

THE LOO STORY

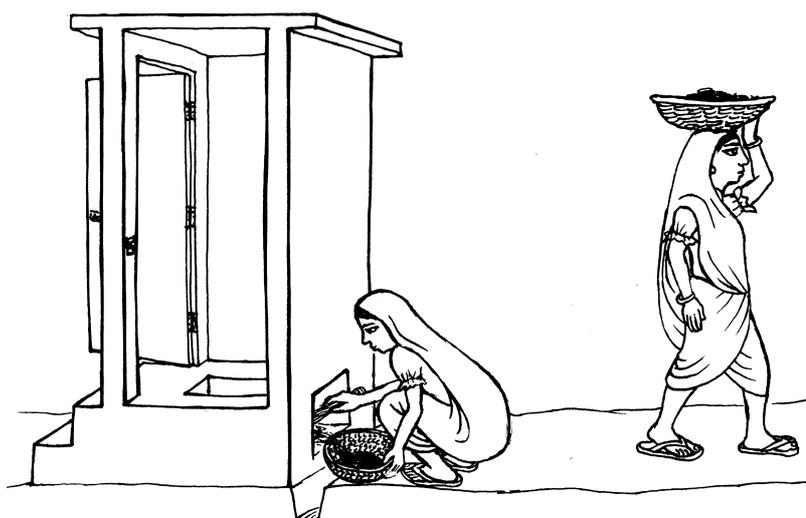
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Science, Technology and Mathematics Education for Human Development (2001) Vol. II, Proceedings of the CASTME - UNESCO - HBCSE International Conference, Goa pp. 94-98

ABSTRACT

For a number of reasons, certain topics are excluded from virtually all school curricula, even though they are socially important and of interest to students. We are investigating how a few such topics might be combined in a cross-curricular lesson involving science and technology. The lesson we have experimented with is on the subject of human faecal waste and its disposal, and social questions related to who takes care of waste disposal - including caste issues. We have designed an exemplar script that can be tested, modified and used to inspire teachers to create their own teaching ideas.



How can important social issues inspire a lesson in science? As an example of how this can be done, we have adapted a folk tale from Orissa as a starting point for a lesson on faecal waste disposal.

Baisakhu's Dream

(Adapted from the Oriya folktale, "A Scavenger's Dream", (Ramanujan, 1991))

Once upon a time there was a sister named Bisania who lived with her brother Baisakhu, and worked in the palace. She went to the palace every day to remove the nightsoil from the princess' toilet.

One day Bisania fell ill, so there was a problem. Who would clean the toilet? Since the princess' staff could find no one else, they finally asked Baisakhu. When he went to the palace, Baisakhu was admitted through the back door so that he could remove the basket of nightsoil from under the latrine hole.

As he was leaving he caught a glimpse of the princess' foot. Just one glimpse and Baisakhu was infatuated with the princess. He began to imagine how beautiful the rest of her must be. Even while he trudged home, his mind was with that small part of the princess' foot. He was so taken with her he could neither eat nor sleep. Bisania kept asking him what was wrong and why he was mooning that way. He finally confessed his infatuation.

"Hey Bhagwan! How can you get the princess? How can you, a toilet cleaner, ever dare to dream of the princess? If you had wanted any other woman, we might have had a chance, but the princess herself - forget it. Ordinary people can't even get a glimpse of her," said Bisania.

But Bisania couldn't distract him from his obsession. Baisakhu's thoughts went round and round and he was all wound up in them. He began to act crazy, didn't change his clothes, didn't eat or sleep. He sat all day under a banyan tree, thinking of nothing else but the princess and how beautiful she must be. Everyone told him he was mad, he couldn't possibly think of the princess. She was so far above him. But he began to think, "Why is she so different? Everyone breathes, eats, sleeps and defecates. Basically we are all the same in the end aren't we? I have seen the waste of rich and poor - it's all the same. In the end it all rots and goes back into the soil. Why is the princess any better than me?"

Finally Baisakhu came to the conclusion that he would die if he could not see the princess. He stole into her chamber and presented himself before her. He asked her to marry him.

"What?? You? You are just a toilet cleaner, and I am a princess," she laughed.

Hearing this, Baisakhu grew angry. He was so upset that his entire body trembled with rage. And the earth trembled with him. "Accha, so you think you're so good, do you? You probably even think your waste is better than mine! I'll show you! Let your waste and the waste of your family not rot like it does for the rest of us humans - let it remain forever as a memorial to your greatness!" he cursed her.

And that is exactly what happened. From that day on, the excreta of the princess and the entire royal family did not rot. It piled up. It stank.

None of the scavengers would take it away because they did not know what to do with waste that would not rot. So it accumulated in the palace day after day, week after week, and year after year. Finally, the royal family was buried in its own waste.

This story forms the scenario for a lesson for students aged 12 to 15. After listening to the story, the students are asked to write answers to some questions the story raises, and then discuss these and other questions in small groups and in the entire class. This discussion encourages the students to think about issues of caste, class, society, science, and technology.

For example, the students evaluate whether they think people should act only according to their socially prescribed positions by answering the questions:

1. Was Baisakhu right to ask the princess to marry him? Explain.
2. Was the princess right to react the way she did to Baisakhu's proposal? Explain.

Students are also encouraged to consider diverse definitions of beauty by discussing whether they think the princess was really beautiful.

They then analyse who should be responsible for waste disposal. A non-fictitious report on real 15 year-old girls who work as scavengers removing faecal waste from toilets today in Rajasthan can also be given (Sainath, 1999).

The students also analyse the meaning of ‘rot’, and discuss whether smelling is actually part of rotting. They are then asked to estimate how much faecal waste a person produces, and calculate how long it would take to fill a room with such waste, as occurs in the story.

Next, the students work in small groups to devise and carry out experiments to find out how *gobar* (cow manure) decays and what factors influence its decay.

Then the students analyse and compare different methods of faecal waste disposal, and discuss what is the best method of waste disposal in their own community and in other areas. Finally, they discuss what they think is the best solution to the problem of scavengers cleaning latrines.

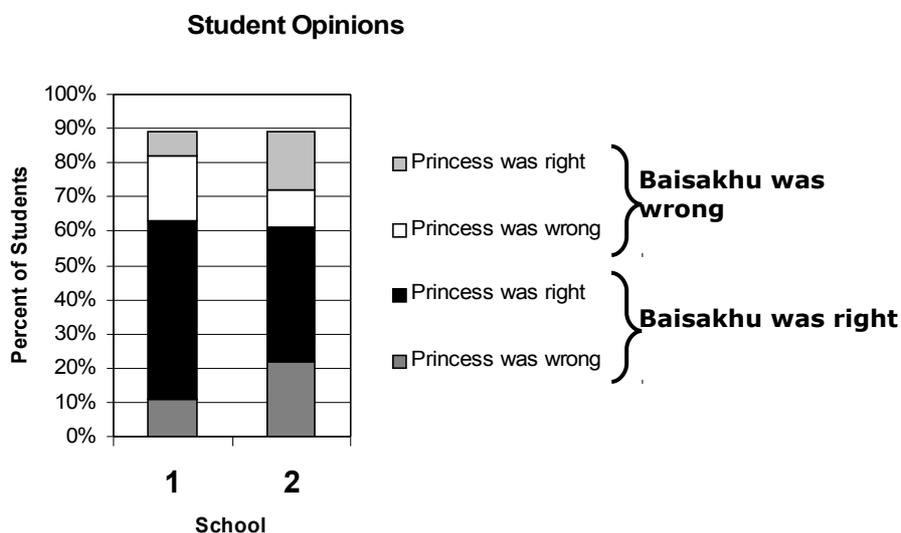
RESULTS

Ideas presented in this lesson design are now being tried out in a few schools in Chandigarh. Here I will discuss the results on the impact of using the story, and how it inspired discussions of social issues.

Most students outwardly showed their reactions to the story by laughing, giggling, and whispering to each other. No one appeared bored. The discussion that followed was animated, with an amazing variety of responses and opinions.

Figure 1 shows the results of how students in two classes (of 27 and 18 students, respectively) in different schools responded to the first two questions about the story. The students in the first school were middle class, and those in the second school were upper class (and upper caste).

FIGURE 1



In both schools 26% of the students wrote that they thought Baisakhu was wrong in asking the princess to marry him because he was just a sweeper and she was a princess. For example, they wrote, “He was wrong. He should have looked at his status and compared it to hers;” “Baisakhu was wrong because he was illiterate and the princess was literate;” “He was wrong - how could he ask a question to which he knew what the answer would be?” “Baisakhu was wrong because he couldn’t marry her because he was poor.” In the 1st school, the students never used the word caste throughout the discussion – they referred instead to Baisakhu as being of a low economic class (perhaps because caste is less of an issue than class with these communities in Chandigarh).

[Interestingly, when the same story was read to a class of similarly aged students in the USA, most of the class thought that Baisakhu was wrong – because they thought he should have gotten to know the princess better before just barging into her room and asking her to marry him. No student in India expressed this kind of thought. But, taking a different stance, one middle class student in Chandigarh said, “He should have asked her father instead.”]

The other 64% of the students wrote that Baisakhu was right in asking the princess to marry him because, “rich and poor both eat and sleep,” “Nobody’s high or low – everybody’s the same, so why not?” “He has the right to ask the princess to marry him because even he is a person just like the princess. You should not differentiate between people on the basis of caste, colour and creed;” “He had the right to ask the princess to marry him because poor people also have their dreams. He loved her and loving anybody is not [a] crime;” “Baisakhu was right because he had made his decision and it was a matter of his heart and the princess was a person just like him;” “He was right because he was saying what he felt, and you should say whatever you feel.” Some students justified his actions even though they could not really condone his transgression of caste barriers: “It’s a stupid thing to say, but why not say it?” “He was right because he was infatuated by the princess and did not have the brain to decide what he was doing coz he was in love.”

In reply to the question of whether the princess was right in her reaction to Baisakhu’s marriage proposal, about 31% of the students wrote she was right. Typical reasons were: “The princess was right because Baisakhu was low caste.” “The princess was right because this never happened before in history and it was not relevant.”

About 58% of the students wrote that the princess was wrong in her reaction to Baisakhu’s marriage proposal. They wrote: “She was not right because god has made all people equal and if he has not made any difference between each one of them who is she to distinguish them each into low and high caste. Love has no boundaries and does not see any castes;” “The princess was wrong because Baisakhu was also a person just like her, who breathes just like her, so he is also just like us;” Other students were more hesitant to advocate crossing caste boundaries, but they thought the princess could have been more polite in her refusal: “She could not have said yes, but she could have been politer;” “She could have answered indirectly;” “She could have said yes, but later on not married him.”

As shown in Figure 1, the students who thought that it was okay for Baisakhu to cross caste or class boundaries and ask the princess to marry him were not the same set that thought the princess was wrong to reject Baisakhu.

In order to see if the students were changing their opinions as a result of the discussions, in the first class they were asked again afterwards to indicate by show of hands whether or not they thought Baisakhu was right in asking the princess to marry him. This time only 15%

(down from 26%) thought he was wrong, indicating that more students were now recognising that he should not be constrained by his caste.

In the first school 44% of the students wrote that they thought the princess was beautiful, compared to 55% in the second school. Typical answers in support of her beauty were: “The princess was beautiful because her foot was beautiful;” “Yes, the princess was really beautiful, because if she wasn’t Baisakhu would not have wanted to marry her;” “She was beautiful because no ordinary person was allowed to see her, and because the scavenger fell for her, having just a glance of her.” Those that disagreed said, “The princess was not beautiful because beauty is inside, and because she distinguished between men and treated them according to their caste.” “A beautiful person is also good underneath – they help others, etc” (To which someone else added, “But a woman should be beautiful from the outside also.”) “She was an ugly duck since a duck has pretty feet and an ugly body.” “Even though some people are black, they could be very good looking. – There is a poor servant’s child in my house who is very cute.” Some students simply said: “I don’t know if she is beautiful. I can’t judge from her leg.”

There were divided opinions as to whether some members of society should be allowed to produce waste while others are responsible for taking care of the waste. Some students said that everyone should clean up after themselves. Others said, “People need to earn. If we clean up for ourselves, then they will be unemployed.” Someone said, “People who clean don’t like to do it,” but others disagreed.

When asked to comment on how waste should be taken care of, some students said that the solution is in machines and higher technology. But some other students also pointed out that even then there might be problems with pollution, etc.

Although the students had previously studied something about decomposition in class, none of the students could explain much about how waste decomposes. No one mentioned that microbes or bacteria are involved. No one understood why waste smells. No one knew whether waste that did not rot would also smell. Further work is still underway to get the students to do experiments with *gobar* in order to clarify these issues before going on to analyse different methods of waste disposal.

CONCLUSIONS

Through this lesson, students consider a problem in which science is inextricably connected to social, ethical, and aesthetic issues. As a result they may realise the importance of social issues in science, and they may also find science more relevant, interesting, and fun. Students become interested in an important problem that is not usually discussed in school, does not fit into any one subject in an ordinary curriculum, and may even be taboo.

This lesson also serves as an example in which students consider questions for which there is disagreement about is what the “correct” answer. In so doing students may become aware that there are questions (in science and in social science) that do not have clear-cut correct answers, and that science is not just a collection of indisputable ‘facts’. Students are also encouraged to think about things from different points of view – e.g. the point of view of a toilet cleaner as well as the point of view of a princess.

About one fourth of the students in the two classes in which the lesson is being tried accepted the status quo and did not recognise caste (or class) as social problems to be opposed. However, many students had opinions that were unsure, confused, self-contradictory, changing, or were being reinforced. During the discussions some students appeared to become more enlightened about caste and class problems. Students certainly are interested in these in discussions, and even students who are usually quiet in class are eager to participate.

A few possible methods of assessment were also tried. Attempts to assign marks or grades to indicate how enlightened the students were about social issues did not seem to make sense, or serve any useful purpose. Questions and comments the teacher makes in order to clarify the students' comments, acknowledge their opinions, and get them to consider alternatives and think more deeply are useful. In this way students get meaningful feedback from the teacher. Keeping written work for later review is helpful. Asking students to write their own summary and assessment of what they have gotten out of the discussions, what they found interesting, etc. is also useful.

This work has been done in collaboration with Vandana Mahajan, Anita Rampal, and Vijaya S. Varma, as part of the program on Science and Technology Literacy for All, sponsored by UNESCO, ICASE and Delhi University. Further assistance and useful discussion was provided by Harleen Kauli and Amitabha Mukherji.

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