

RESEARCH CASE STUDY REPORT

Journal Target: EIU Journal of Action Research

Researcher: Garima Singh ([B.sc](#) student)

Institution: Ram Chameli Chadha Vishvas Girls College, Ghaziabad (Affiliated to CCS University, Merrut)

Research Site: Makoons playschool, Ghaziabad

Project Title: Magical Little Steps: Promoting Holistic Child Development through Multi-Sensory Activities

1. ABSTRACT

This action research explores the impact of handmade, 3-D interactive teaching aids on preschool development. Moving away from passive rote learning, the study introduces a "Discovery-based Model" using a custom-designed rhyme book, shadow puppetry, and kinesthetic tasks. Findings reveal that sensory engagement through tactile "reveal" mechanisms and symbolic rhyming anchors significantly boosts cognitive retention and emotional involvement in children aged 3–5. The study advocates for low-cost, expert-validated tools as a sustainable alternative to digital media in early childhood settings.

Keywords: Early Childhood Education, Multi-sensory Learning, Kinesthetic Pedagogy, Action Research, Symbolic Cognition, Teaching Aids.

2. INTRODUCTION & LITERATURE REVIEW

Traditional preschool instruction often relies on flat media, leading to a "learning gap" where abstract concepts are not effectively internalized.

Foundational and Contemporary

Research

- **Multisensory Learning:** Engaging multiple senses (visual, auditory, tactile) strengthens neural pathways, leading to higher retention (Shams & Seitz, 2008).

- **Early Childhood Development:** During the ages of 3–5, children are in the pre-operational stage (Piaget), where they learn best through concrete objects rather than abstract talk.
- **Symbolic Cognition:** Using "symbolic anchors"—such as an umbrella representing protection—helps children bridge the gap between a physical object and a moral concept. Kinesthetic Pedagogy:
- **Kinesthetic Pedagogy:** Movement-based learning transforms passive listeners into active participants, essential for developing "body-smart" learners and coordination.

3. METHODOLOGY (METHODOLOGICAL RIGOUR)



Magical Little Steps

A Book of Happy Learning

(Figure 1: Front Cover of the "Magical Little Steps" Interactive Rhyme Book)

The study followed a structured action plan conducted with 15 preschoolers (Aged 3–5).

Expert Validation and Selection

Before the field intervention, all teaching aids and activities were pre-screened by the Subject Matter Expert (College Supervisor). The "Magical Little Steps" curriculum was approved based on its alignment with pedagogical standards and its potential to engage early learners through tactile exploration.

Field Observation (High Engagement)

During the practical session at Makoons Playschool, the researcher observed an exceptional level of student interest. The tools successfully sustained attention for the entire duration, with children actively participating in the "Shadow Show" and "Pasting" tasks.

Observation and Coding Protocols

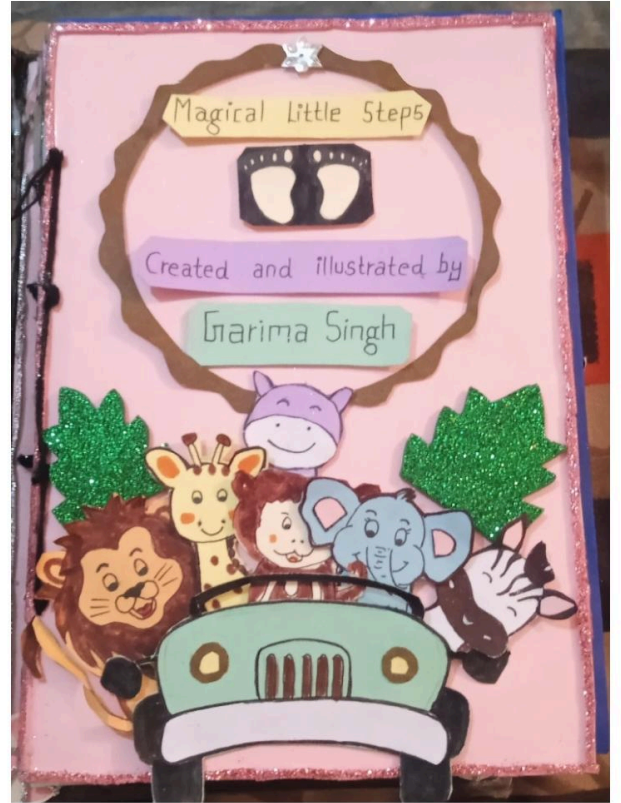
To ensure methodological rigour, the following criteria were used to measure the behavior observed above:

- **Measurement of Progress:** Motor skill improvement was tracked through the precision of the paper pasting task, while cognitive retention was verified by the children's verbal response to the traffic sticks.
- **Off-Task Behavior Criteria:** Off-task" was strictly defined as any instance where a child disengaged from the activity for more than two minutes. The researcher coded the session as having zero off-task behavior due to the high sensory stimulus of the 3D models.
- **Safety Protocols:** All materials were handcrafted with smooth, rounded edges to ensure child safety during tactile exploration.

PILLAR-BASED ACTION PLAN

The study followed a structured Three-Pillar Approach to ensure holistic engagement:

- **Pillar A: The Interactive Rhyme Book** - Featuring the "Magical Little Steps" custom curriculum.
It used "Reveal & Discover" mechanisms (flaps and slides) to trigger curiosity and symbolic recognition.



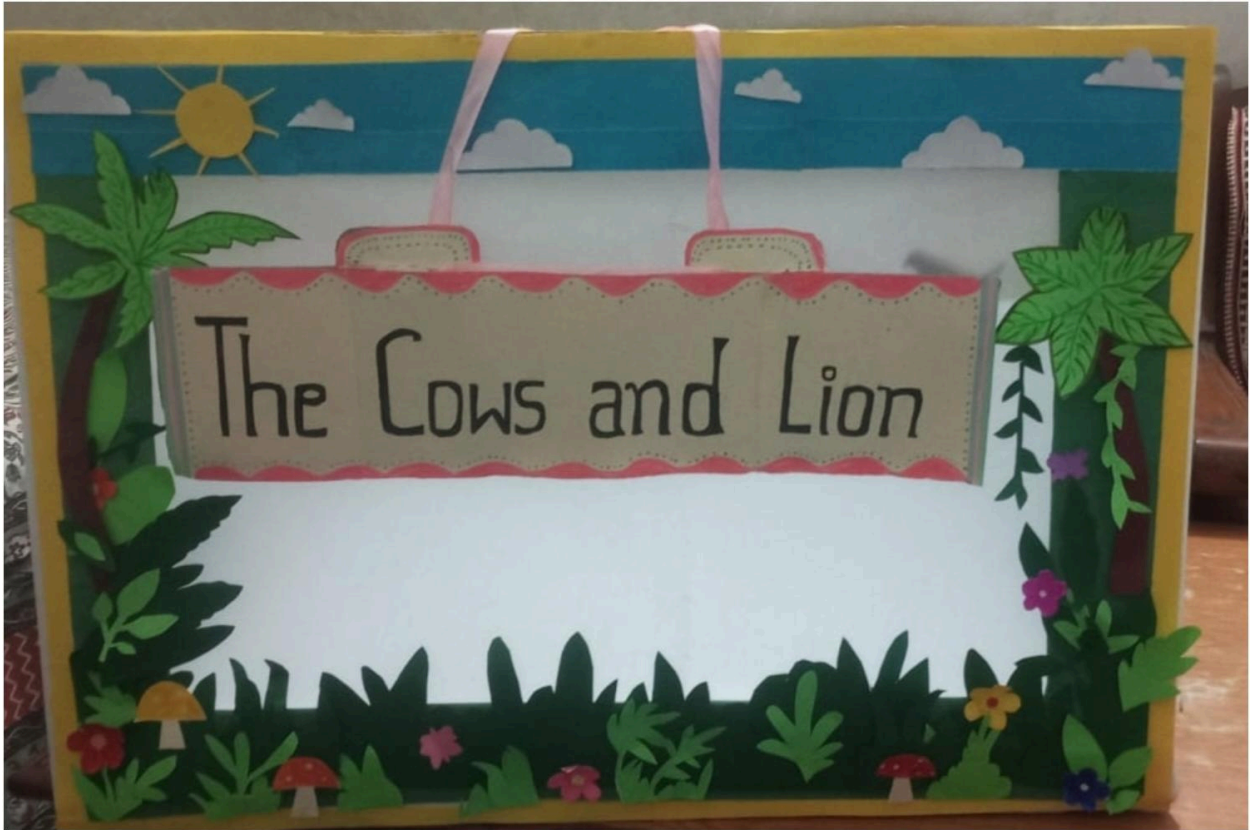
(Figure 2: Interactive Rhyme Book with "Reveal" mechanisms)

- **Pillar B: Tactile & Kinesthetic Integration** - This included the "Torn Paper Pasting" task for fine motor skills and the "Traffic Safety Simulation" using handmade color-coded sticks.



(Figure 3: Children participating in tactile pasting and traffic safety simulation)

- **Pillar C: Immersive Shadow Theatre** - A jungle-themed cardboard theatre was used to maximize auditory focus and emotional involvement through storytelling.



(Figure 4: Shadow puppet theatre setup for immersive storytelling)

4. ETHICS STATEMENT

This study was conducted as a formal practical component of the "Nursery School Education" college curriculum.

- **Institutional Approval:** Administrative clearance was obtained from the Principal of Makoons Playschool and the academic supervisor at Ram Chameli Chadha Vishvas Girls College.
- **Consent & Clearance:** Written consent was signed by the researcher's parents/guardians to authorize participation in the off-campus teaching practical.
- **School Permission:** The playschool management provided formal permission to conduct the activities with the students under the supervision of the class teacher.
- **Child Privacy:** All sessions were conducted in a safe environment, and no personally identifiable data of the participants was shared.

COST ANALYSIS (PRACTICAL VALUE)

A primary objective of this intervention was to demonstrate Practical Sustainability in early childhood education.

- **Materials Used:** Recycled cardboard, scrap colored papers, white A4 sheets, adhesives (Glue), chart paper, and leftover craft ribbons.
- **Estimated Cost:** The total expenditure for the intervention was approximately ₹200 (approx. \$2.5 USD).
- **Affordability:** This averages to only ₹13 per child, demonstrating high affordability and making the model accessible for low-resource schools.

- **Significance:** This analysis proves that high-impact educational tools can be created without expensive technology, ensuring the project is highly scalable for larger groups.

6. OBSERVATIONS AND DATA ANALYSIS

- **Discovery Learning:** 100% of the children were vocal and curious during the "Reveal" process of the interactive rhyme book.
- **Behavioral Regulation & Impact:** The high sensory appeal of the tools led to exceptional emotional regulation. A notable case involved a distressed child who stopped crying immediately upon the introduction of the "Traffic Sticks" to request a specific color (Red). Overall, children remained seated and focused, following instructions to participate in the simulation.
- **Retention:** When shown the 'Umbrella' symbol or traffic colors post-session, children demonstrated immediate recall of the associated safety rules and rhymes.

7. FINDINGS AND RESULTS

- **Interactive Superiority:** The handmade 3-D book sustained attention significantly longer than traditional flat charts or printed media.
- **Motor Skills:** 90% of the participants showed improved focus and accuracy in pincer-grasp tasks during the torn paper pasting activity.
- **Cognitive Mastery:** The integration of original rhymes, handmade puppets, and tactile tools ensured children could recite moral values and safety rules accurately.

8. DISCUSSION & LIMITATIONS

The researcher acknowledges the following limitations in this study:

- **Duration & Sample:** The observations are based on a short duration (60 minutes) intensive session with a small sample size (15 children).
- **Control Group:** The study lacks a formal control group for comparative statistical analysis.
- **Scalability:** Despite these limitations, the high level of student engagement and the low cost (₹13 per child) suggest that the model is highly scalable. For larger groups (e.g., 50+ students), the intervention can be adapted into rotating activity stations and larger-scale group storytelling sessions.

9. CONCLUSION

The "Magical Little Steps" project demonstrates that Handmade Interactive Aids (HIAs) are a powerful alternative to rote learning in early childhood education. By linking tactile engagement to multisensory theory, the study concludes that design-based, low-cost tools create a joyful and permanent learning impact. It is recommended that educators prioritize such expert-validated, budget-friendly tools to bridge the gap between abstract concepts and early learners.

10. APPENDIX: DIGITAL EVIDENCE

Video Demonstration of Interactive Mechanisms:

To view the 3-D features, "Reveal & Discover" mechanisms, and the tactile functionality of the "Magical Little Steps" interactive rhyme book, please scan the QR code provided below:



(Scan to watch the interactive book in action.)

11. REFERENCES

- **Curriculum Source:** Original curriculum developed by Garima Singh for the "Magical Little Steps" project at Makoons Playschool.

- **Pedagogical Framework:** Based on the principles of Multisensory Instruction (MSI), Piaget's Pre-operational Stage, and the "Learning through Play" model.