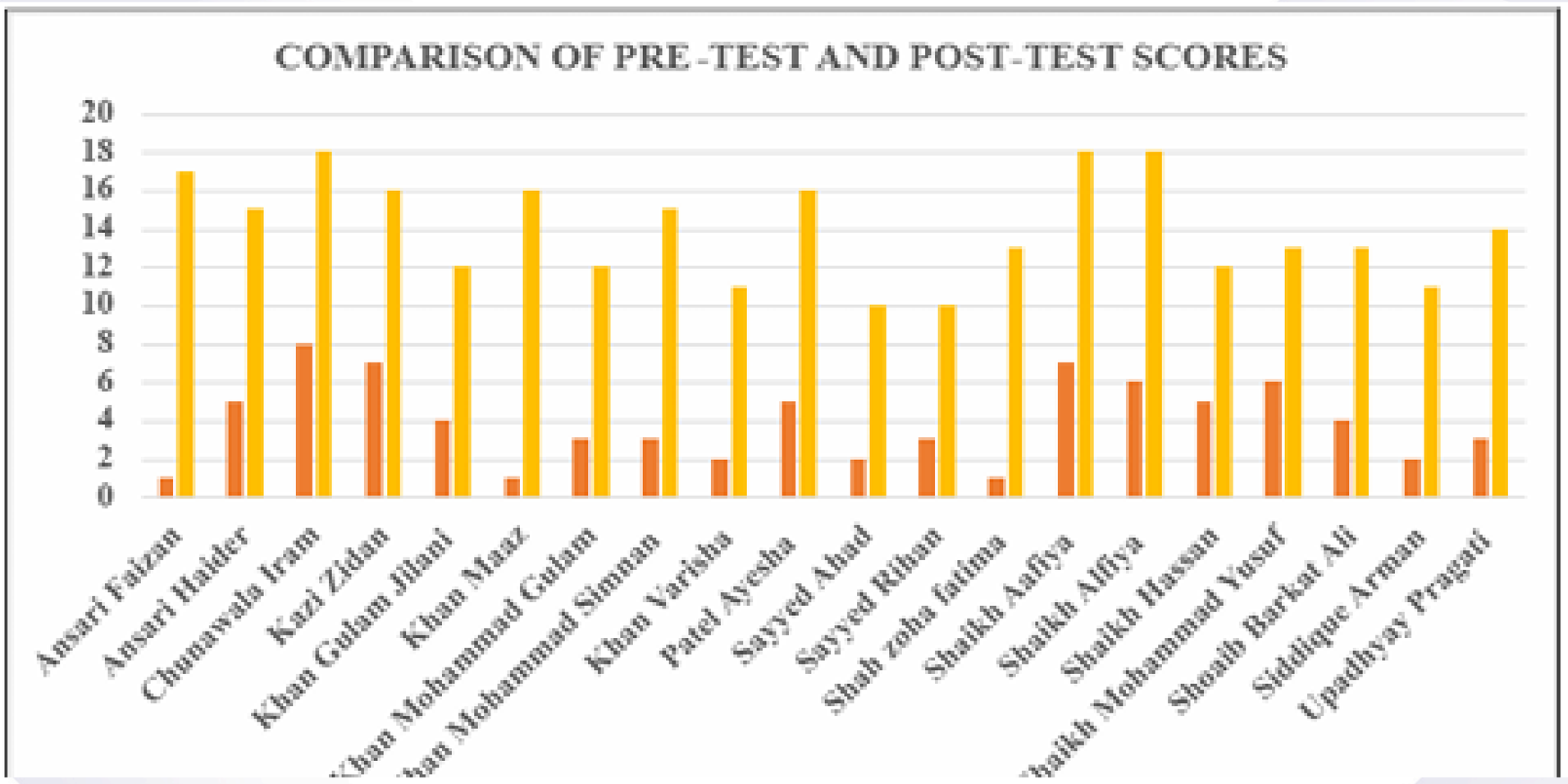
RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design) Sample: 20 students of Standard VIII from H.M.W. English High School

Tools Used: Observation, Pre-test and Post-test, Questionnaire, Interview

INTERVENTIONS

- Quiz Activities: To reinforce key concepts such as causes, events, leaders, and outcomes of the Non-Cooperation Movement.
- Riddles: To encourage critical thinking and recall of historical facts in an engaging manner.
- PPT Presentations: Visual explanation of the movement using timelines, images, and simplified points.
- Crossword Puzzles: To revise important historical terms, personalities, and concepts interactively. DATA ANALYSIS AND GRAPH
- Pre-Test Average: 19.5%
- Post-Test Average: 70%
- Improvement: Mean gain of 10.1 marks A bar graph indicated a significant increase in students' scores after the intervention. Most students scored above average in the post-test, showing improved understanding of the Non-Cooperation Movement.



FINDINGS AND DISCUSSION

- Students showed a significant improvement in understanding the Non-Cooperation Movement.
- Activity-based teaching methods such as quizzes, riddles, PPTs, and crossword puzzles increased students' interest and participation.
- The interventions helped students understand causes, events, and significance of the movement more clearly.
- Interactive learning reduced dependence on memorisation and promoted meaningful learning of History concepts.

CONCLUSION

The study concludes that instructional interventions were effective in overcoming learning difficulties related to the Non-Cooperation Movement. The use of activity-based and interactive teaching strategies enhanced students' understanding, retention, and positive attitude towards History. The findings suggest that History teaching becomes more effective when learner-centred approaches are integrated into classroom instruction.

RECOMMENDATIONS

● For Teachers: Use activity-based strategies such as quizzes, PPTs, riddles, and group discussions to make History lessons more engaging and meaningful.

● For Students: Revise lessons regularly, participate actively in classroom activities, and use puzzles and visual aids for better understanding.

● For Parents: Encourage discussions on historical events, relate lessons to real-life national values, and support learning through educational videos and reading materials.

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A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN THELEARNING PERIMETER AND AREA IN MATHEMATICS OF STANDARD V STUDENTS

ANSARI NAZISH YUNUS
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ABSTRACT:
THE PRESENT STUDY AIMS TO EXAMINE THE EFFECTIVENESS OF STRUCTURED PEDAGOGICAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES RELATED TO THE CONCEPTS OF PERIMETER AND AREA AMONG STANDARD V STUDENTS. THESE CONCEPTS OFTEN POSE CHALLENGES DUE TO THEIR ABSTRACT NATURE, FORMULA-BASED LEARNING, AND LIMITED REAL-LIFE APPLICATION IN TRADITIONAL CLASSROOM PRACTICES. TO ADDRESS THESE DIFFICULTIES, AN ACTION RESEARCH APPROACH WAS ADOPTED USING A PRE-EXPERIMENTAL SINGLE GROUP PRE-TEST AND POST-TEST DESIGN. THE STUDY WAS CONDUCTED ON A SAMPLE OF 20 STUDENTS SELECTED THROUGH CONVENIENCE SAMPLING.
A DIAGNOSTIC PRE-TEST WAS ADMINISTERED TO ASSESS STUDENTS' PRIOR KNOWLEDGE, WHICH REVEALED LOW CONCEPTUAL UNDERSTANDING AND WEAK PROBLEM-SOLVING SKILLS. BASED ON THESE FINDINGS, A SERIES OF TARGETED INTERVENTION STRATEGIES WERE IMPLEMENTED, INCLUDING ACTIVITY-BASED LEARNING, USE OF VISUAL AIDS, HANDS-ON MEASUREMENT ACTIVITIES, GROUP WORK, GUIDED PRACTICE, AND REAL-LIFE PROBLEM-SOLVING TASKS. AFTER THE INTERVENTION, A POST-TEST WAS CONDUCTED TO EVALUATE THE EFFECTIVENESS OF THE TEACHING STRATEGIES.
THE RESULTS SHOWED A SIGNIFICANT IMPROVEMENT IN STUDENTS' ACADEMIC PERFORMANCE, WITH AVERAGE SCORES INCREASING FROM 21.75% IN THE PRE-TEST TO 86.75% IN THE POST-TEST. THE FINDINGS INDICATE THAT STRUCTURED, STUDENT-CENTERED INSTRUCTIONAL STRATEGIES GREATLY ENHANCE CONCEPTUAL CLARITY, ENGAGEMENT, AND LEARNING OUTCOMES IN MATHEMATICS. THE STUDY HIGHLIGHTS THE IMPORTANCE OF INNOVATIVE PEDAGOGICAL PRACTICES IN IMPROVING STUDENTS' UNDERSTANDING AND FOSTERING A POSITIVE ATTITUDE TOWARDS MATHEMATICS AT THE PRIMARY LEVEL.

KEYWORDS: PERIMETER, AREA, CONCEPTUAL UNDERSTANDING, INTERVENTION STRATEGIES, ACTIVITY-BASED LEARNING, MATHEMATICS EDUCATION.

INTRODUCTION

Mathematics is a foundational subject that plays a vital role in the intellectual development of learners. Among the various concepts taught at the primary level, perimeter and area are essential for developing spatial understanding, logical reasoning, and real-life problem-solving skills. However, many students experience significant difficulties in learning these concepts due to abstract formulas, lack of conceptual clarity, and limited opportunities for hands-on learning.

Traditional teaching methods, which mainly rely on textbook-based explanations and rote learning, often fail to address individual learning needs. As a result, students struggle to visualize concepts and apply them in practical situations. These challenges lead to poor academic performance, reduced confidence, and negative attitudes towards mathematics.

To overcome these issues, the present action research focuses on implementing structured and engaging intervention strategies that promote active learning, conceptual understanding, and student participation. The study aims to examine whether planned interventions can effectively improve students' learning outcomes in the topics of perimeter and area.

LITERATURE REVIEW

Several studies highlight the importance of activity-based, student-centered teaching methods in mathematics education. Research by Bruner (1966) emphasizes the role of discovery learning in helping students construct mathematical concepts through experience. Piaget's theory of cognitive development suggests that learners understand abstract ideas more effectively when concrete materials and real-life examples are used.

Recent educational research stresses the need for visual aids, manipulatives, group activities, and problem-solving tasks to enhance conceptual clarity. Studies by National Council of Educational Research and Training (NCERT, 2019) recommend the use of experiential learning and real-life applications in teaching geometry concepts. Intervention-based teaching has been found to improve academic performance, motivation, and classroom engagement.

These studies support the idea that targeted pedagogical interventions can bridge learning gaps and enhance conceptual understanding. The present study builds on these findings by applying intervention strategies to address learning difficulties in perimeter and area.

OBJECTIVES

1. To identify the difficulties faced by students in learning perimeter and area.
2. To design and implement suitable intervention strategies.
3. To study the effectiveness of these interventions in improving student achievement.
4. To compare pre-test and post-test performance of students.
5. To analyze learning outcomes after the intervention.

RESEARCH METHODOLOGY

The present study adopted the pre-experimental single group pre-test and post-test design. This design involves administering a pre-test to assess the initial learning level of students, followed by planned interventions, and finally a post-test to evaluate improvement.

The research was conducted in a real classroom setting, making it an action research study. Quantitative data was collected using structured tests, and qualitative observations were made during
classroom interactions.

INTERVENTION STRATEGIES

The intervention program was carefully planned and implemented over multiple teaching sessions. The following strategies were used:

- Activity-based learning using paper cutting, measuring classroom objects, and drawing shapes
- Use of visual aids such as charts, diagrams, and models
- Group learning and peer teaching
- Step-by-step problem-solving demonstrations
- Real-life examples and practical applications

These strategies were designed to make learning interactive, engaging, and conceptually clear.

SAMPLE AND TOOLS

Sample:

The sample consisted of 20 students of Standard V from a secondary school. The students were selected using convenience sampling.

Tools Used:

- Teacher-made achievement test for pre-test and post-test
- Worksheets
- Observation checklist
- Teaching aids and learning materials

PRE-TEST AND POST-TEST

A pre-test was administered before the intervention to assess students' prior knowledge. After the completion of intervention sessions, a post-test was conducted using a similar difficulty-level test.

The test consisted of conceptual and application-based questions related to perimeter and area.

DATA ANALYSIS AND FINDINGS

The data collected from pre-test and post-test were analyzed using descriptive statistics such as total score, average, and percentage.

PRE TEST RESULTS

The pre-test results showed that most students had low conceptual understanding of perimeter and area. Many students were unable to apply formulas correctly and solve word problems.

Average Pre-Test Score: 21.75%

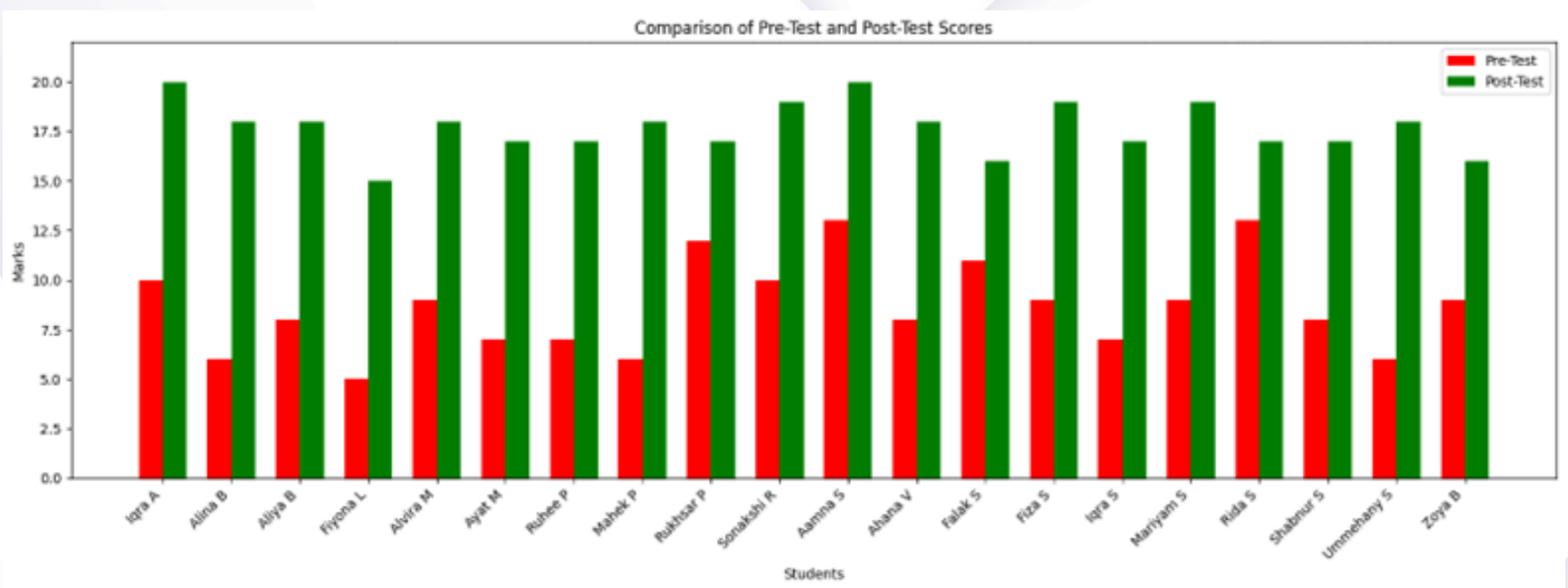
POST TEST RESULTS

After intervention, students demonstrated significant improvement in conceptual clarity, problem-solving skills, and confidence.

Average Post-Test Score: 86.75%

GRAPHICAL REPRESENTATION

A comparative bar graph was used to represent pre-test and post-test scores, clearly showing a remarkable improvement in students' learning outcomes after the intervention.



DISCUSSION

The substantial improvement in post-test scores confirms the effectiveness of the intervention strategies. The use of hands-on activities, visual aids, and collaborative learning enhanced students' engagement and conceptual clarity.

Students showed increased interest, confidence, and participation in mathematics classes. The intervention created a supportive learning environment where learners could actively explore and understand mathematical concepts. These findings support constructivist learning theories that emphasize learning through experience and interaction.

RECOMMENDATIONS

For Schools

- Provide teaching aids, math kits, and visual resources.
- Encourage activity-based and experiential learning approaches.
- Support teacher training programs on innovative teaching methods.

A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING THE REFLECTION OF LIGHT IN THE SCIENCE SUBJECT OF STANDARD VI STUDENTS

SAYYED NAHID IQBAL
RESEARCH GUIDE: DR. SANDHYA SARWADE

ABSTRACT:
THIS ACTION RESEARCH STUDY EXAMINES THE EFFECTIVENESS OF INSTRUCTIONAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES FACED BY STANDARD VI STUDENTS WHILE STUDYING THE TOPIC REFLECTION OF LIGHT IN THE SCIENCE SUBJECT. STUDENTS OFTEN FIND IT DIFFICULT TO UNDERSTAND THE LAWS OF REFLECTION AND IMAGE FORMATION THROUGH TRADITIONAL TEACHING METHODS.
THE STUDY WAS CONDUCTED AT FAROOQ HIGH SCHOOL FOR GIRLS USING A SINGLE-GROUP PRE-TEST AND POST-TEST DESIGN WITH 31 STUDENTS. EXPERIENTIAL METHOD, QUIZ METHOD, AUDIO-VISUAL METHOD, AND CONCEPT MAP METHOD WERE USED AS INSTRUCTIONAL INTERVENTIONS TO IMPROVE CONCEPTUAL UNDERSTANDING.
THE PRE-TEST RESULTS SHOWED LIMITED UNDERSTANDING OF THE TOPIC, WHEREAS THE POST-TEST RESULTS INDICATED SIGNIFICANT IMPROVEMENT IN STUDENTS' PERFORMANCE AND CLARITY OF CONCEPTS. THE FINDINGS HIGHLIGHT THE IMPORTANCE OF ACTIVITY-BASED AND LEARNER-CENTRED TEACHING STRATEGIES IN SCIENCE EDUCATION.

KEYWORDS:

REFLECTION OF LIGHT, LEARNING DIFFICULTIES, INSTRUCTIONAL INTERVENTIONS, SCIENCE EDUCATION.

INTRODUCTION

Science education plays an important role in developing scientific thinking, observation skills, and problem-solving abilities among students. At the upper primary level, science helps learners understand natural phenomena and the basic principles that govern the physical world. The topic Reflection of Light is an essential part of the Standard VI science curriculum, as it explains how light behaves when it strikes a surface and how images are formed by mirrors. This knowledge helps students relate scientific concepts to everyday experiences such as looking into mirrors, seeing reflections in water, and understanding the functioning of optical devices.

However, many Standard VI students experience learning difficulties while studying Reflection of Light due to abstract concepts, ray diagrams, and scientific terminology. Traditional lecture-based teaching methods often fail to provide proper visualization and active student participation, which leads to confusion and weak conceptual understanding. Therefore, the present action research focuses on examining the effectiveness of planned instructional interventions.

LITERATURE REVIEW

Previous research indicates that students understand biological concepts more effectively when taught through activity-based and interactive teaching methods. Studies highlight that the use of visual aids, models, quizzes, concept map, and learner-centered activities enhances conceptual clarity and retention in science learning. Literature also emphasizes the importance of intervention programs in overcoming learning difficulties and making abstract biological processes more meaningful for middle school students.

OBJECTIVES

1. ·To identify the difficulties faced by Standard VI students in learning the Reflection of Light
2. ·To design and implement suitable instructional interventions to overcome these difficulties.
3. ·To assess the effectiveness of the intervention strategies in improving students' learning outcomes in science.

RESEARCH METHODOLOGY

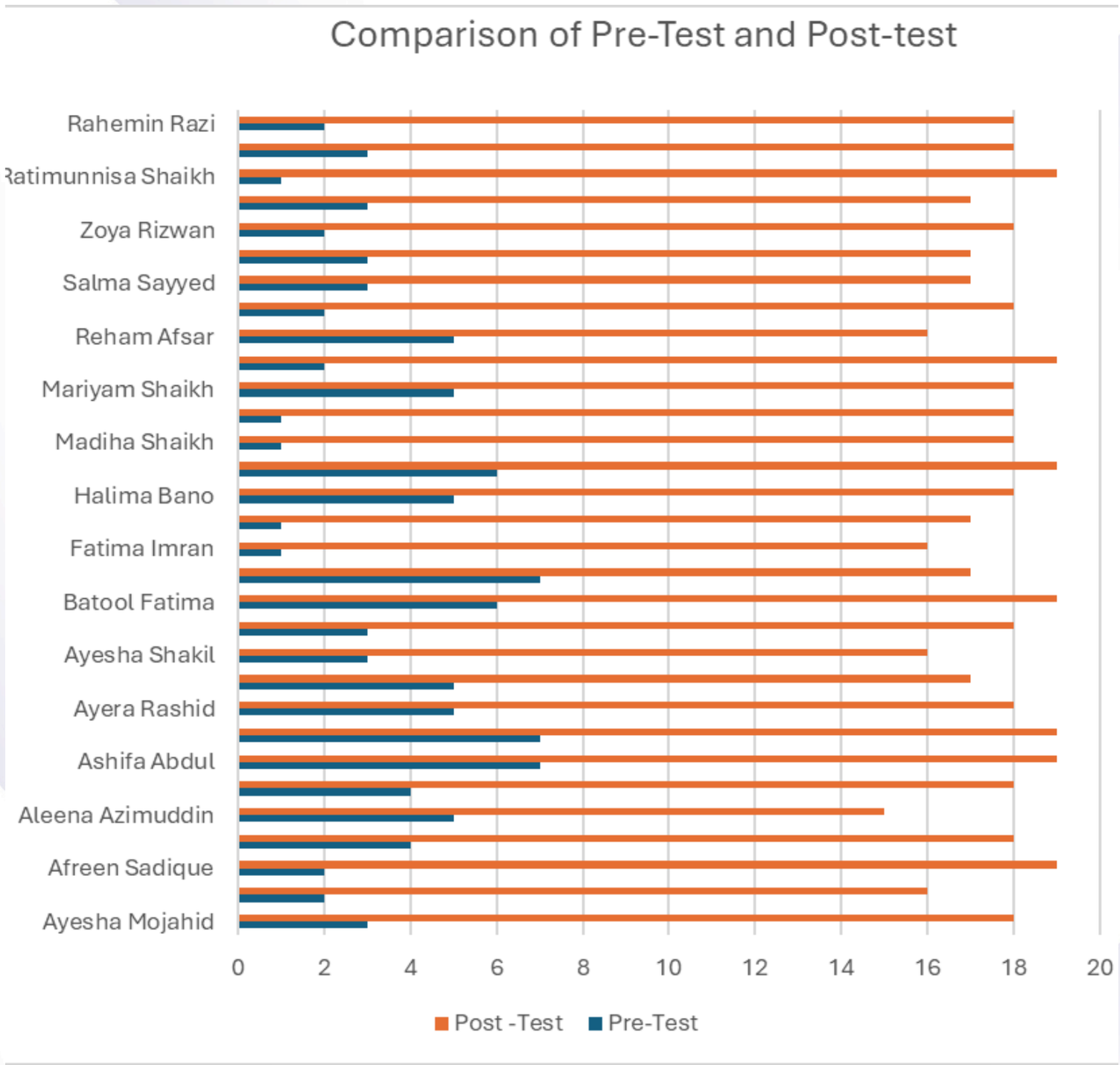
Research Design: Experimental (Single Group Pre-test and Post-test Design)
Sample: 31 students of Standard VI from Farooq Girls High School
Tools Used: Observation, Pre-test and Post-test, Questionnaire, Interview

INTERVENTION STRATEGIES

vExperiential Method: Practical activities using mirrors to understand laws of reflection and image formation.
vQuiz Activities: Engaging quizzes to reinforce concepts and improve recall.
vAudio-Visual Presentation: PPT presentations and educational videos to explain ray diagrams and types of reflection clearly.
vConcept Mapping Method: Preparation of concept maps to connect key terms and concepts in an organized way.

DATA ANALYSIS AND GRAPH

·Pre-Test Average: 16.81%
·Post-Test Average: 88.38%
·Improvement: Mean gain of 13.35marks
A bar graph showed a significant increase in scores, with all students scoring above 50% post-intervention, indicating a clear improvement in understanding of the Reflection of Light.



FINDINGS AND DISCUSSION

·Students showed a significant improvement in understanding the Reflection of Light

·Interactive teaching methods such as Experiential, Audio-visual, Quiz, and Concenpt mapping enhanced engagement and helped students retain information effectively.

·Activity-based interventions supported comprehension of key concepts like reflection of light, mirror, image formation, and ray diagrams.

CONCLUSION

The intervention program was successful in clarifying the concepts of Reflection of Light and improving students' academic performance. Teaching science through experiential activities, visual aids, quizzes, and concept mapping proved highly effective in enhancing conceptual understanding and sustaining interest among Standard VII students.

RECOMMENDATIONS

·For Teachers: Use experiential activities, audio-visual aids, interactive quizzes, and concept mapping techniques to strengthen students' understanding of Reflection of Light and related concepts.

·For Students: Revise concepts regularly, practice with diagrams and puzzles, and actively participate in classroom activities to improve learning.

·For Parents: Encourage discussions about reflection of light, relate lessons to everyday life, and support curiosity through educational games, videos, and simple at-home experiments.

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EFFECTIVENESS OF INTERVENTION STRATEGIES IN REDUCING STUDENTS' DIFFICULTIES IN LEARNING: "WHICH STOCK EXCHANGE SERVES INVESTORS BETTER – BSE OR NSE?"

SHAIKH SUMAYYA ASLAM
RESEARCH GUIDE: ASSIST. PROFESSOR SHENAZ KHAN

ABSTRACT:
THE PRESENT ACTION RESEARCH STUDY INVESTIGATES THE EFFECTIVENESS OF INNOVATIVE INSTRUCTIONAL INTERVENTION STRATEGIES IN REDUCING THE DIFFICULTIES FACED BY CLASS XII COMMERCE STUDENTS WHILE LEARNING THE TOPIC "WHICH STOCK EXCHANGE SERVES INVESTORS BETTER – BSE OR NSE?". FINANCIAL MARKET CONCEPTS SUCH AS STOCK EXCHANGES, TRADING SYSTEMS, INDICES, VOLATILITY, AND INVESTOR SERVICES ARE OFTEN PERCEIVED AS TECHNICAL AND ABSTRACT IN NATURE. AS A RESULT, STUDENTS EXPERIENCE CONCEPTUAL CONFUSION WHILE DIFFERENTIATING BETWEEN THE BOMBAY STOCK EXCHANGE (BSE) AND THE NATIONAL STOCK EXCHANGE (NSE). THE STUDY ADOPTED A SINGLE-GROUP PRE-TEST AND POST-TEST EXPERIMENTAL DESIGN INVOLVING 20 STUDENTS FROM RAMZAN ALI JUNIOR COLLEGE OF COMMERCE AND SCIENCE, MALAD-MALVANI. INTERVENTION STRATEGIES SUCH AS DEBATE, ROLE PLAY, ADVERTISEMENT MAKING, AND QUIZ WERE IMPLEMENTED TO PROMOTE ACTIVE LEARNING. DATA WERE COLLECTED THROUGH ACHIEVEMENT TESTS AND ANALYZED USING STATISTICAL TOOLS SUCH AS MEAN AND PERCENTAGE. THE FINDINGS REVEALED A REMARKABLE IMPROVEMENT IN STUDENTS' CONCEPTUAL CLARITY, ANALYTICAL SKILLS, AND ACADEMIC PERFORMANCE AFTER THE INTERVENTION. THE STUDY CONCLUDES THAT ACTIVITY-BASED AND STUDENT-CENTERED TEACHING APPROACHES SIGNIFICANTLY ENHANCE UNDERSTANDING OF COMPLEX FINANCIAL TOPICS. THE RESEARCH HIGHLIGHTS THE IMPORTANCE OF INNOVATIVE PEDAGOGY IN COMMERCE EDUCATION.

KEYWORDS: STOCK EXCHANGE, BSE, NSE, FINANCIAL LITERACY, INTERVENTION STRATEGIES, COMMERCE EDUCATION, STUDENT LEARNING

INTRODUCTION

Stock exchanges are vital institutions in the financial system of any country. They provide a regulated platform for buying and selling securities such as shares, bonds, and derivatives. In India, the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE) are the two major stock exchanges that contribute significantly to capital formation and economic development. The BSE, established in 1875, is the oldest stock exchange in Asia and represents historical significance and a large number of listed companies. The NSE, established in 1992, introduced electronic trading systems in India and is known for technological advancement, transparency, and high trading volumes. Despite their importance in the curriculum of Class XII Commerce, students often face difficulties in understanding comparative aspects of BSE and NSE. The concepts of risk, return, volatility, trading mechanisms, clearing systems, and regulatory frameworks create confusion. Traditional lecture methods sometimes fail to simplify these technical ideas. Therefore, the present action research attempts to evaluate whether innovative intervention strategies can reduce learning difficulties and improve academic achievement.

NEED AND SIGNIFICANCE OF THE STUDY

Financial literacy has become an essential skill in the modern world. Commerce students are expected to understand the functioning of stock markets and investment platforms. However, many students memorize definitions without developing conceptual clarity. This creates gaps in analytical understanding and practical application. The present study is significant because it focuses on classroom-level difficulties and attempts to solve them using action research methodology. By implementing debate, role play, advertisement creation, and quizzes, the researcher encourages experiential learning. Such strategies help students actively participate in knowledge construction rather than passively receiving information. The study also contributes to improving teaching practices in commerce education.

OBJECTIVES

1. To identify the difficulties faced by students in understanding the comparison between BSE and NSE.
2. To design and implement intervention strategies to reduce learning difficulties.
3. To evaluate the effectiveness of the intervention using pre-test and post-test analysis.

RESEARCH METHODOLOGY

The study adopted the Experimental Method using a Single Group Pre-Test and Post-Test Design.

The sample consisted of 20 students of Class XII Commerce selected through purposive sampling. The independent variable was the intervention strategy, and the dependent variable was students' academic achievement. Tools used for data collection included achievement tests, observation, and questionnaires. Statistical techniques such as mean and percentage were applied to analyze the data. The intervention program included debate on BSE vs NSE, role play involving investor and broker simulation, advertisement making to enhance creative understanding, and quiz competitions to reinforce conceptual clarity.

DATA ANALYSIS AND FINDINGS

The pre-test results indicated that the majority of students scored below 30%, reflecting significant learning difficulties. After implementing the intervention strategies, the post-test results showed a dramatic improvement, with the average score increasing to above 80%. Students demonstrated better understanding of trading systems, indices, risk-return comparison, and regulatory roles. Participation levels increased, and students expressed greater confidence in explaining differences between BSE and NSE. The results confirm that innovative teaching methods significantly enhance comprehension and retention of financial concepts.

CONCLUSION

The study concludes that intervention strategies such as debate, role play, advertisement making, and quizzes are highly effective in reducing students' learning difficulties. Activity-based learning fosters analytical thinking, creativity, and engagement. While both BSE and NSE play important roles in India's financial system, understanding their differences becomes easier when taught through interactive pedagogy. The research highlights the importance of shifting from traditional lecture-based teaching to student-centered approaches in commerce education. Future research may include larger samples and longer intervention periods to validate the findings further.

A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING THE SIMPLE PAST TENSE IN THE ENGLISH SUBJECT OF STANDARD VI STUDENTS

SHAIKH SHAKIRAH RIZWAN
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ABSTRACT:
THIS ACTION RESEARCH STUDY EXAMINES THE EFFECTIVENESS OF INSTRUCTIONAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES FACED BY STANDARD VI STUDENTS WHILE LEARNING THE SIMPLE PAST TENSE IN THE ENGLISH SUBJECT. STUDENTS OFTEN STRUGGLE WITH IDENTIFYING REGULAR AND IRREGULAR VERBS, FORMING CORRECT PAST TENSE SENTENCES, AND APPLYING GRAMMATICAL RULES IN WRITING AND SPEAKING. TRADITIONAL RULE-BASED TEACHING METHODS FREQUENTLY LEAD TO ROTE MEMORISATION RATHER THAN CONCEPTUAL CLARITY. THE STUDY WAS CONDUCTED AT MADNI HIGH SCHOOL, JOGESHWARI, UNDER THE MAHARASHTRA STATE BOARD CURRICULUM, WITH A SAMPLE OF 20 STANDARD VI STUDENTS. A SINGLE-GROUP PRE TEST AND POST-TEST EXPERIMENTAL DESIGN WAS ADOPTED. THE INTERVENTION PROGRAMME INCLUDED FLASH CARDS, PICTURE QUIZ, SENTENCE FORMATION ACTIVITY, AND PAST TENSE BINGO TO PROMOTE ACTIVE LEARNING AND STUDENT ENGAGEMENT. DATA WERE COLLECTED THROUGH OBSERVATION AND ACHIEVEMENT TESTS. THE PRE-TEST RESULTS SHOWED LIMITED UNDERSTANDING OF THE SIMPLE PAST TENSE, WHILE THE POST-TEST FINDINGS REVEALED SIGNIFICANT IMPROVEMENT. THE STUDY HIGHLIGHTS THE EFFECTIVENESS OF ACTIVITY-BASED AND LEARNER-CENTRED INSTRUCTIONAL STRATEGIES IN ENHANCING GRAMMATICAL ACCURACY, PARTICIPATION, AND CONFIDENCE AMONG STUDENTS.

KEYWORDS: SIMPLE PAST TENSE, GRAMMAR LEARNING, INSTRUCTIONAL INTERVENTIONS, ACTIVITY-BASED LEARNING, ENGLISH EDUCATION.

INTRODUCTION

English plays a significant role in the academic development of students, as it serves as a foundation for effective communication in both written and spoken forms. At the upper primary level, grammar becomes an essential component in building language accuracy and confidence. Among various grammar topics, the Simple Past Tense is one of the most frequently used forms in English; however, it is also one of the most challenging for students to master. Standard VI students often struggle with recognising regular and irregular verb forms, applying correct past tense structures in sentences, and avoiding the common error of using present tense forms in place of past tense verbs. These difficulties are often intensified by traditional teaching methods that emphasise rule memorisation rather than conceptual understanding and practical application. As a result, students tend to rely on rote learning and show hesitation while speaking or writing in English. In response to these challenges, the present study aims to identify the specific difficulties encountered by Standard VI students in learning the Simple Past Tense and to examine the effectiveness of activity-based instructional interventions in addressing these issues. By incorporating strategies such as Flash Cards, Picture Quiz, Sentence Formation activities, and Past Tense Bingo, the research seeks to promote active participation, improve grammatical accuracy, and enhance students' overall confidence in using the Simple Past Tense correctly.

REVIEW OF RELATED LITERATURE

Previous research in language education suggests that structured and activity-based interventions significantly improve students' grammar learning and language development. Studies on intervention-based reading and language instruction indicate that systematic, small-group and explicit teaching methods enhance comprehension and retention among learners. Research on Response to Intervention (RTI) models highlights the importance of culturally responsive and structured instruction for language learners. Literature also emphasises that interactive strategies such as visual aids, games, guided practice, and peer learning increase engagement and reduce grammatical errors. Activity-based learning helps students internalise language structures rather than memorising rules mechanically.

RESEARCH OBJECTIVES

- To identify the difficulties faced by Standard VI students in learning the Simple Past Tense.
- To design and implement suitable instructional interventions to overcome these difficulties.
- To assess the effectiveness of intervention strategies in improving students' grammar learning outcomes.

RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design) Sample: 20 students of Standard VI from Madni High School, Jogeshwari Tools Used: Observation, Pre-test, Post-test, Flash Cards, Picture Quiz, Sentence Formation Activity, and Past Tense Bingo.

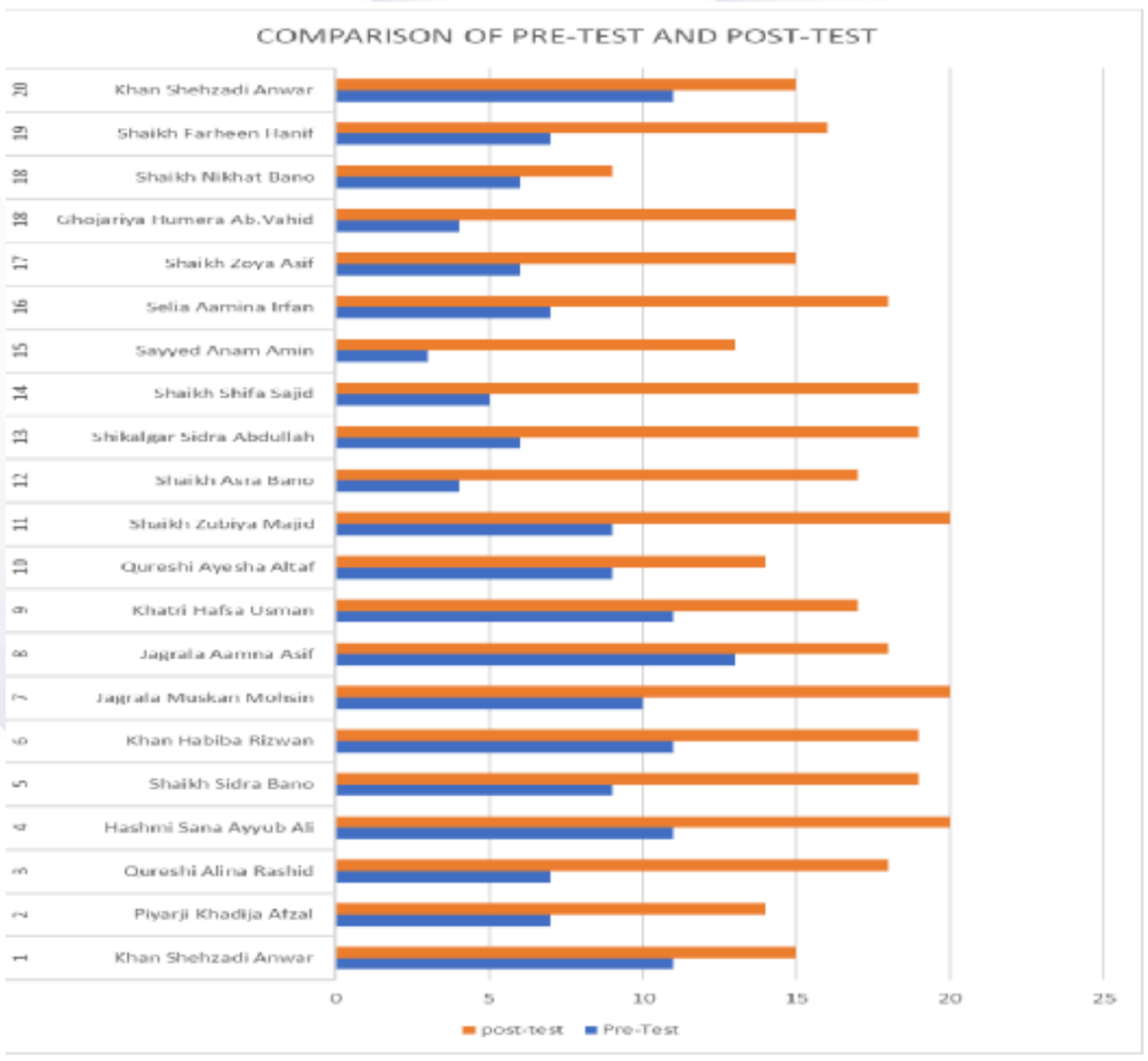
INTERVENTIONS

- Flash Card Activity: Students identified present tense verbs and responded with correct past tense forms. This improved quick recognition and reduced confusion between regular and irregular verbs.
- Picture Quiz Activity: Students framed past tense sentences based on visual pictures. This strengthened contextual understanding and visual learning.
- Sentence Formation Activity: Students constructed meaningful sentences using given verbs in the past tense. This improved sentence structure and application skills.
- Past Tense Bingo: A game-based activity where students matched present tense verbs with past tense forms. This enhanced recall, accuracy, and engagement.

DATA ANALYSIS AND GRAPH

• Pre-Test Average: 39%
• Post-Test Average: 83.75%
• Mean Gain: 8.8 marks

A bar graph representation showed a visible increase in individual scores of all 20 students. No student showed a decline in performance. The majority of students scored between 15–20 marks in the post-test, reflecting mastery of the concept.



FINDINGS AND DISCUSSION

• Students showed significant improvement in recognising and using past tense verbs correctly.
• Flash Cards, Picture Quiz, Sentence Formation Activity, and Past Tense Bingo increased student participation and reduced grammatical errors.
• Visual aids and games made grammar learning enjoyable and less stressful.
• Students developed better sentence formation skills and confidence in speaking and writing.
• The intervention reduced dependence on rote memorisation and promoted meaningful understanding.

CONCLUSION

The study concludes that instructional interventions were highly effective in overcoming learning difficulties related to the Simple Past Tense among Standard VI students. Activity-based teaching methods such as Flash Cards, Picture Quiz, Sentence Formation, and Past Tense Bingo significantly improved students' understanding, accuracy, retention, and interest in English grammar. Grammar learning becomes more effective when students are actively involved in the learning process rather than passively receiving information.

RECOMMENDATIONS

• For Teachers: Use activity-based strategies regularly in grammar teaching, and incorporate visual aids and games to enhance participation.
• For Students: Practise past tense forms regularly, participate actively in classroom activities and apply grammar rules in daily speaking and writing.
• For Parents: Encourage children to describe daily events using past tense sentences and support grammar practice through educational resources and activities at home.

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ENHANCING CONCEPTUAL UNDERSTANDING OF STATISTICS THROUGH TARGETED PEDAGOGICAL INTERVENTIONS AMONG STANDARD VIII STUDENTS

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ABSTRACT:
THE PRESENT STUDY INVESTIGATES THE EFFECTIVENESS OF TARGETED PEDAGOGICAL INTERVENTIONS IN OVERCOMING LEARNING DIFFICULTIES ENCOUNTERED BY STANDARD VIII STUDENTS WHILE STUDYING THE CONCEPT OF STATISTICS IN MATHEMATICS. STATISTICAL CONCEPTS SUCH AS RAW DATA ARRANGEMENT, FREQUENCY TABLES, MEAN CALCULATION, AND SUBDIVIDED BAR GRAPHS OFTEN CREATE CONFUSION DUE TO LACK OF CONCEPTUAL CLARITY AND WEAK COMPUTATIONAL SKILLS.

THIS ACTION RESEARCH WAS CONDUCTED WITH A SAMPLE OF 30 STUDENTS USING A SINGLE-GROUP PRE-TEST/POST-TEST EXPERIMENTAL DESIGN. INITIALLY, THE DIAGNOSTIC PRE-TEST REVEALED THAT THE MAJORITY OF STUDENTS SCORED BELOW 50%, INDICATING SIGNIFICANT CONCEPTUAL GAPS. IN RESPONSE, A STRUCTURED INTERVENTION PROGRAMME WAS IMPLEMENTED INCORPORATING ACTIVITY-BASED LEARNING, PPT PRESENTATIONS, MEAN CALCULATION GAMES, DATA COLLECTION EXERCISES, AND GRAPH INTERPRETATION TASKS.

FOLLOWING THE INTERVENTION, THE POST-TEST RESULTS SHOWED REMARKABLE IMPROVEMENT, WITH AVERAGE SCORES RISING FROM 49.5% TO 90.6%. THE FINDINGS CONFIRM THAT MULTIMODAL, STUDENT-CENTERED STRATEGIES SIGNIFICANTLY ENHANCE CONCEPTUAL UNDERSTANDING AND ACADEMIC ACHIEVEMENT IN MATHEMATICS.

KEYWORDS: STATISTICS, CONCEPTUAL UNDERSTANDING, ACTIVITY-BASED LEARNING, MEAN CALCULATION, FREQUENCY TABLE, SUBDIVIDED BAR GRAPH, INTERVENTION STRATEGIES.

INTRODUCTION

Mathematics plays a crucial role in developing logical reasoning, analytical thinking, and problem-solving skills among learners. Statistics, as an important branch of Mathematics, enables students to collect, organize, analyze, and interpret numerical data. It builds the foundation for higher mathematical studies and real-life decision-making skills.

However, students often face difficulties in understanding statistical concepts due to abstract procedures and lack of visualization. In traditional classrooms, teaching mainly relies on lecture methods, which may not address diverse learning needs. As a result, students develop fear and low confidence in solving statistical problems.

This research explores how carefully planned intervention strategies can bridge conceptual gaps and enhance students' understanding through interactive and activity-based methods.

REVIEW OF RELATED LITERATURE

Research in Mathematics education emphasizes the importance of student-centered teaching.

Sharma (2019–2020) identified that students face difficulty in arranging raw data and calculating mean due to weak arithmetic skills.

Verma (2020–2021) found that activity-based learning significantly improved students' achievement in Statistics and increased classroom engagement.

Patel (2021–2022) concluded that intervention strategies help students improve graph interpretation skills and conceptual clarity.

Kulkarni (2022–2023) highlighted the importance of visual aids and worksheets in strengthening students' understanding of frequency tables and graphs.

The present study integrates multiple strategies within a structured intervention model to enhance conceptual learning in Statistics among Standard VIII students.

RESEARCH OBJECTIVES

- To identify specific learning difficulties faced by students in Statistics.
- To design and implement suitable pedagogical interventions.
- To evaluate the effectiveness of these interventions in improving conceptual clarity.
- To provide recommendations for improving Mathematics instruction.

RESEARCH METHODOLOGY

The present study was conducted with 30 students of Standard VIII from Madni High School, Jogeshwari (West), Mumbai. The research followed a pre-test and post-test experimental design. A pre-test was conducted to identify students' difficulties in learning Statistics. After implementing an intervention programme using activity-based teaching methods, a post-test was conducted to measure improvement. The data were analyzed using percentages, averages and graphical representation.

INTERVENTIONS

The intervention programme was conducted over two weeks and included:

1. PPT Presentation: Visual explanation of frequency tables, mean formula, and subdivided bar graphs.
2. Data Collection Activity: Students arranged raw data and prepared frequency tables using tally marks.
3. Mean Calculation Game: Interactive activity using number cards to calculate mean correctly.
4. Graph Interpretation Task: Students created and solved questions based on subdivided bar graphs.

Each activity was designed considering visual, auditory, and kinesthetic learning styles.

SAMPLE AND TOOLS

The sample size was limited to 30 students due to the action research scope, selected through purposive sampling. Tools included:

Pre-Test and Post-Test: Designed to assess students' understanding of Statistics concepts such as raw data, frequency table, mean calculation and subdivided bar graph.

Student Questionnaire: Collected feedback on learning difficulties faced by students and their experience during the intervention programme.

Observation Checklist: Recorded students' engagement, participation and responses during classroom activities.

DATA ANALYSIS AND FINDINGS

Pre-Test Results

- Average Score: 9.9/20 (49.5%)
- Majority scored between 5–15 marks
- Indicated moderate understanding and conceptual confusion

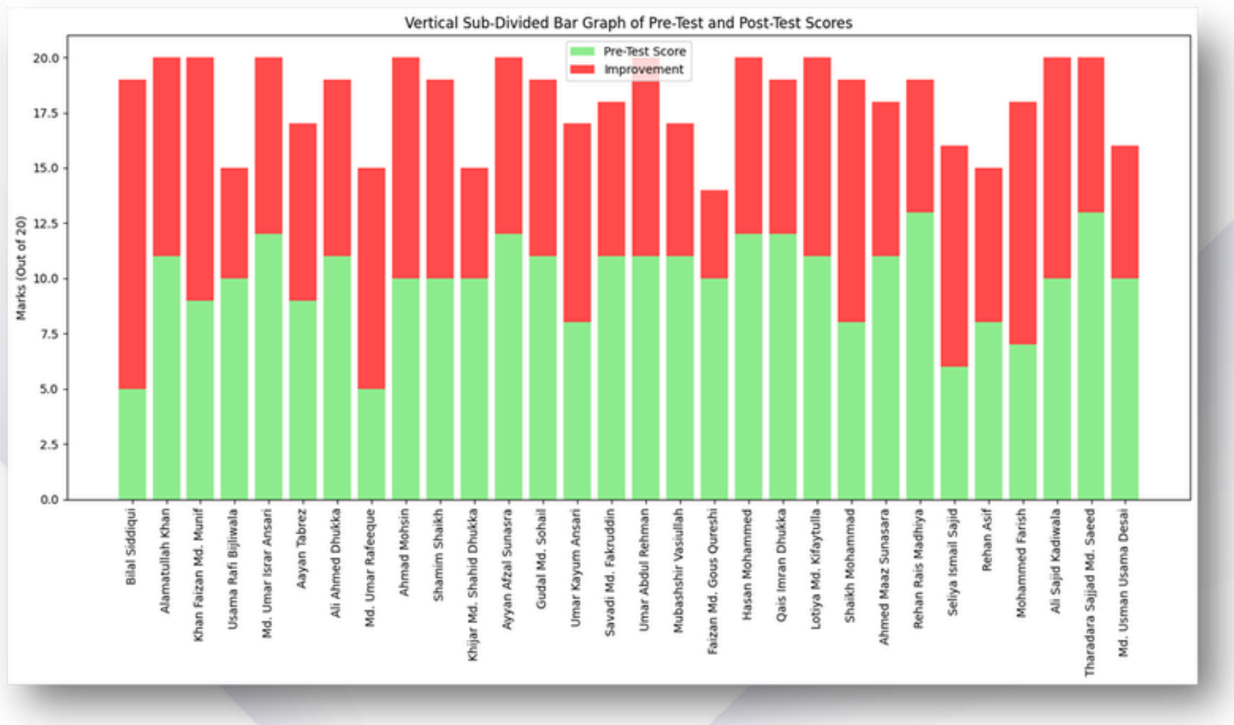
Post-Test Results

- Average Score: 18/20 (90.6%)
- 83% students scored between 15–20 marks
- Significant improvement in calculation and graph interpretation

The average improvement was 8.23 marks, showing strong academic progress.

GRAPHICAL REPRESENTATION:

A comparative bar graph of pre-test and post-test scores was prepared to highlight the improvement in students' performance. The graphical representation clearly showed a significant increase in scores after the implementation of the intervention programme, confirming the effectiveness of the teaching strategies.



DISCUSSION

The increase in average scores from 49.5% to 90.6% demonstrates the positive impact of interactive and activity-based teaching strategies. The combination of visual representation, peer learning, and structured practice helped students overcome fear and confusion related to statistical calculations.

The results support constructivist learning theory, which emphasizes active participation and experiential learning. The structured intervention allowed step-by-step conceptual development and enhanced students' confidence.

RECOMMENDATIONS

For Students

- Practice statistical problems regularly.
- Participate actively in classroom activities.
- Use visual tools like charts and graphs for better understanding.

For Teachers

- Adopt activity-based teaching strategies.
- Use multimedia and visual aids for abstract concepts.
- Conduct regular formative assessments.

For Schools

- Provide digital learning tools in classrooms.
- Encourage collaborative and project-based learning.
- Organize workshops on innovative teaching methods.
-

CONCLUSION

The study validates that targeted pedagogical interventions significantly improve students' understanding of Statistics. The remarkable improvement in post-test scores confirms the effectiveness of structured, student-centered teaching methods.

The research highlights the importance of moving beyond traditional lecture methods toward interactive and application-based pedagogy in Mathematics education.

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A STUDY OF THE EFFECTIVENESS OF INTERVENTION ON THE DIFFICULTIES ENCOUNTERED IN LEARNING WRITTEN SOURCES IN THE HISTORY SUBJECT OF STD VI STUDENTS

SHAIKH RABIA NISAR AHMED R
RESEARCH GUIDE: DR. VARSHA MARU

ABSTRACT:
THIS ACTION RESEARCH STUDY EXAMINES THE EFFECTIVENESS OF TEACHING INTERVENTIONS IN IMPROVING STUDENTS' UNDERSTANDING OF WRITTEN SOURCES IN HISTORY AMONG STANDARD VI STUDENTS. MANY STUDENTS FACE DIFFICULTY IN IDENTIFYING AND UNDERSTANDING DIFFERENT TYPES OF WRITTEN SOURCES SUCH AS MANUSCRIPTS, INSCRIPTIONS, AND OFFICIAL RECORDS. A PRE-TEST WAS CONDUCTED TO IDENTIFY LEARNING DIFFICULTIES. INTERVENTION STRATEGIES SUCH AS USE OF CHARTS, PICTURES, GROUP DISCUSSION STORYTELLING, AND ACTIVITY-BASED LEARNING WERE IMPLEMENTED. A POST-TEST WAS CONDUCTED TO MEASURE IMPROVEMENT. THE FINDINGS SHOWED BETTER UNDERSTANDING AND INCREASED INTEREST INHISTORY. THE STUDY CONCLUDES THAT INTERACTIVE AND VISUAL TEACHING METHODS ENHANCE CONCEPTUAL LEARNING.THIS ACTION RESEARCH STUDY EXAMINES THE EFFECTIVENESS OF INSTRUCTIONAL INTERVENTIONS IN ADDRESSING DIFFICULTIES FACED BY STANDARD VI STUDENTS IN LEARNING WRITTEN SOURCES IN THE HISTORY SUBJECT. MANY STUDENTS FIND IT CHALLENGING TO IDENTIFY, UNDERSTAND, AND DIFFERENTIATE BETWEEN VARIOUS TYPES OF WRITTEN SOURCES SUCH AS MANUSCRIPTS, INSCRIPTIONS, AND OFFICIAL RECORDS. TO IDENTIFY THESE DIFFICULTIES, A PRE-TEST WAS CONDUCTED. AFTER THE IMPLEMENTATION OF THE INTERVENTION, A POST-TEST WAS CONDUCTED TO ASSESS IMPROVEMENT IN STUDENTS' UNDERSTANDING.THE COMPARISON OF PRE-TEST AND POST-TEST RESULTS SHOWED SIGNIFICANT IMPROVEMENT IN STUDENTS'SCORES, PARTICIPATION, AND CONFIDENCE. STUDENTS WERE ABLE TO CORRECTLY IDENTIFY TYPES OF WRITTEN SOURCES AND EXPLAIN THEIR IMPORTANCE WITH EXAMPLES.THE FINDINGS OF THE STUDY INDICATE THAT ACTIVITY-BASED AND STUDENT-CENTERED TEACHING STRATEGIES ARE EFFECTIVE IN ENHANCING CONCEPTUAL LEARNING IN HISTORY.

KEYWORDS: WRITTEN SOURCES, HISTORY EDUCATION, ACTION RESEARCH, TEACHING INTERVENTIONS,CONCEPTUAL LEARNING, ACTIVE LEARNING, STANDARD VI STUDENTS.

INTRODUCTION:

History is an important subject that helps students understand past events, cultures, and civilizations. The study of History depends on different types of sources, especially written sources such as manuscripts, inscriptions, letters, government records, and historical documents. These sources provide reliable information about the past and help historians construct historical narratives.However, students of Standard VI often face difficulties in understanding the concept of written sources. They may struggle to identify different types of written sources, differentiate between them, or understand their importance. Traditional lecture-based teaching methods sometimes fail to create interest and conceptual clarity.Therefore, this action research was conducted to improve students' understanding of written sources in History by using interactive and activity-based teaching strategies. The study aims to enhance students' learning outcomes and make History more interesting and meaningful.

LITERATURE REVIEW:

Dr. Anjali Sharma (2020) Topic: Teaching History to Class VI Students Objectives: To study teaching methods of history. To identify difficulties faced by students. To suggest better teaching strategies. Findings: Simple language improves understanding. Pictures, maps, and charts help visualization. Storytelling and activities increase interest. Revision and discussion improve memory.

Dr. Sunita Verma (2019) Topic: Teaching and Learning of History at Upper Primary Level Objectives: To study teaching methods used by teachers. To check students' understanding of history. To suggest engaging teaching strategies. Findings: Storytelling and discussion improve learning. Visual aids help students remember facts. Activity-based teaching increases participation and interest.

Dr. Ravi Kumar (2018) Topic: Methods of Teaching Ancient History in Upper Primary Schools Objectives: To examine teaching methods of ancient history. To identify effective teaching techniques. To suggest ways to improve interest. Findings: Story-based teaching is better than memorization. Timelines and maps improve understanding. Group work and role-play increase engagement.

OBJECTIVES OF RESEARCH:

To find students their problems and reasons behind the difficulties encountered in learning Types of Industrial Unemployment in History Subject of Standard 6th Students To develop and implement the interventions on the difficulties encountered in learning Types of Industrial Unemployment in History Subject of Standard 6th Students To find the effectiveness of the interventions on the difficulties encountered in learning Types of Industrial Unemployment in History Subject of Standard 6th

METHODOLOGY RESEARCH:

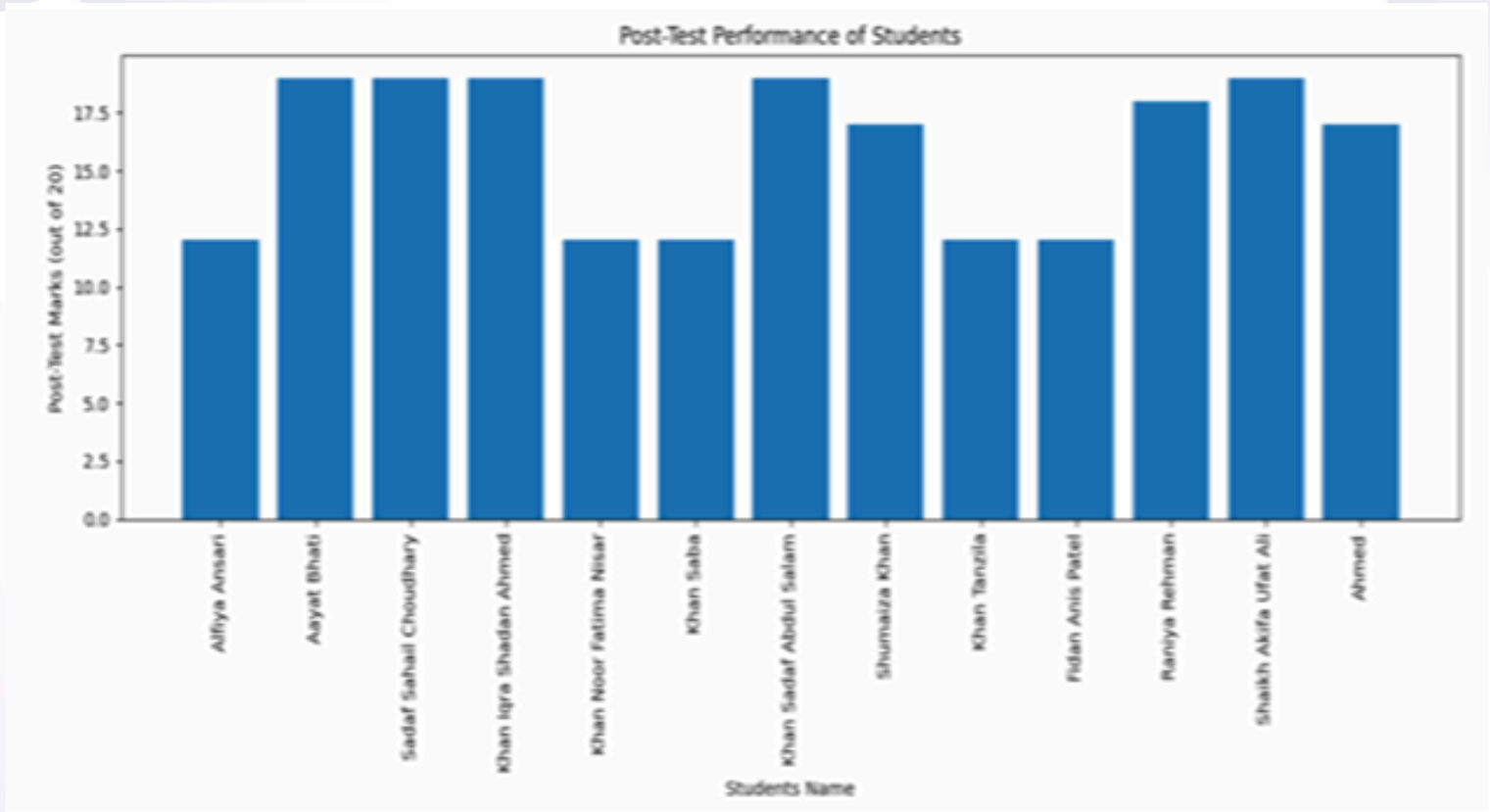
The study adopted the Experimental Method using a Single Group Pre-Test and Post-Test Design.
The sample consisted of 20 students of Class VI selected through purposive sampling. The independent variable was the intervention strategy, and the dependent variable was students' academic achievement. Tools used for data collection included achievement tests, observation, and questionnaires. Statistical techniques such as mean and percentage were applied to analyze the data. The intervention program included PPT, Quiz, mind map and identify to reinforce conceptual clarity.

INTERVENTIONS:

Activity 1: Teacher explained written sources using PPT.
Activity 2: Students answered quiz questions.
Activity 3: Students made a mind map.
Activity 4: Students identified pictures of written sources.

DATA ANALYSIS AND GRAPH:

Pre-test average:58.5%
Post-test average:79.6%
Improvement: Mean gain of 21. %1 marks
A bar graph showed a significant increase in scores, with all students scoring above 60% post intervention.



CONCLUSION:

Parents play an important role in developing a child's interest in History. With proper guidance, encouragement, and support, children can understand historical events in a meaningful and interesting way. History is not just about remembering dates and facts; it helps children learn about culture, values, and the lessons of the past.When parents actively participate in their child's learning by discussing topics, visiting historical places, and connecting history to daily life, it makes the subject more enjoyable and easier to understand. With continuous support and motivation, children can build strong knowledge and develop critical thinking skills through History.Therefore, active involvement, guidance, and encouragement from parents can greatly improve a child's interest and performance in History. With proper support, children can not only score well in exams but also gain knowledge that helps them become informed and responsible citizens in the future. Moreover, when parents guide children in doing projects, preparing timelines, reading biographies, or visiting historical monuments, learning becomes practical and enjoyable. Such involvement not only improves academic performance but also builds analytical and thinking skills. A positive and supportive home environment helps children feel confident in expressing their ideas and asking questions. Encouragement from parents reduces fear of difficult topics and motivates children to explore more. Therefore, continuous guidance, motivation, and active participation from parents can greatly enhance a child's understanding and love for History. With strong parental support, children can develop into knowledgeable, responsible, and culturally aware individuals who value the lessons.

RECOMMENDATIONS:

A) For Students Active Participation: Take part actively in classroom activities. Daily Revision: Revise lessons daily at home. Ask Teachers: Clear doubts with your teachers. Real-Life Connection: Relate history topics to current events and real-life situations. Use Multimedia: Learn through videos, documentaries, and online resources. Group Work: Participate in group discussions and projects. Use Technology: Use educational apps and online platforms for better understanding.

B) For Teachers Use Activities: Conduct debates, quizzes, and case studies to create interest. Student-Centered Methods: Teach according to students' level and interests. Interactive Lectures: Use polls, quizzes, and discussions during teaching. Visual Aids: Use charts, diagrams, and presentations to explain topics clearly.

C) For Parents Encourage Curiosity: Discuss historical events and ask open-ended questions. Support Learning: Provide books and educational materials. Connect to Daily Life: Relate history to traditions and current events. Watch Videos: Watch educational programs together.

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A STUDY OF EFFECTIVENESS OF INTERVENTIONS OF DIFFICULTIES ENCOUNTERED IN LEARNING THE CONCEPTS OF CIRCLE IN MATHEMATICS SUBJECT OF STANDARD VIII STUDENTS

LUBNA SHAIKH

RESEARCH GUIDE: DR. MADHURI BENDALE

ABSTRACT:

THE PRESENT ACTION RESEARCH WAS CONDUCTED TO STUDY THE EFFECTIVENESS OF ACTIVITY-BASED INTERVENTIONS IN REDUCING LEARNING DIFFICULTIES ENCOUNTERED BY STANDARD VIII STUDENTS IN UNDERSTANDING THE CONCEPTS OF CIRCLE IN MATHEMATICS. THE STUDY WAS CARRIED OUT IN MADNI HIGH SCHOOL WITH A SAMPLE OF 20 STUDENTS SELECTED THROUGH PURPOSIVE SAMPLING. A SINGLE GROUP PRE-TEST AND POST-TEST EXPERIMENTAL DESIGN WAS USED. THE PRE-TEST REVEALED THAT STUDENTS HAD DIFFICULTIES IN IDENTIFYING PARTS OF A CIRCLE SUCH AS CENTRE, RADIUS, DIAMETER, CHORD, ARC AND CIRCUMFERENCE, AND ALSO FACED PROBLEMS IN APPLYING RELATED FORMULAS. BASED ON THESE FINDINGS, AN INTERVENTION PROGRAMME CONSISTING OF VIDEO PRESENTATION ON CIRCLE CONCEPTS, IDENTIFY AND LABEL THE PARTS OF A CIRCLE ACTIVITY, FORMULA APPLICATION ACTIVITY, AND CREATE YOUR OWN QUESTIONS ACTIVITY WAS IMPLEMENTED. AFTER THE INTERVENTION, A POST-TEST WAS ADMINISTERED TO MEASURE IMPROVEMENT. THE RESULTS INDICATED SIGNIFICANT IMPROVEMENT IN STUDENTS' ACHIEVEMENT SCORES AND CONCEPTUAL CLARITY.THE AVERAGE POST-TEST PERCENTAGE INCREASED TO 87%, DEMONSTRATING THE EFFECTIVENESS OF ACTIVITY-BASED LEARNING.THE STUDY CONCLUDES THAT WELL-PLANNED, STUDENT-CENTERED INTERVENTIONS ENHANCE ENGAGEMENT, UNDERSTANDING,AND ACADEMIC PERFORMANCE IN MATHEMATICS.

KEYWORDS:

CIRCLE, MATHEMATICS, INTERVENTION, ACTIVITY

INTRODUCTION:

Education plays a vital role in shaping learners' intellectual and analytical abilities. Mathematics,being a foundational subject, develops logical reasoning and problem-solving skills. However, many students experience difficulties in understanding geometric concepts due to abstract presentation and lack of visualization. One such important topic in Standard VIII Mathematics is Circle.During regular classroom teaching, it was observed that students faced confusion in differentiating between centre, radius, diameter, chord, arc and circumference. They also committed errors while applying formulas for circumference and diameter. Most students relied on memorization rather than conceptual understanding.

NEED AND SIGNIFICANCE OF THE STUDY

The need for the present study arose from the observed learning difficulties among students in understanding circle concepts. Traditional lecture methods did not ensure clarity of understanding. Students showed low participation and hesitation while solving numerical problems. Therefore, there was a need to introduce activity-based and visual learning strategies to enhance engagement and conceptual clarity.

OBJECTIVES OF THE STUDY

1. To identify the difficulties faced by students in learning the concepts of Circle.
2. To develop and implement suitable interventions to overcome these difficulties.
3. To study the effectiveness of activity-based interventions in improving achievement.

RESEARCH METHODOLOGY

The present study is Action Research in nature. A single group pre-test and post-test experimental design was adopted. The population consisted of 40 students of Standard VIII in Madni High School. Out of them, 20 students were selected using purposive sampling technique.

VARIABLES Independent Variable: Activity-based intervention programme. Dependent Variable: Students' achievement and conceptual understanding of Circle.

TOOLS USED

Pre-test and Post-test Achievement Test Observation Checklist

INTERVENTION PROGRAMME

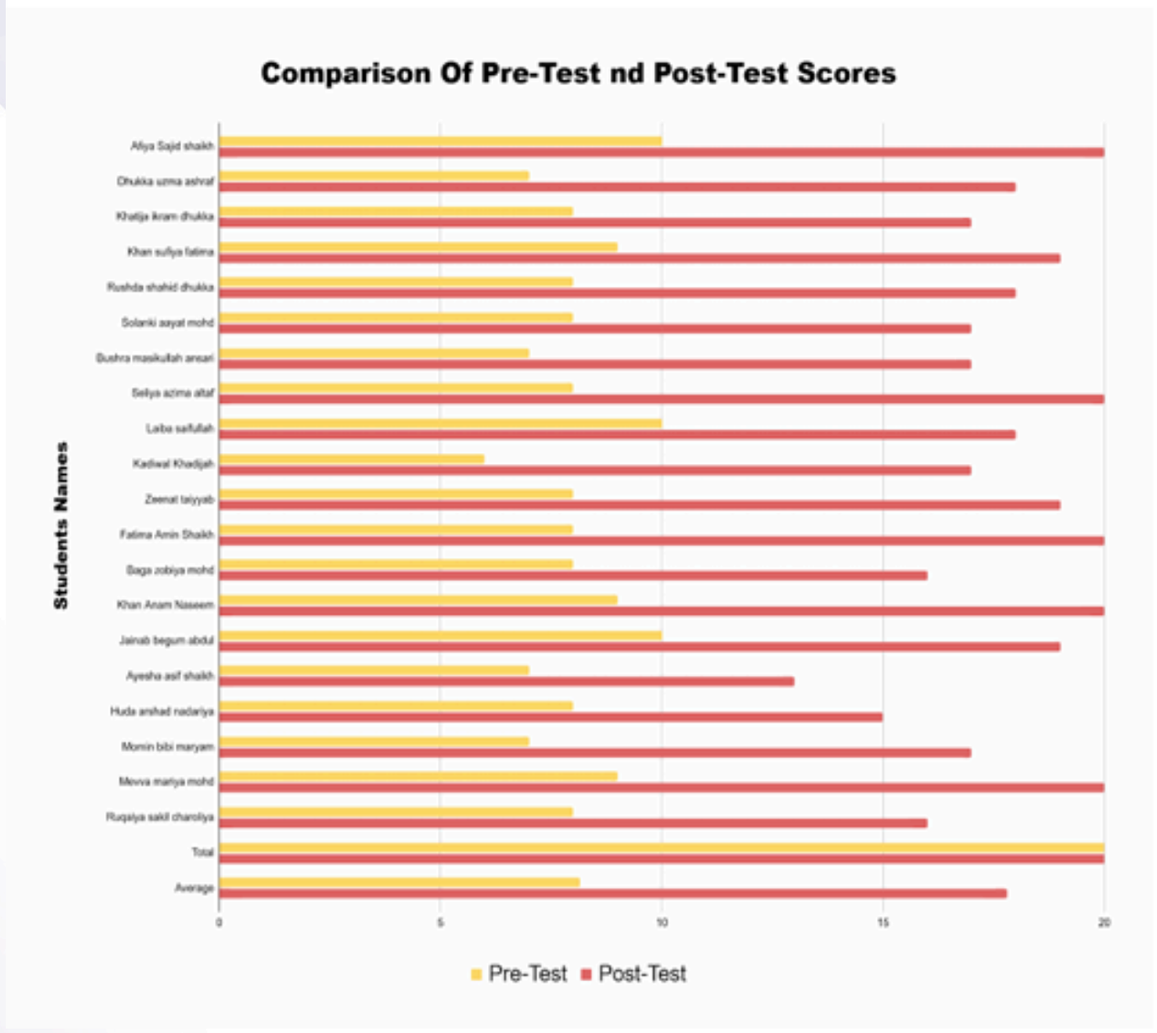
The following activities were conducted:

1. Video Presentation on Circle Concepts – Visual explanation of parts of a circle.
2. Identify and Label the Parts of a Circle – Worksheet-based diagram activity.
3. Formula Application Activity – Students calculated circumference using number cards.
4. Create Your Own Questions – Students framed and solved their own circle problems.

DATA ANALYSIS

In the pre-test, students showed limited understanding with low average scores i.e:38.74%.After implementation of the intervention programme, the post-test average percentage increased to 87%.

The improvement clearly indicated enhanced conceptual clarity and confidence in solving problems.



FINDINGS

- Students were able to correctly identify and label parts of a circle.
- Students showed improvement in applying formulas accurately.
- Active participation increased during classroom activities. Students demonstrated better reasoning and analytical skills.

CONCLUSION

The findings of the study indicate that activity-based teaching methods significantly reduce learning difficulties in Mathematics. The intervention programme helped students develop conceptual clarity and confidence. The average post-test score (80%) shows substantial improvement compared to the pre-test. Therefore,activity-based learning is effective in enhancing understanding of Circle concepts.

RECOMMENDATIONS

Teachers should incorporate visual aids, worksheets, collaborative activities and problem-framing exercises in Mathematics classrooms. Students should actively participate and practice regularly to strengthen their understanding.The study recommends wider application of activity-based interventions in teaching geometric concepts.

A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING ARTICLES IN ENGLISH GRAMMAR AMONG STANDARD VI SSC STUDENTS

AYEDA SHAIKH

RESEARCH GUIDE: DR. AVANI KANAKIA

ABSTRACT

This Action Research study was conducted to improve the understanding and correct usage of Articles among the 6th-grade SSC students. Articles are an essential part of English grammar, yet students often face difficulties in applying them correctly in sentence formation. The study aimed to identify common errors, implement suitable teaching strategies, and evaluate improvement in students' performance. A sample of 30 students was selected. A pre-test was conducted to assess prior knowledge, which revealed frequent mistakes in the use of articles. Various learner-centred strategies such as activity-based learning, worksheets, visual aids and group activities were implemented after the intervention, a post test conducted, which showed significant improvement in students; grammatcical acciracuy an d confidence. The study concludes that interactive teaching methods effectively enhance grammar learning among middle school students.

KEYWORDS:

English Grammar, Activity Based Learning, Lerner Centered Strategies,

INTRODUCTION:

English grammar forms the foundation of language learning. Articles (A, An, The) are determiners used before nouns to indicate specificity.

While teachingClass 6 SSC students, it was observedthat many students
omitted articles or used them incorrectly. They were confusedbetween vowel sounds and consonant sounds and struggled with the correct use of "the."
Therefore, this actionresearch was undertaken to address theseissues and improve students' grammatical accuracy.

NEED AND SIGNIFICANCE OF THE STUDY

Students frequently made mistakes in written work. Incorrect usage affected sentence clarity.
Articles are basicgrammar concepts necessary for higher classes. Improving grammar enhances communication skills.
This study is significant because it promotes better understanding and long-term retention of grammar concepts through activity-based learning.

REVIEW OF RELATED LITERATURE

According to MichaelSwan, articles are among the most challenging grammar elements because their use depends on context and meaning rather than fixed rules.
H. Douglas Brown emphasizes that grammar teaching becomes effective when students actively participate in contextual learningrather than memorizing rules.
Research studies suggest that interactive strategies, worksheets, and peer learning significantly improvegrammatical accuracy among middle school learners.

RESEARCH OBJECTIVES

To identifydifficulties faced by students in using articles.
To improveunderstanding of rulesrelated to A, An, and The. To enhance correct usage in writing and speaking.
To increasestudents' confidence in English communication.

RESEARCH METHODOLOGY

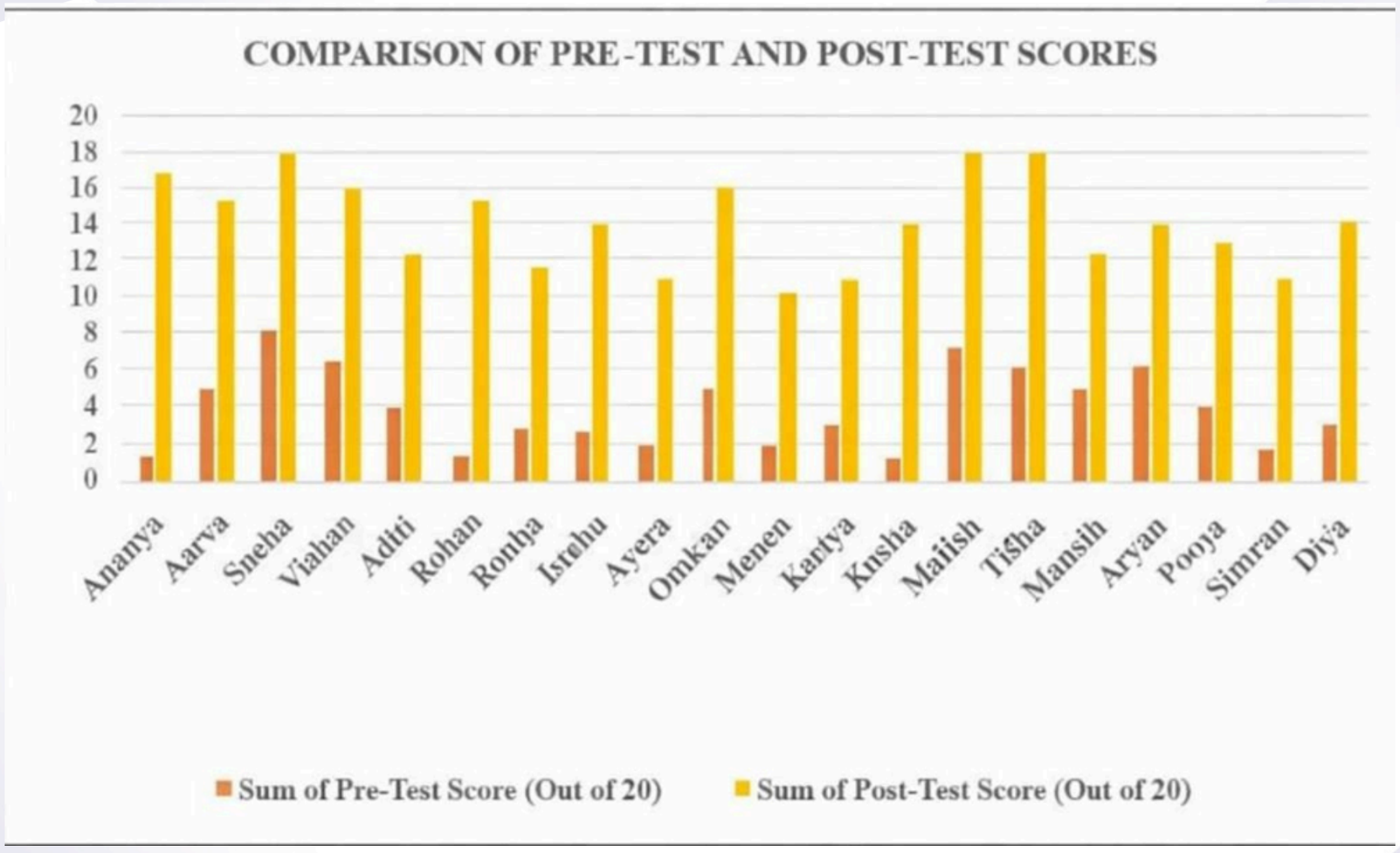
Type of Research: Action Research Sample: 30 studentsof Class 6 SSC Tools Used:
Pre-test and Post-test Worksheets
Observation method Oral questioning Duration: 1 week
A pre-testwas conducted to assess initialunderstanding. After implementing the intervention plan, a post-test was conducted to measure improvement.

INTERVENTION (ACTION PLAN)

Based on identified problems, the followingstrategies were implemented: Explanation of Rules with Examples
A before consonant sounds (a book) An before vowel sounds (an orange)
The for specific or unique nouns (the sun)

USE OF TEACHING AIDS

·Charts and flashcards	·Blackboard demonstrations	Activity-Based Learning
·Fill in the blanks	·Picture description	·Article card game
Group Work	·Sentence formation activity	·Peer correction



DATA ANALYSIS AND GRAPH

●Pre-Test Average: 7.0. %

● Post-Test Average: 15.

The data indicates that the class average increased by 8 marks, which shows significant improvement after the intervention. In percentage terms,students' performance

After implementing activity-based teaching methods, visual aids, worksheets, and group work, students demonstrated:

Better conceptual clarity, fewer grammatical errors

Improved confidence in sentence formation

The improvement in average scores from 7.0 to 15.0 proves that the intervention strategies were effective. It also highlights the importance of learner-centred and practice-oriented methods in teaching grammar at the middle school level.

FINDINGS AND DISCUSSION

Pre-test results showed frequent errors in article usage. Students were confused about vowel sounds.

After the intervention, post-test scores improved significantly. Students showed better participation and confidence.

Most errors related to "a" and "an" were reduced. Minor confusion remained in the use of "the."

The findings indicate that activity-based and learner-centred approaches are effective in grammar teaching.

CONCLUSION

The action research successfully improved students' understanding of articles. Interactive strategies, continuous practice, and visual aids helped studentsgrasp the concept clearly.

It is concluded that grammar should be taught through participation and practical activities rather than traditional lecture methods. This approach enhances both understanding and confidence among learners.

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A STUDY ON THE EFFECT OF INTERVENTIONS ON DIFFICULTIES SENCOUNTERED IN LEARNING PLANT STRUCTURE IN SCIENCE SUBJECT AMONG STANDARD VII STUDENTS

FARAHANA SAYYED
RESEARCH GUIDE- PROF. SANDHYA SARWADE

ABSTRACT

The present study investigates students' mental models of plants through an analysis of This study investigates the effectiveness of pedagogical interventions in addressing conceptual difficulties faced by Standard VII students in understanding plant structure in science. Students often struggle to identify plant parts and understand their functions due to lack of practical exposure. A sample of 20 students from Holy Prophet English School, Malad, was selected, and a pre-test was conducted to identify their difficulties. Based on the findings, intervention strategies such as observation of real plants, model demonstration, diagram labeling, and quiz-based discussions were implemented. The post-test results showed significant improvement in students' conceptual understanding and academic performance. The findings indicate that activity-based and visual teaching methods are effective in enhancing science learning.

KEYWORDS:

Plant Structure, Pedagogical Interventions, Conceptual Learning, Activity-Based Learning, Science Education, Visual Learning

INTRODUCTION

Plants are essential for humans and play a fundamental role in supporting life on Earth Plant structure is a fundamental topic in middle school science that helps students understand the organization and functioning of plants. It includes parts such as roots, stem, leaves, flowers, fruits, and seeds, each having specific functions. However, students often face difficulties in identifying plant parts, understanding their functions, and relating structure to function.

Traditional teaching methods mainly focus on textbook explanations, which may not provide sufficient practical exposure. As a result, students develop incomplete understanding and misconceptions. Activity-based teaching methods such as observation of real plants, use of models, diagrams, and interactive activities can improve conceptual clarity.

This action research aims to enhance students' understanding of plant structure by using active learning strategies such as real plant observation, model demonstration, labeling activities, and quizzes. The study examines how these interventions help improve conceptual understanding and student engagement.

LITERATURE REVIEW

Previous studies have highlighted the importance of activity-based learning in science education. Research by Bransford et al. (2000) emphasized that hands-on learning improves conceptual understanding. Studies by NRC (2006) showed that visual aids, models, and real-life observations significantly improve students' knowledge of biological structures.

Similarly, practical demonstrations and interactive methods help students connect theoretical knowledge with real-world examples. This study contributes by applying such interventions in a real classroom setting to improve students' understanding of plant structure.

METHODOLOGY

This study uses an experimental research design to evaluate the effectiveness of instructional interventions in addressing the learning difficulties faced by Standard VII students in understanding plant structure.

The research was conducted with a purposive sample of 20 students studying Science.

1. **Participants**

20 students from Standard VII of Holy Prophet English School, Malad (English medium, Maharashtra State Board).

2. **Research Design**

A pre-test–intervention–post-test model was used.

·A diagnostic test (pre-test) was conducted to identify students' difficulties in understanding plant structure.

·Intervention strategies were implemented using activity-based teaching methods.

·A post-test was conducted to measure improvement in students' understanding.

3. **Tools Used** 🧪

·Pre-Test and Post-Test (achievement tests out of 20 marks)

·Observation checklist

·Teaching aids such as plant samples, charts, models, and digital presentations

·Worksheets and quizzes

4. **INTERVENTION STRATEGIES**

The following teaching interventions were used:

·Observation of real plants to identify parts

·Model demonstration of plant structure

·Diagram labeling activities

·Group discussions

·Use of charts and digital presentations

·Quiz-based revision

These strategies helped students actively participate and improve their understanding.

RESULTS

The study aimed to evaluate the effect of interventions on overcoming difficulties in learning Plant Structure among Standard VII Science students. A total of 20 students participated in both pre-test and post-test assessments.

Test	Average Score (Out of 20)	Percentage
Pre-Test	5.9	29.5%
Post-Test	17.7	88.5%
Average Gain	11.8	59%

All students showed improvement in their scores. The lowest scorer in the pre-test (4 marks) improved to 16 marks in the post-test.

DISCUSSION

The pre-test results revealed that students had limited conceptual understanding of plant structure. Many students faced difficulty in identifying plant parts and understanding their functions.
After the intervention, students demonstrated significant improvement in conceptual understanding. Real plant observation and model demonstration helped students visualize plant parts clearly. Charts and diagram labelling activities helped reinforce their knowledge.
Interactive teaching methods increased student engagement, participation, and retention. Students became more confident in identifying plant parts and explaining their functions.

CONCLUSION

The study concludes that a structured intervention program using activity-based and visual teaching methods significantly improves students' understanding of plant structure in Standard VII science.
The intervention strategies helped students overcome learning difficulties and improved their academic performance. This action research highlights the importance of innovative and interactive teaching methods in improving science learning and conceptual understanding.

RECOMMENDATIONS

·Teachers should use real plant samples, models, and charts while teaching plant structure.
·Activity-based learning should be regularly included in science teaching.
·Group discussions and quiz activities should be used to improve conceptual clarity.
·Schools should provide visual aids and practical learning opportunities.
·Science concepts should be taught using student-centred teaching methods.

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A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING SOLAR AND LUNAR ECLIPSE IN EARTH PHYSICS FOR STANDARD VII STUDENTS

SAYYED AIMAN MOHAMMAD WASI
RESEARCH GUIDE: DR. SANDHYA SARWADE

ABSTRACT

The present study examines the effectiveness of selected teaching interventions in overcoming the learning difficulties encountered by Standard VII students in understanding Solar and Lunar Eclipse concepts in Earth Physics. These topics involve abstract ideas such as celestial alignment, shadow formation, and relative motion, which often lead to misconceptions. A single-group pre-test post-test experimental design was adopted with a sample of 15 students. The pre-test results revealed low conceptual understanding, with an average score of 22.66%. After the pre-test, the teacher conducted four classroom activities: PowerPoint presentations, quizzes, riddles, and audiovisual teaching through educational videos on solar and lunar eclipses. Following the intervention, the post-test average increased to 88.33%, indicating significant improvement. The findings suggest that student-centered and multimedia-supported teaching strategies are effective in enhancing students' conceptual understanding and interest in science learning.

KEYWORDS:

Solar Eclipse, Lunar Eclipse, Teaching Interventions, Conceptual Understanding, Quizzes, riddles, Student Learning Difficulties.

INTRODUCTION:

Science education at the upper primary level plays a vital role in developing students' scientific thinking and understanding of natural phenomena. Among Earth and space science topics, solar and lunar eclipses hold special importance as they explain the movement and interaction of the Sun, Earth, and Moon.

These topics are significant because they help students connect classroom learning with real-world astronomical events and strengthen their scientific reasoning. However, solar and lunar eclipses are abstract in nature and cannot be observed regularly, which often leads to misconceptions related to celestial alignment, shadow formation, and the differences between the two types of eclipses. This creates a strong need for effective, student-centred, and multimedia-based teaching strategies to promote conceptual clarity.

Therefore, the present action research aims to identify the learning difficulties faced by Standard VII students in understanding solar and lunar eclipse concepts and to study the effectiveness of selected teaching interventions in improving their conceptual understanding and interest in science.

LITERATURE REVIEW:

Padalkar and Ramadas (2008) found that middle-school students often hold misconceptions about the Sun–Earth–Moon system due to reliance on non-scientific models and prior experiences. The study highlighted the need for teaching strategies that support visuospatial understanding.

Radhakrishnan (2013) reported that a majority of high school students in Kerala exhibited misconceptions about astronomical concepts such as eclipses and planetary motion, mainly due to limited observation and insufficient scientific instruction.

Maji, More, Sule, et al. (2024) observed significant gaps in students' understanding of basic astronomy concepts across India, including lunar phases and celestial relationships, despite high interest in the subject, indicating a need for improved instructional support.

OBJECTIVES OF THE STUDY:

·To identify the learning difficulties faced by students in understanding the concepts of Solar and Lunar Eclipse.
·To design and implement suitable teaching interventions to address these difficulties.
·To evaluate the effectiveness of the selected teaching strategies in improving students' conceptual understanding.

RESEARCH METHODOLOGY:

The study was conducted with 15 Standard VII students from a secondary school. The research design adopted for the present study was Action Research using a single-group pre-test post-test experimental method.

The sample was selected through random sampling. The tools used for data collection were a structured pre-test and post-test to assess students' understanding of solar and lunar eclipse concepts.

The data collected were analyzed using percentage and graphical representation to compare pre-test and post-test performance and to evaluate the effectiveness of the teaching interventions.

INTERVENTION STRATEGIES:

·PowerPoint Presentation: Slides were used to explain the concepts of solar and lunar eclipses with the help of diagrams, charts, and illustrations.

·Audiovisual Learning: Educational videos on solar and lunar eclipses were shown to improve visualization and conceptual clarity.
·Quizzes: Interactive quizzes were conducted to assess students' understanding and reinforce learning in an engaging manner.

·Riddles: Concept-based riddles were used to stimulate thinking and increase student participation. Each intervention was designed according to students' learning styles and implemented over a period of two weeks.

SAMPLE AND TOOLS:

The sample size was limited to 15 Standard VII students due to the action research scope and was selected through random sampling. The tools used for data collection included:

·Pre-Test and Post-Test: Designed to assess students' understanding of solar and lunar eclipse concepts, including celestial alignment, and differences between the two types of eclipses.

DATA ANALYSIS AND FINDINGS PRE-TEST RESULTS:

·The average score obtained by students in the pre-test was 4.53 out of 20 (22.66%).

·Most students scored between 0–7 marks, indicating low conceptual understanding.

·Students showed difficulties in understanding celestial alignment, shadow formation, and differences between solar and lunar eclipses.

Post-Test Results:

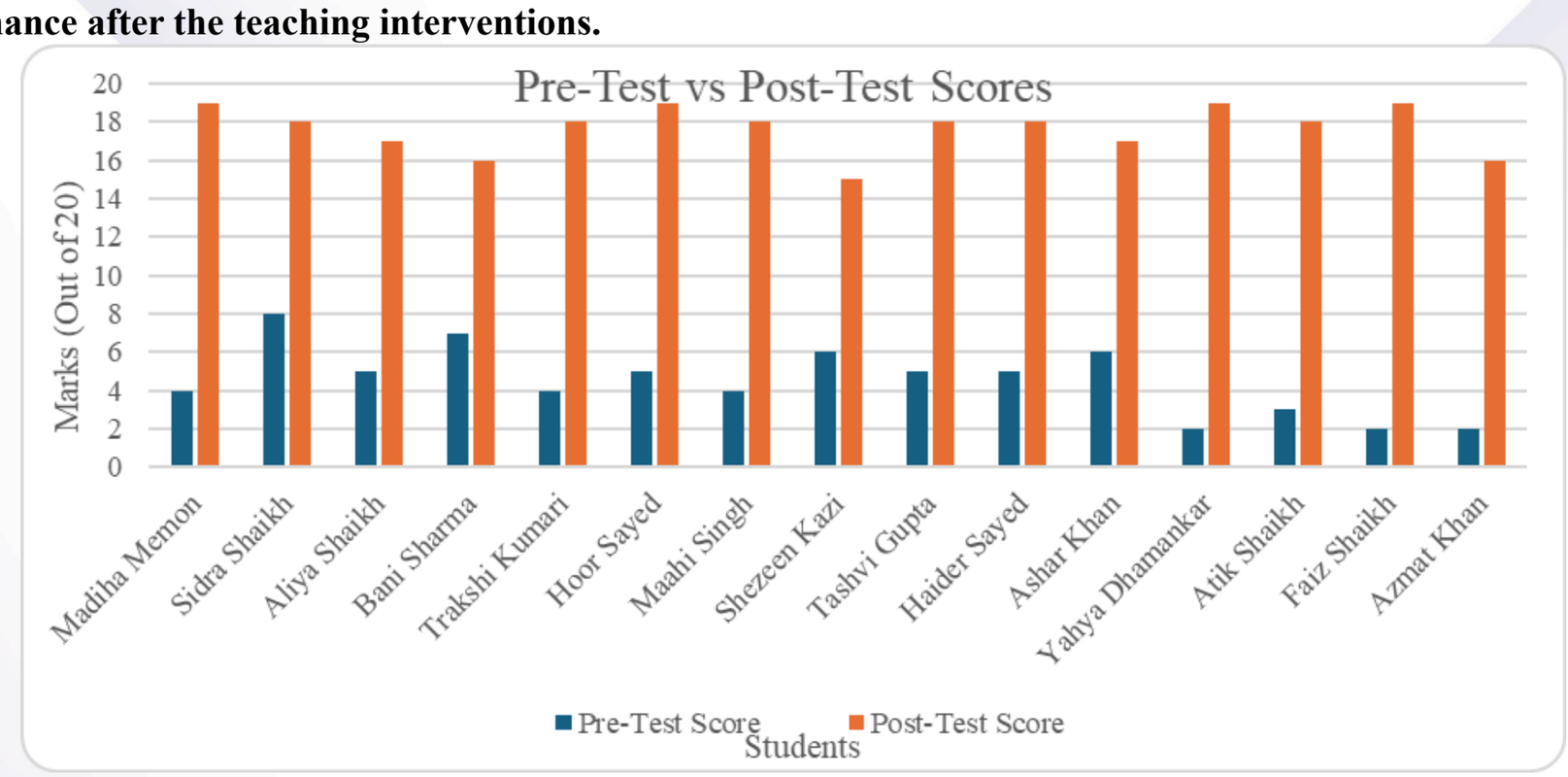
·The average score obtained by students in the post-test was 17.66 out of 20 (88.33%).

·A majority of students scored between 15–20 marks, showing a high level of achievement.

·The results indicated a significant improvement in students' understanding after the intervention.

GRAPHICAL REPRESENTATION:

A comparative bar graph was used to represent the pre-test and post-test scores of students. The graph clearly shows a significant improvement in students' performance after the teaching interventions.



DISCUSSION:

The improvement in average scores from 22.66% to 88.33% clearly indicates the effectiveness of the teaching interventions used in this study. The combination of PowerPoint presentations, audiovisual resources, quizzes, and riddles supported different learning styles and enhanced students' conceptual understanding.

Students showed increased interest, participation, and confidence while explaining solar and lunar eclipse concepts, especially the alignment of celestial bodies and the formation of shadows. The use of videos and visual aids helped students visualize abstract astronomical phenomena more clearly.

The findings support learner-centered and activity-based teaching approaches, emphasising the importance of moving away from traditional lecture methods toward interactive strategies for better learning outcomes in science education.

RECOMMENDATIONS FOR STUDENTS:

·Participate actively in classroom discussions and learning activities to improve understanding.

·Use videos, diagrams, and textbooks regularly to revise difficult science concepts.

·Ask questions and clarify doubts promptly to strengthen conceptual clarity.

For Teachers:

·Use multimedia tools to explain difficult concepts.

·Adopt interactive teaching methods to engage students.

·Conduct regular assessments to monitor learning progress.

For Schools and Administration:

·Provide digital learning resources and audiovisual equipment in classrooms.

·Organize teacher training programs on innovative and technology-based teaching methods.

·Encourage science activities, exhibitions, and astronomy-related programs to promote interest in the subject.

CONCLUSION:

The present action research validates the hypothesis that the use of interactive and multimedia-based teaching strategies significantly improves students' understanding of solar and lunar eclipse concepts. The study revealed that students initially faced difficulties, but showed remarkable improvement after the intervention.

The findings confirm that PowerPoint presentations, audiovisual resources, quizzes, and riddles effectively enhanced students' academic performance and conceptual clarity. This action research highlights the importance of adopting student-centered teaching approaches to improve learning outcomes in science education.

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A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING THE DIGESTIVE SYSTEM IN HUMAN BEINGS IN THE SCIENCE SUBJECT OF STANDARD VII STUDENTS

NAGORI UZMA KHURSHID

RESEARCH GUIDE: DR. SANDHYA SARWADE

ABSTRACT

This action research study examines the effectiveness of instructional interventions in overcoming learning difficulties faced by Standard VII students while studying the topic Digestive System in Human Beings in the Science subject. Due to the involvement of multiple organs, processes, and scientific terms, students often find this topic difficult when taught through traditional methods. The study aims to improve conceptual understanding through interactive and activity based teaching strategies.

The research was conducted at H.M.W. English High School under the Maharashtra State Board curriculum, with a sample of 20 Standard VII students. A single-group pre-test and post-test experimental design was used. The intervention program included PPT presentations, quizzes, riddles, crossword puzzles, and guided classroom activities to promote active learning.

Data were collected through observation, questionnaires, and achievement tests. The pre-test revealed limited understanding of the digestive system, while post-test results showed notable improvement in students' performance and clarity of concepts. The findings indicate that well-planned instructional interventions enhance students' interest, participation, and comprehension of biological concepts, highlighting the importance of student-centered approaches in science teaching.

KEYWORDS:

Digestive System, Learning Difficulties, Instructional Interventions, Science Education.

INTRODUCTION:

Science education plays an important role in developing scientific thinking, observation skills, and health awareness among students. At the upper primary level, science helps learners understand natural processes and human body systems that are closely related to everyday life. The topic Digestive System in Human Beings is an essential part of the Standard VII science curriculum, as it explains how food is digested, absorbed, and utilized by the body. This knowledge also helps students develop awareness about nutrition, healthy eating habits, and overall well-being.

However, many Standard VII students experience learning difficulties while studying the digestive system due to the involvement of several organs, complex processes, and scientific terminology. Traditional teaching methods often fail to provide clear visualization and active engagement, leading to confusion and poor conceptual understanding. Therefore, the present action research focuses on examining the effectiveness of planned instructional interventions such as activity-based and interactive teaching strategies to overcome these difficulties and enhance students' understanding, interest, and academic performance in science.

REVIEW OF RELATED LITERATURE

Previous research indicates that students understand biological concepts more effectively when taught through activity-based and interactive teaching methods. Studies highlight that the use of visual aids, models, quizzes, puzzles, and learner-centered activities enhances conceptual clarity and retention in science learning. Literature also emphasizes the importance of intervention programs in overcoming learning difficulties and making abstract biological processes more meaningful for middle school students.

RESEARCH OBJECTIVES

·To identify the difficulties faced by Standard VII students in learning the digestive system in human beings.
·To design and implement suitable instructional interventions to overcome these difficulties.
·To assess the effectiveness of the intervention strategies in improving students' learning outcomes in science.

RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design)
Sample: 20 students of Standard VII from H.M.W. English High School
Tools Used: Observation, Pre-test and Post-test, Questionnaire, Interview

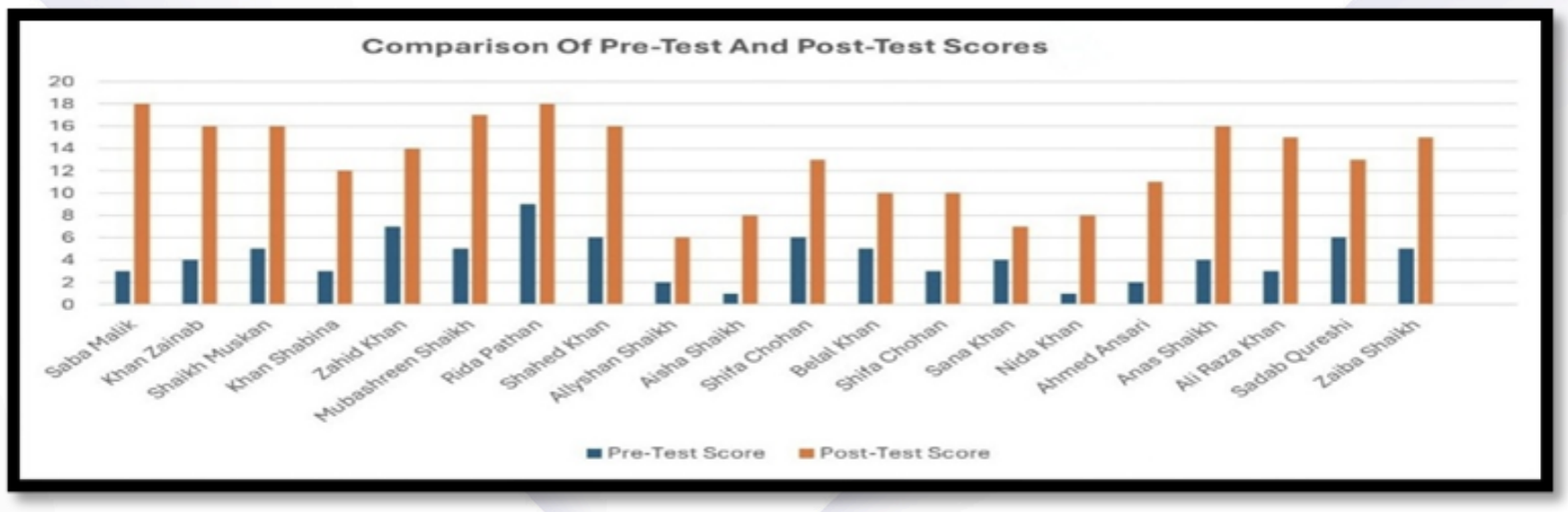
INTERVENTIONS

·Quiz Activities: Reinforcement of concepts through engaging quizzes and peer interaction.
·Riddles: Fun and thought-provoking riddles to stimulate critical thinking and recall.
·PPT Presentations: Visual explanation of the digestive system processes with diagrams and animations.
·Crossword Puzzles: To help students revise key terms and concepts in an interactive way.

DATA ANALYSIS AND GRAPH

·Pre-Test Average: 21%
·Post-Test Average: 62.25%
·Improvement: Mean gain of 8.1 marks

A bar graph showed a significant increase in scores, with all students scoring above 50% post-intervention, indicating a clear improvement in understanding of the Digestive System in Human Beings.



FINDINGS AND DISCUSSION

·Students showed a significant improvement in understanding the Digestive System in Human Beings.
·Interactive teaching methods such as Quiz, Riddles, PPTs, and Crossword Puzzles enhanced engagement and helped students retain information effectively.
·Activity-based interventions supported comprehension of key concepts like digestion, absorption, and nutrient transport.

CONCLUSION

The intervention program was successful in clarifying complex processes of the Digestive System and improving students' performance. Teaching Science through visual aids, interactive activities, and problem-solving exercises proved highly effective in enhancing understanding and sustaining interest among Standard VII students.

RECOMMENDATIONS

·For Teachers: Use multisensory strategies, interactive quizzes, and group activities to strengthen students' understanding of biological concepts.
·For Students: Revise concepts regularly, practice with diagrams and puzzles, and actively participate in classroom activities to improve learning.
·For Parents: Encourage discussions about digestion, relate lessons to everyday life, and support curiosity through educational games, videos, and simple at-home experiments.

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A STUDY OF THE EFFECTIVENESS OF INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING THE BHAKTI MOVEMENT IN THE HISTORY SUBJECT OF STANDARD VII STUDENTS

KOJAR RUBAB FATIMA ALI HUSSAIN
RESEARCH GUIDE: DR. VARSHA MARU

ABSTRACT

This action research study examines the effectiveness of instructional interventions in overcoming learning difficulties faced by Standard VII students while learning the topic Bhakti Movement in the History subject. Due to the presence of multiple saints, regions, teachings, and abstract philosophical ideas, students often find this topic difficult when taught through traditional lecture methods. The study aims to improve conceptual understanding and student engagement through interactive and activity-based teaching strategies. The research was conducted at H.M.W. English High School under the Maharashtra State Board curriculum, with a sample of 20 Standard VII students. A single-group pre-test and post-test experimental design was adopted. The intervention programme included map-based activities, clue-based games, crossword puzzles, matching activities, and guided classroom discussions to promote active learning. Data were collected through observation and achievement tests. The pre-test results showed limited understanding of the Bhakti Movement, while post-test findings revealed a significant improvement in students' academic performance and clarity of historical concepts. The study highlights the effectiveness of student-centred instructional interventions in enhancing interest, participation, and understanding in History education.

KEYWORDS:

Bhakti Movement, Instructional Interventions, History Education, Activity-Based Learning, Conceptual Understanding.

INTRODUCTION

History education plays a crucial role in developing students' understanding of social reform movements, cultural unity, and moral values. However, topics such as the Bhakti Movement pose learning difficulties for Standard VII students due to unfamiliar saints, regional diversity, and abstract religious ideas. Many students depend on rote memorisation without developing a clear understanding of the teachings and significance of the movement. The Bhakti Movement focuses on devotion, equality, and rejection of caste discrimination. Despite its importance, students struggle to remember saints, their teachings, and the areas where the movement spread. This study focuses on identifying students' learning difficulties related to the Bhakti Movement and examines the effectiveness of planned instructional interventions in improving students' comprehension and interest in History.

REVIEW OF RELATED LITERATURE

Previous studies in History education indicate that activity-based and learner-centred teaching methods significantly improve students' understanding and attitude towards the subject. Research shows that visual aids, puzzles, group discussions, and interactive classroom activities enhance student engagement and conceptual clarity. Literature also emphasises that intervention programmes play an important role in overcoming learning difficulties and reducing students' dependence on rote learning. Activity-based strategies help students retain historical facts for a longer period and promote meaningful learning of value-based topics such as the Bhakti Movement.

RESEARCH OBJECTIVES

- To identify the difficulties faced by Standard VII students in learning the Bhakti Movement.
- To design and implement suitable instructional interventions to overcome these difficulties.
- To assess the effectiveness of intervention strategies in improving students' learning outcomes in History.

RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design) Sample: 20 students of Standard VII from H.M.W. English High School Tools Used: Observation, Pre-test, Post-test, Questionnaire.

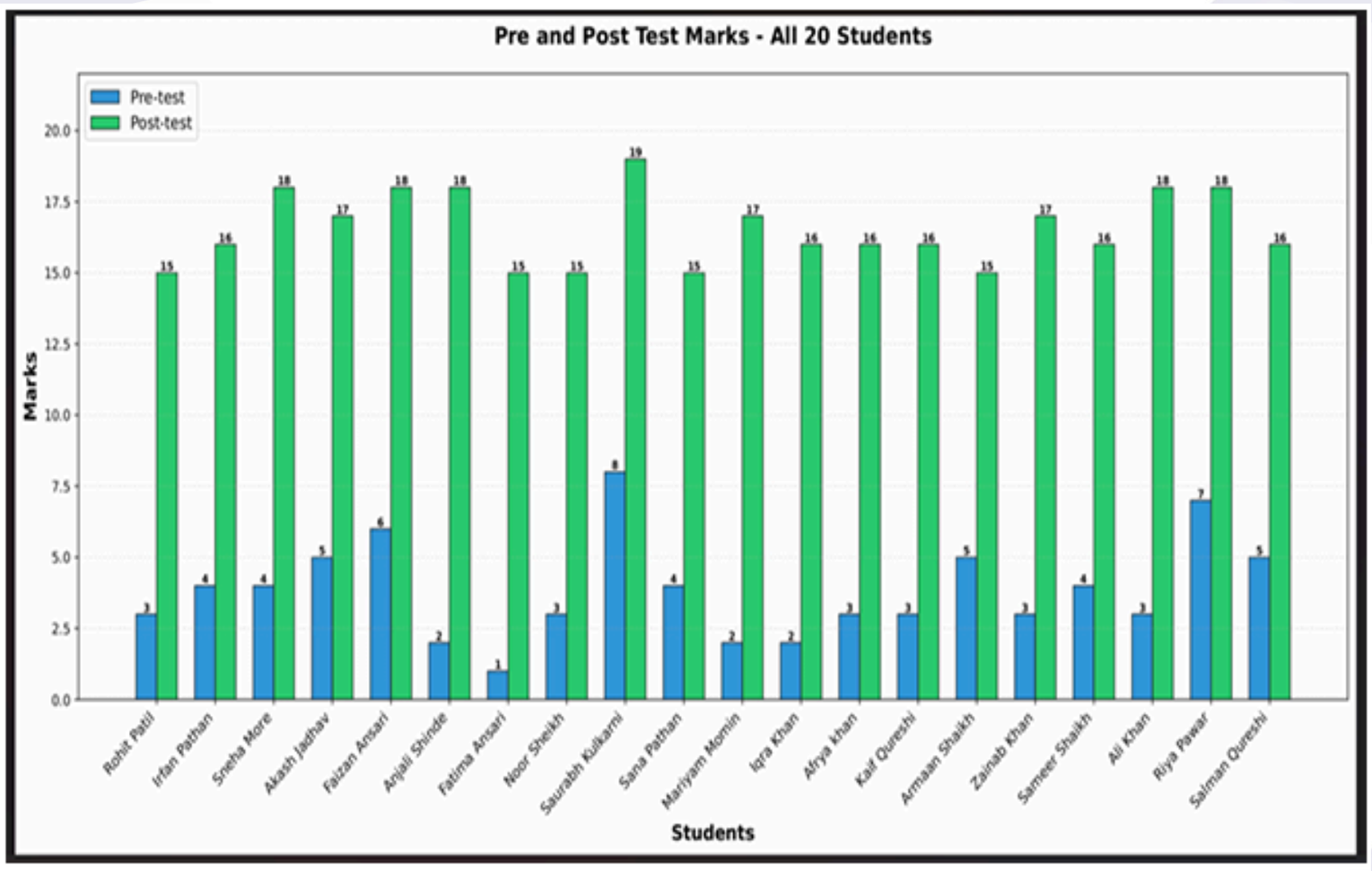
INTERVENTIONS

- Map-Based Activities: To help students identify the regions of important Bhakti saints.
- Clue-Based Activities: To encourage critical thinking and identification of saints through clues.
- Crossword Puzzles: To reinforce important terms, saints' names, and teachings.
- Matching Activities: To help students connect Bhakti saints with their core messages and values.

DATA ANALYSIS AND GRAPH

- Pre-Test Average: 20%
- Post-Test Average: 82.5%
- Improvement: Mean gain of 12.6 marks

A bar graph showed a significant increase in students' scores after the intervention programme. Most students scored above average in the post-test, indicating improved understanding of the Bhakti Movement.



FINDINGS AND DISCUSSION

- Students showed a significant improvement in understanding the Bhakti Movement.
- Activity-based teaching methods increased students' interest and classroom participation.
- The interventions helped students understand saints' teachings and values more clearly.
- Interactive learning reduced reliance on memorisation and promoted meaningful learning of History concepts.

CONCLUSION

The study concludes that instructional interventions were effective in overcoming learning difficulties related to the Bhakti Movement. The use of activity-based and interactive teaching strategies enhanced students' understanding, retention, and positive attitude towards History. The findings suggest that History teaching becomes more effective when learner-centred approaches are integrated into classroom instruction.

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ENHANCING CONCEPTUAL UNDERSTANDING OF VERTICES, FACES AND EDGES OF 3D SHAPES THROUGH TARGETED PEDAGOGICAL INTERVENTIONS AMONG STANDARD VII STUDENTS

KHAN MEHREEN WAKIL AHMED
RESEARCH GUIDE: DR. VARSHA MARU

ABSTRACT

The present study investigates the effectiveness of targeted pedagogical interventions in overcoming learning difficulties encountered by Standard VII students in the topic of vertices, faces and edges of three-dimensional (3D) shapes in Mathematics. Geometry concepts, particularly those involving spatial visualization, are often perceived as abstract and challenging when taught through traditional lecture-based methods. This action research was conducted using a single-group pre-test and post-test design with a sample of 10 students. The pre-test results revealed limited conceptual clarity, with an average score of 50%. In response, a structured intervention programme incorporating model-making activities, PPT presentations, mystery shape bag activity, quizzes, and worksheets was implemented. Following the intervention, the post-test results showed remarkable improvement, with the average score increasing to 96.5%. The findings highlight the effectiveness of activity-based and learner-centered teaching strategies in enhancing conceptual understanding, visualization skills, and student engagement in Mathematics. This research emphasizes the need to shift from traditional instruction to interactive and experiential learning approaches in geometry teaching at the upper primary level.

KEYWORDS:

3D Shapes, Vertices, Faces, Edges, Geometry, Action Research, Activity-Based Learning, Conceptual Understanding

INTRODUCTION

Geometry plays a significant role in developing spatial reasoning and logical thinking skills among students. In Standard VII, students are introduced to three-dimensional shapes such as cube, cuboid, cone, cylinder, prism, and pyramid. Understanding their properties Vertices, Faces, And Edges is fundamental for higher-level mathematical learning.

However, many students face difficulty in visualizing 3D structures from textbook diagrams. Traditional chalk-and-talk methods often fail to provide concrete experiences required for understanding abstract geometric concepts. As a result, students develop misconceptions and lack confidence in solving geometry-related problems.

The present study aims to bridge this gap through structured pedagogical interventions designed to improve conceptual clarity and engagement.

REVIEW OF RELATED LITERATURE

Research in mathematics education strongly supports activity-based and constructivist approaches to learning. Kolb (1984) emphasized experiential learning, suggesting that knowledge is constructed through active participation. Piaget (1977) highlighted cognitive development through interaction and exploration. Van de Walle (2019) stressed the importance of hands-on learning in geometry to enhance visualization skills.

Previous studies indicate that model-making, visual aids, and interactive quizzes significantly improve students' conceptual understanding in mathematics. However, limited classroom-based action research has focused specifically on difficulties in identifying vertices, faces, and edges of 3D shapes at the upper primary level. Thus, the present study contributes to strengthening geometry teaching practices in real classroom settings.

RESEARCH OBJECTIVES

Ø To identify specific learning difficulties faced by students in understanding vertices, faces, and edges of 3D shapes.
Ø To design and implement pedagogical interventions addressing these difficulties.
Ø To evaluate the effectiveness of the interventions in improving conceptual understanding.
Ø To enhance students' engagement and confidence in learning geometry.

RESEARCH METHODOLOGY

The study followed a single-group pre-test and post-test experimental design. The research was conducted among 10 students of Standard VII. Data were collected using structured tests, observation checklists, worksheets, and quizzes. Data were analyzed using percentages, averages, and graphical representation

INTERVENTIONS

·The intervention programme was implemented over two weeks and included:
·Model Making (Clay & Toothpick Activity): Students constructed 3D shapes and identified vertices and edges physically.
·PPT Presentation: Visual explanation of cube, cuboid, prism, pyramid, cone, and cylinder with labelled diagrams.
·Mystery Shape Bag Activity: Students identified shapes through touch to strengthen spatial reasoning.
·Quiz Method: Interactive assessment to reinforce understanding.
·Worksheets & Discussion: Practice and conceptual clarification.
Each activity catered to visual, auditory, and kinesthetic learners.

SAMPLE AND TOOLS:

The sample size was limited to 10 students due to the action research scope, selected through purposive sampling. Tools Used:
Ø Pre-Test and Post-Test (20 marks each) Ø Observation Checklist Ø Worksheets Ø Quiz

DATA ANALYSIS AND FINDINGS PRE-TEST RESULTS

·Average Score: 10/20 (50%)

·Many students confused faces and edges.

·Limited visualization skills observed.

POST-TEST RESULTS

·Average Score: 19.3/20 (96.5%)

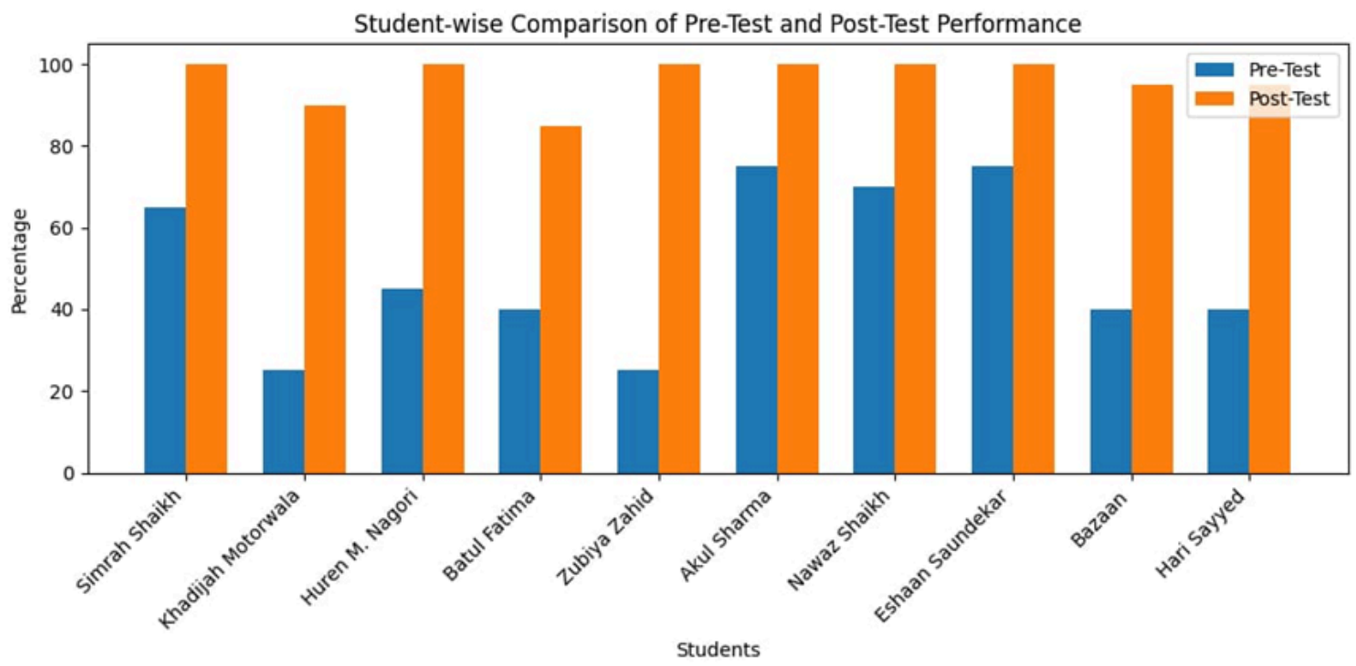
·100% students scored above 15 marks.

·Significant improvement in conceptual clarity.

Students who initially scored low demonstrated remarkable progress after hands-on and visual learning activities.

GRAPHICAL REPRESENTATION:

A comparative bar graph of pre-test and post-test scores indicated a dramatic improvement in student performance, visually confirming the effectiveness of the intervention programme.



DISCUSSION:

The substantial increase from 50% to 96.5% highlights the impact of experiential and activity-based teaching methods. The integration of visual and kinesthetic learning strategies helped students construct knowledge actively rather than passively receiving information.

The findings align with Kolb's experiential learning theory and Piaget's constructivist approach, reinforcing the importance of learner-centered pedagogy in mathematics classrooms.

Students displayed greater enthusiasm, participation, and confidence in identifying and explaining properties of 3D shapes.

RECOMMENDATIONS FOR STUDENTS:

Ø Engage in hands-on geometry activities.

Ø Observe 3D shapes in daily life.

Ø Practice through quizzes and visual aids.

For Teachers:

Ø Use models and teaching aids regularly.

Ø Incorporate interactive and experiential methods.

Ø Conduct formative assessments to monitor progress.

For Schools:

Ø Provide geometry kits and digital resources.

Ø Encourage innovative teaching practices.

Ø Organize mathematics exhibitions and activity-based learning sessions.

CONCLUSION:

This action research confirms that structured pedagogical interventions significantly enhance students' understanding of vertices, faces, and edges of 3D shapes. Activity-based teaching methods proved far more effective than traditional lecture-based instruction.

The study demonstrates that when students are actively engaged through models, visuals, and interactive learning, their conceptual clarity, retention, and confidence improve substantially.

The findings encourage broader implementation of experiential learning strategies in mathematics education to foster deeper understanding and academic success.

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A STUDY OF THE EFFECTIVENESS OF ACTIVITY-BASED INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING POLYGONS AND CIRCLES IN MATHEMATICS OF STANDARD VI STUDENTS

KAZI AISHA SHAMSUDDIN

RESEARCH GUIDE: DR. VARSHA MARU

ABSTRACT

This action research study investigates the effectiveness of activity-based instructional interventions in overcoming learning difficulties faced by Standard VI students in understanding the concepts of Polygons and circles in Mathematics. Geometry concepts such as identifying types of polygons, recognising their properties, and labelling parts of a circle often pose challenges for students due to abstract explanations and limited hands-on learning opportunities. Traditional lecture-based teaching methods frequently result in rote memorisation without conceptual clarity.

The present study was conducted at Belvedere Spring School International with a sample of 18 students of Standard VI. A single-group pre-test and post-test experimental research design was adopted. The intervention programme included activities such as Matching Shapes with Polygons, Labelling Parts of a Circle, Making Polygon Shapes using materials, and Identification through Worksheets to encourage active participation and experiential learning.

Data were collected using observation and achievement tests. The pre-test results revealed low levels of understanding and difficulty in identifying and applying geometric concepts. However, post-test results showed significant improvement in students' performance, understanding, and confidence. The findings indicate that activity-based and learner-centred teaching strategies are highly effective in improving students' achievement in Mathematics and fostering interest in geometry concepts.

KEYWORDS:

Action Research, Geometry, Polygons, Circle, Activity-Based Learning, Mathematics Education

INTRODUCTION

Mathematics plays a crucial role in developing logical thinking, problem-solving skills, and analytical abilities among students. At the upper primary level, geometry forms an essential component of the Mathematics curriculum, helping students understand shapes, space, and spatial relationships. Concepts such as polygons and circles lay the foundation for advanced mathematical learning. However, many students find geometry difficult due to abstract explanations and lack of practical exposure.

Students of Standard VI often struggle to identify different types of polygons, recognize their properties, differentiate between regular and irregular shapes, and label the parts of a circle correctly. These difficulties are mainly observed when teaching relies heavily on textbook explanations and board work. As a result, students lose interest, show confusion, and perform poorly in assessments.

Action research provides teachers with an opportunity to identify classroom problems and implement suitable strategies to improve teaching-learning processes. The present study aims to identify the difficulties faced by students in learning polygons and circle concepts and to examine the effectiveness of activity-based interventions in enhancing students' understanding and academic performance.

REVIEW OF RELATED LITERATURE

Educational research emphasizes that activity-based learning enhances conceptual understanding, especially in Mathematics. Studies suggest that hands-on activities, visual aids, and experiential learning significantly improve students' comprehension of geometric concepts. Constructivist learning theory highlights that students learn better when they actively participate in the learning process rather than passively receiving information.

Previous research indicates that using manipulatives, diagrams, games, and collaborative activities helps students visualize abstract mathematical concepts. Action research in Mathematics education has shown that interactive teaching methods improve achievement levels, retention, and learner motivation. These studies support the need for implementing innovative teaching strategies to address learning difficulties in geometry.

OBJECTIVES OF THE STUDY

- To identify the difficulties faced by Standard VI students in learning polygons and circle concepts.
- To design and implement activity-based instructional interventions.
- To study the effectiveness of the intervention programme on students' academic achievement.

RESEARCH METHODOLOGY

Research Design: Experimental (Single Group Pre-test and Post-test Design)

SAMPLE:

The sample consisted of 18 students of Standard VI from Belvedere Spring School International. The sample was selected using a purposive sampling technique.

Tools Used:

- Observation
- Pre-test
- Post-test
- Worksheets
- Teaching aids and activity materials

INTERVENTION PROGRAMME

The intervention programme was designed based on the difficulties identified through the pre-test and classroom observation. The following four activities were conducted:

1. Matching Shapes with Polygons

Students were given various shapes and asked to match them with the correct type of polygon (triangle, quadrilateral, pentagon, hexagon, etc.). This activity helped students recognize shapes and understand the concept of sides and vertices.

2. Labeling Parts of a Circle

Students were invited to the board to label parts of a circle such as center, radius, diameter, and circumference. This activity improved their visual understanding and confidence.

3. Making Different Polygon Shapes

Students used paper strips, sticks, and other materials to create different polygon shapes. This hands-on activity helped them understand the properties of polygons practically.

4. Identification and Worksheet Activity

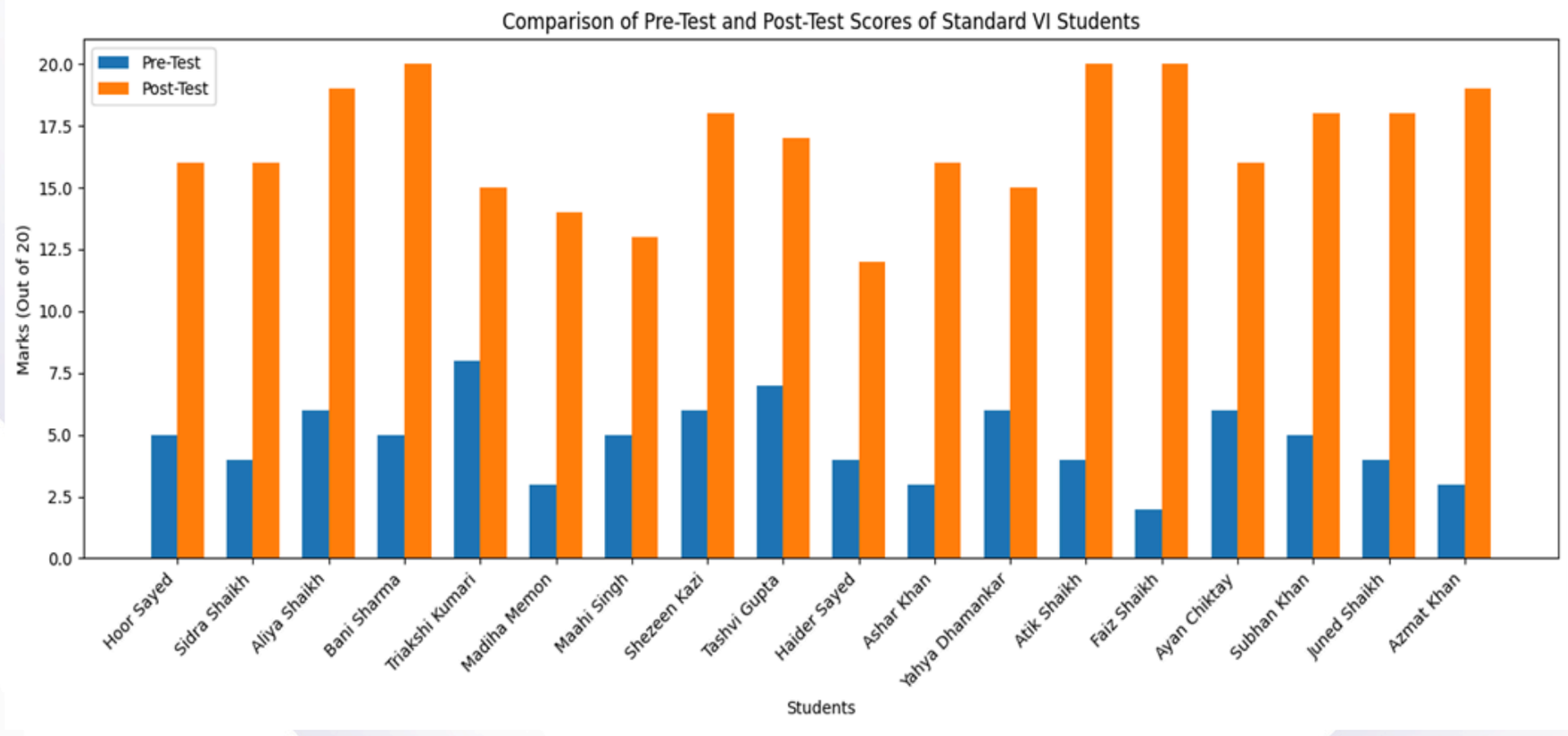
Students identified shapes from pictures and solved worksheets related to polygons and circles. This reinforced learning and improved accuracy.

DATA ANALYSIS AND GRAPH

The data collected from pre-test and post-test scores were analyzed using average, percentage, and comparison techniques.

- Pre-test Average: 4.77 (24.44%)
- Post-test Average: 18.61 (83.88%)
- Mean Gain: 12 marks

The bar graph representation clearly indicates a noticeable improvement in the performance of all 18 students from the pre-test to the post-test. No student showed a decline in performance after the intervention programme. A majority of the students scored between 15–20 marks in the post-test, reflecting strong conceptual understanding and mastery of polygons and circles.



FINDINGS AND DISCUSSION

- Students initially faced difficulty in identifying polygons and labeling parts of a circle.
- Activity-based teaching significantly improved students' understanding and performance.
- Hands-on activities increased students' interest and active participation.
- Visual and practical learning reduced confusion and improved retention.
- All students showed improvement in post-test scores.

CONCLUSION

The present action research study concludes that activity-based instructional interventions are highly effective in overcoming learning difficulties related to polygons and circle concepts in Mathematics. The intervention programme successfully enhanced students' understanding, confidence, and academic achievement. Geometry learning becomes meaningful when students actively participate through hands-on and visual activities. Action research thus proves to be a valuable tool for improving classroom teaching and learning practices.

RECOMMENDATIONS

For Teachers:

- Incorporate activity-based strategies regularly in Mathematics teaching.
- Use visual aids and manipulatives to explain geometric concepts.

For Students:

- Participate actively in classroom activities.
- Practice drawing and identifying shapes regularly.

For Parents:

- Encourage children to observe shapes in daily life.
- Support learning through practice and discussion at home.

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A STUDY OF THE EFFECTIVENESS OF TEACHING INTERVENTIONS ON THE DIFFICULTIES ENCOUNTERED IN LEARNING PUNCTUATION IN ENGLISH SUBJECT OF STANDARD IV STUDENTS

AFSHAN KHATRI

RESEARCH GUIDE: DR. AVANI KANAKIA

ABSTRACT

English language learning at the primary level plays a significant role in developing students' communication skills. One of the essential components of English writing is punctuation. Punctuation marks help students understand sentence structure, meaning, and clarity in written communication. However, many students face difficulties in using punctuation marks correctly while reading and writing.

The present action research study aims to identify the difficulties encountered by Standard IV students in learning punctuation and to examine the effectiveness of planned teaching interventions in overcoming these difficulties.

The study was conducted using a single group pre-test and post-test experimental design on a sample of 20 Standard IV students studying under the SSC syllabus. A pre-test was administered to assess students' prior knowledge of punctuation. Various teaching interventions such as activity-based learning, punctuation relay race, worksheets, quizzes, storytelling, and classroom games were implemented to improve students' understanding. After the intervention programme, a post-test was conducted to evaluate improvement in students' learning outcomes.

The results revealed a significant improvement in students' understanding of punctuation marks. The average pre-test score of 25% increased to 85% in the post-test, indicating the effectiveness of the intervention programme. The study concludes that activity-based and learner-centered teaching strategies are effective in improving students' understanding and correct usage of punctuation marks.

KEYWORDS:

Action Research, Punctuation, Teaching Interventions, Activity-Based Learning, English Education

INTRODUCTION

Language plays an important role in communication, expression, and learning. English is widely used as a medium of communication and education. At the primary level, students learn basic language skills such as listening, speaking, reading, and writing. Among these skills, writing requires proper use of punctuation marks to convey clear meaning.

Punctuation marks such as the full stop (.), comma (,), question mark (?), exclamation mark (!), and capital letters help organize sentences and express ideas correctly. Without punctuation, written language may become confusing and difficult to understand.

However, many students at the primary level face difficulties in using punctuation marks correctly. They often forget to use capital letters, omit full stops at the end of sentences, or misuse question marks and commas. This happens because punctuation rules are sometimes taught through traditional lecture methods without sufficient practice and activities.

Action research provides teachers with an opportunity to identify classroom learning difficulties and implement appropriate strategies to improve the teaching-learning process. Therefore, the present study focuses on identifying students' difficulties in learning punctuation and evaluating the effectiveness of teaching interventions.

NEED AND IMPORTANCE OF THE STUDY

Punctuation is an essential part of written communication. It helps readers understand the meaning, tone, and structure of sentences. If students do not learn punctuation properly at the primary level, they may face difficulties in writing and comprehension in higher classes.

Classroom observations revealed that many students make mistakes while using punctuation marks in sentences and paragraphs. Some students forget to start sentences with capital letters, while others do not use full stops or question marks correctly.

The importance of this study lies in improving students' understanding of punctuation through activity-based and interactive teaching methods. The study benefits students by improving their writing skills, teachers by enhancing teaching strategies, and schools by promoting effective language learning practices.

OBJECTIVES OF THE STUDY

- To find out the problems faced by students and the reasons behind the difficulties encountered in learning punctuation in the English subject of Standard IV students.
- To develop and implement appropriate instructional interventions to overcome the difficulties encountered in learning punctuation.
- To find out the effectiveness of instructional interventions in improving students' understanding and usage of punctuation marks

RESEARCH METHODOLOGY

The present study is an action research conducted using an experimental method. A single group pre-test post-test design was adopted.

Sample

The sample consisted of 20 Standard IV students selected through convenient sampling from a school following the SSC syllabus.

Tools Used

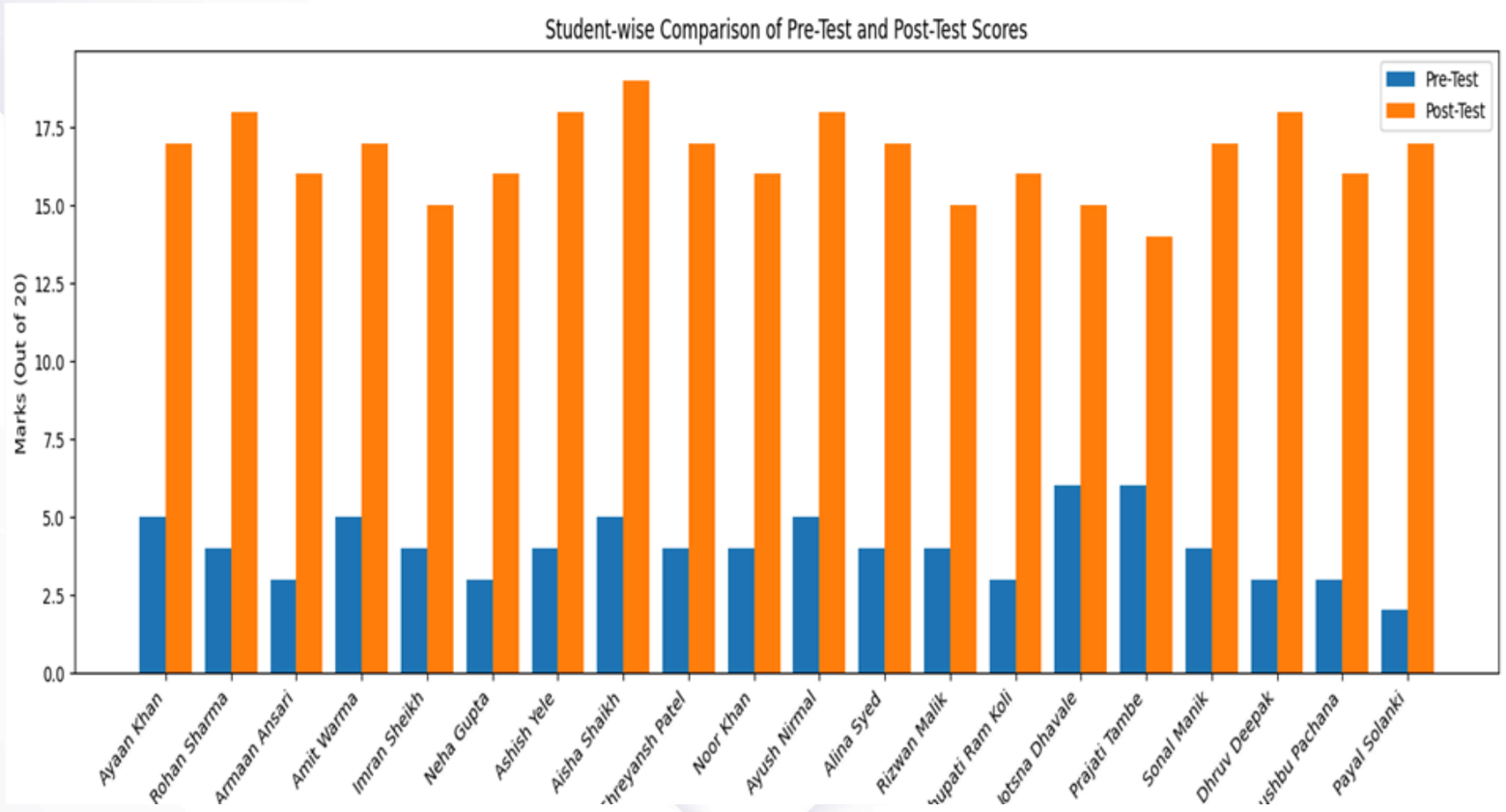
- Pre-test and post-test
- Classroom observation
- Worksheets
- Quizzes and language activities

INTERVENTION PROGRAMME

○ The intervention programme included various activity-based teaching strategies such as:
○ Punctuation Relay Race
○ Punctuation Card Game
○ Act It Out – Punctuation Drama
○ Punctuation Detective
○Worksheets and Practice Exercises
These activities encouraged active participation and helped students understand punctuation marks in an enjoyable way.

DATA ANALYSIS AND INTERPRETATION

The pre-test results showed that most students had difficulty using punctuation marks correctly. Many students forgot to use capital letters, full stops, and question marks. The average score in the pre-test was 25%, indicating poor understanding of punctuation rules.



After the implementation of the intervention programme, a post-test was conducted. The results showed a significant improvement in students' performance. The average score increased to 85%, demonstrating that activity-based teaching methods helped students understand and apply punctuation rules effectively.
The comparison between pre-test and post-test scores clearly indicates that the intervention programme was successful in reducing students' learning difficulties.

FINDINGS OF THE STUDY

The findings of the study are based on classroom observations, students' responses, and analysis of pre-test and post-test scores.

- Many students had difficulty identifying and using punctuation marks correctly in sentences.
- Students often forgot to begin sentences with capital letters and end them with full stops.
- Some students were confused about the use of question marks and exclamation marks.
- Traditional teaching methods provided limited opportunities for practice and application.
- Activity-based teaching methods improved students' understanding and participation.
- The use of games, worksheets, and interactive activities increased students' interest in learning punctuation.

SUGGESTIONS

A) Suggestions for Students

1. Students should practice writing sentences using correct punctuation marks.
2. They should read storybooks and observe how punctuation marks are used in sentences.
3. Regular practice through worksheets and exercises should be encouraged.
4. Students should ask questions and clarify doubts during classroom discussions.
5. Peer learning and group activities should be encouraged.

B) Suggestions for Teachers

1. Teachers should identify students' learning difficulties through diagnostic tests.
2. Activity-based teaching methods should be used to teach punctuation.
3. Teachers should use charts, flashcards, and visual aids to explain punctuation rules.
4. Regular practice activities and worksheets should be provided.
5. Continuous assessment should be conducted to monitor students' progress.

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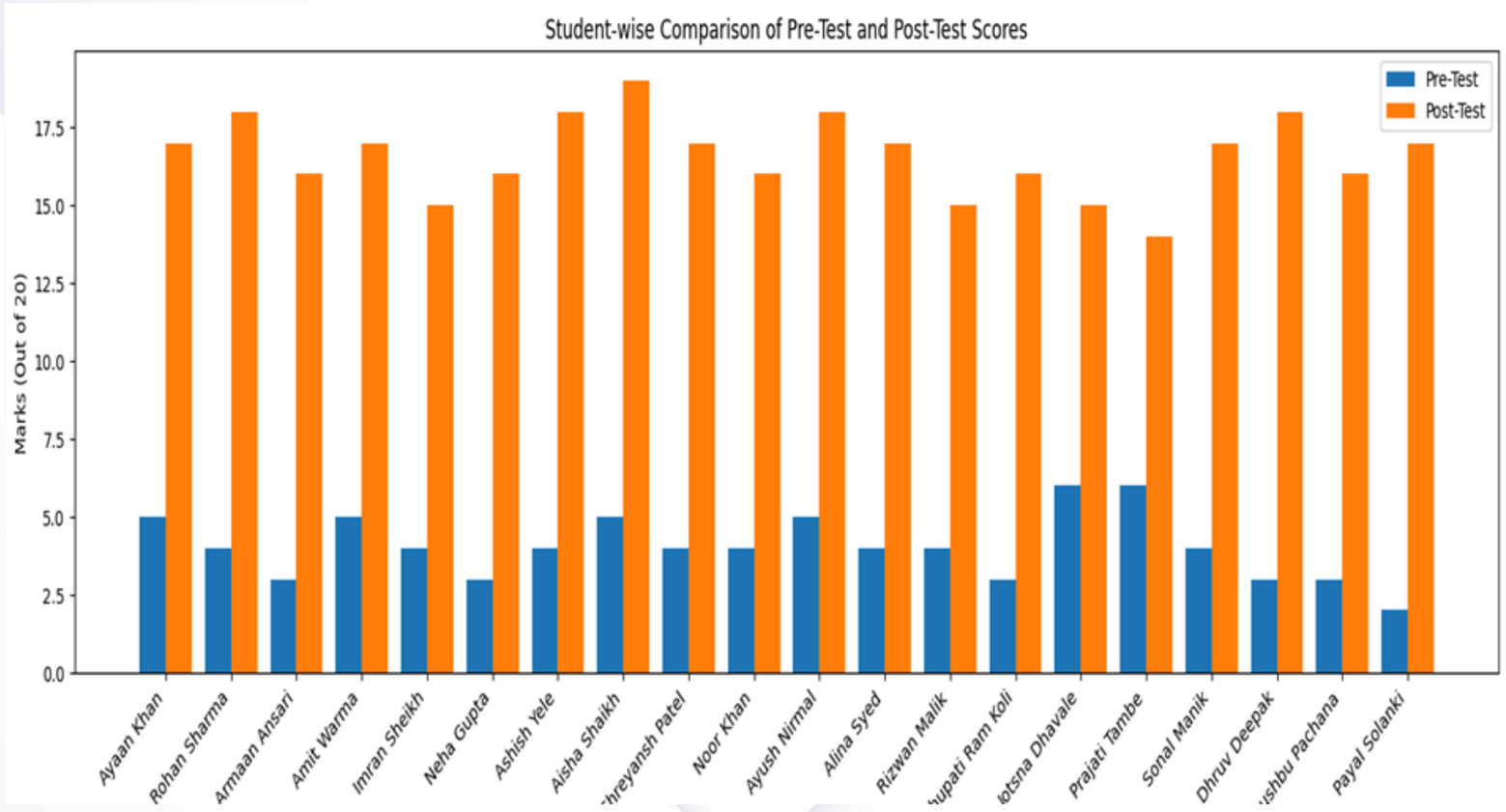

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C) SUGGESTIONS FOR SCHOOLS

- Schools should provide adequate teaching-learning materials for language teaching.
- Workshops and training programmes should be organized for teachers to adopt innovative teaching methods.
- Schools should encourage language-based competitions and activities.
- Interactive and supportive classroom environments should be promoted.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

- Activity-based learning should be regularly used in teaching punctuation and other language topics.
- Teaching strategies such as games, quizzes, and storytelling should be incorporated into English lessons.
- Continuous assessment methods should be used to identify and address students' learning difficulties.

CONCLUSION

The present action research study concludes that planned teaching interventions are highly effective in overcoming learning difficulties related to punctuation among Standard IV students.

Activity-based teaching strategies such as games, worksheets, and interactive classroom activities help students understand punctuation rules in an interesting and meaningful way. These strategies improve students' writing skills, participation, and confidence in using the English language.

The study highlights the importance of action research in improving classroom teaching practices. Innovative and learner-centered approaches can significantly enhance students' understanding and academic performance in English.

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This book is a compilation of various Action Research Projects conducted by B.Ed. students as part of their academic and professional training. The research studies included in this volume reflect sincere efforts to understand classroom realities, identify educational problems, and explore practical solutions through systematic inquiry.

The methodology adopted in these projects is based on the principles of Action Research, which emphasises planning, action, observation, and reflection. Each study was carried out in real educational settings, enabling student-teachers to connect theory with practice and contribute meaningfully to improving teaching-learning processes.

The projects presented here cover diverse themes related to classroom management, teaching strategies, learner behaviour, academic achievement, and educational innovation. While each research work represents the individual perspective and context of the researcher, together they highlight the importance of reflective teaching and continuous professional development.

We hope this compilation serves as a valuable resource for teacher educators, student-teachers, researchers, and practitioners interested in educational research and classroom improvement. Readers are encouraged to view these studies not merely as academic exercises, but as practical attempts to enhance the quality of education.

We sincerely appreciate the dedication and hard work of all the B.Ed. students, guides, and institutions who contributed to this compilation.