

TEACHERS' BELIEFS AND PRACTICES RELATED TO USING STORIES AS SCIENCE PEDAGOGY

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Abstract

Stories can be effective in teaching science and nature of science. In non-academic spaces too, stories for teaching science are extremely popular.

Does academic validation and mass popularity reflect in the science classroom?

We conducted a study with 20 science teachers from government and low cost private schools.

We found that a large percentage of teachers confirmed using different types of stories as pedagogy to teach science, albeit spontaneously.

Research Questions

1. What kind of alignment is seen between teachers' conceptualization of the aims of teaching science and the pedagogy they use?
2. How often do teachers tell stories while teaching science?
3. Are these stories planned or spontaneous?
4. What kind of stories do teachers use while teaching science?

- 5 Maharashtra State board schools
- 4 English medium, 1 Urdu medium
- Semi-structured interview with 20 secondary and higher secondary science teachers
- 11 of 20 teachers participated in post interview follow-up
- Data tabulated and color coded for analysis

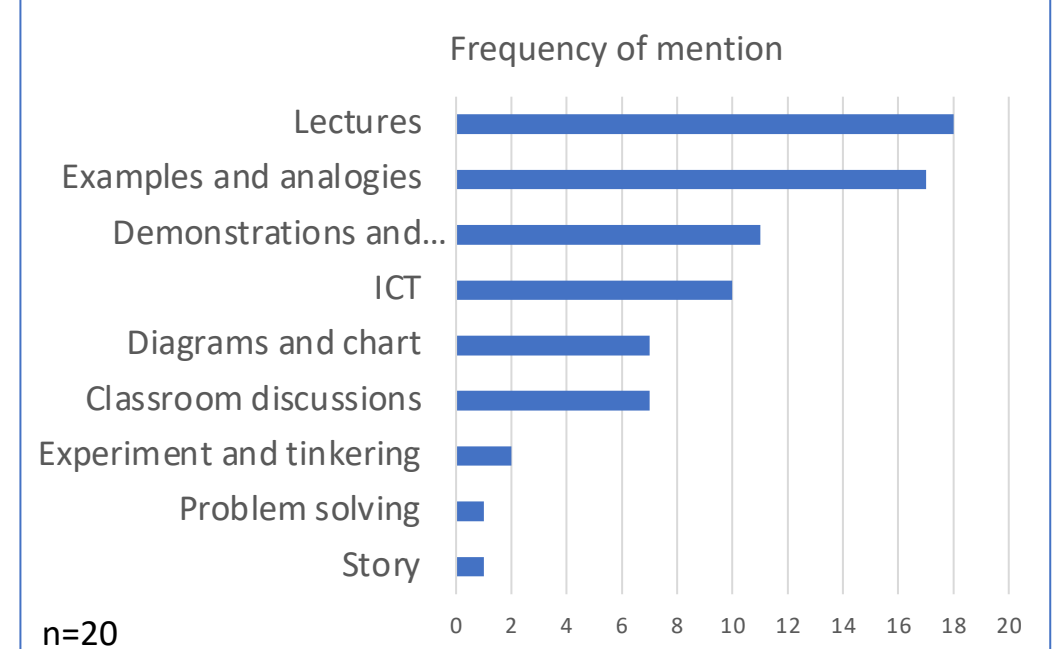
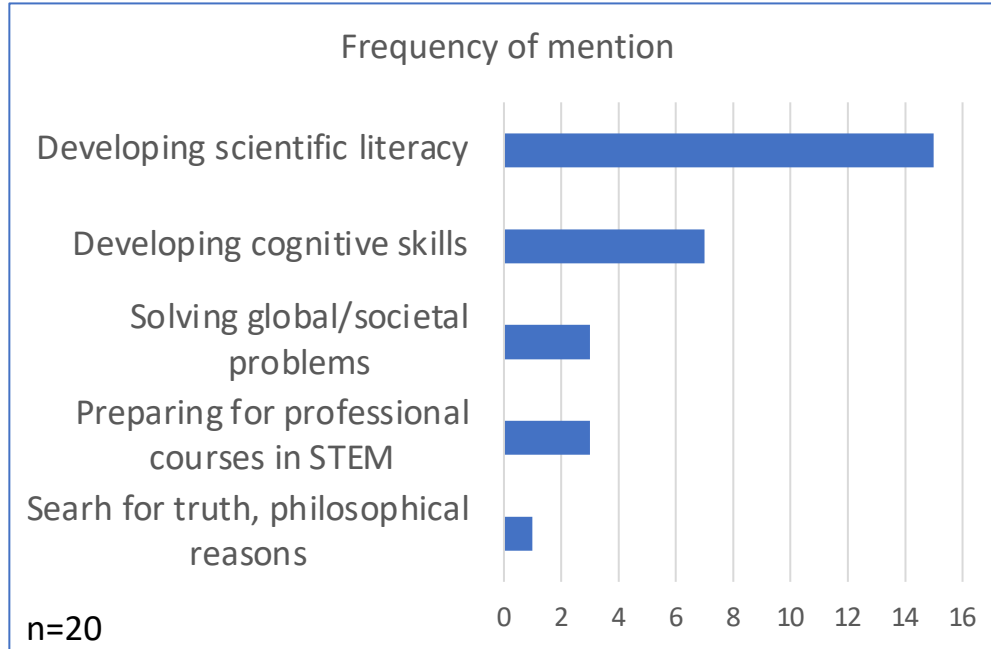
Qualitative Study

1. Semi-structured interview
2. Post interview follow-up for 10 teaching days

Methodology

Data Collection

RQ1: Correspondence between teachers conceptualization of the aims of teaching science and their choice of pedagogy



- Demonstration, examples listed immediately
- Lecture listed at the end;
- Its high frequency listing is a potential area of concern
- ICT as pedagogy
- Using cross tabulation and color codes, we found that teachers for whom science is a way of understanding daily life are more likely to use demonstrations, examples and analogies.

RQ2: Extent of story usage in class

# of stories	# of teachers
11	1
9	2
8	1
6	1
5	1
5	1
4	1
3	1
2	2
0	1

- On average each teacher told one story every other day
- 50% of teachers narrated five or more stories in 10 days.

RQ3: Whether stories are planned or spontaneous

- From the pool of 85% teachers who reported using stories, only 1 teacher said stories were planned.
- Nearly 60% of teachers reported that stories were both planned and spontaneous
- 35% teachers said that use of stories was spontaneous

RQ4: Kinds of stories in the class

Findings

MYTHS AND FOLKTALES - 5
PERSONAL NARRATIVES - 13
STORIES FROM TEXTBOOK - 23
CURRENT EVENTS - 18

n=11, based on follow-up for 10 teaching days with each teacher

- Khejarli massacre of Bishnoi
- Planting of a forest by Jadav Payeng

- Misuse of gender identification
- Choosing a career in science
- Menstruation myths

- Greek scientist Thale
- Archimedes
- Roentgen's discovery of X-rays

- Mission *Chandrayaan 2*
- Australian bush fires
- Flooding in Indian states

Conclusion & Discussion

We found that there tends to be a correspondence between teachers' conceptualization of the aims for teaching science and their choice of pedagogical methods.

Teachers narrated stories mainly to generate interest in a new topic. They are seemingly unaware of the unique and effective potential of stories as a pedagogical tool to teach science

85% teachers confirmed they use stories
10% believed that stories were suited for younger children. More than 50% of teachers from this pool told at least one story every other day.

This gap needs to be addressed by educating teachers on using stories and providing them with well-designed stories. Just as experiments and activities are designed to address specific pedagogical purposes