

"Benefits of tactile materials in the education of visually impaired students"

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Short Abstract

The hand of visually impaired children is their eyes. Touching can make them feel the reality. Tactiles and models play a vital role in developing computational thinking skills in blind students by providing them with tangible representations of abstract concepts. The tactiles and models are helpful in making children understand the different representations, visual concepts, problem solving, Spatial reasoning and collaborative learning. That's why every tactile kit and model sent by Vision Empower is very useful to them. In this abstract, the usage of one such tactile kit /model and developing computational thinking skill through Market game is explained below.

Background

Visually Impaired School, Koraput

Our school has a total of 15 staffs and 62 students from grade 1-10. Our school was established in 1983 at Sunabeda in Koraput with the efforts of Mr. Ainthu Swain and in 1990 it was shifted to Koraput. A lot of students from our school have passed matriculation with distinction and pursued higher education. Gupta Prasad Mohanty and Sushant Khil are students from this school. Five students have already got jobs in sports quota by playing blind cricket under the supervision of Patnaik sir.

T.E.L.C Middle School for Visually Impaired, Tirupattur

T.E.L.C Middle School for Visually Impaired, Tirupattur- 630211, Sivagangai District. A total of 30 students (20 boys, 10 girls) study in our school from 1st to 8th standard. Our School has 16 totally blind students and 14 partially sighted students. Once a week in our school we play the computational thinking game.

Implementation

- We would like to cite the example of a game kit/model such as fruits and vegetables.
Among the various educational materials that Vision Empower has offered, children love to play with these fruits and vegetables for a longer period of time. We play market game using fruits and vegetable models. In this game the students play the role of seller and buyer with great joy. It helps the children to know about the real market.
- The Market Game, which was played with vegetables and fruits. It is very much effective for blind students.
- The students were divided into two groups, one group will be the seller and the other group will be the buyer.
- Both the groups were given braille number coins and braille chits or shape cut outs for money.
- The students, who are sellers, started selling brinjal, tomato, onion..., grape, apple, banana, etc.,
- **"Buy...Buy...Would you buy a carrot? It's good for your eyes. If you buy and eat it, you'll be as beautiful as a movie actress. Buy...Buy...Wouldn't you get it?"** They started selling by saying these.
- While playing this game, we discuss about the items bought by the students and also about profit and loss concept.
- One of the students shared that he bought vegetables for 100 rupees and sold them for 150 rupees. ($100+50=150$) and ($100 - 50 = 50$) said he had made a profit of $150-100 = 50$ rupees.
- Another student said that she sold the item for 80 rupees which is actually 100 rupees and had a loss of $100-80 = 20$ rupees. From this we explain about buying price and selling price as well.

Challenges and solutions

- Students with visual impairment finds it very difficult to do addition, subtraction, multiplication, division, profit and loss calculations in Taylor Frame. But when materials are used and taught through play way method, students are understanding it well, doing calculations and showing more interest. • Whether it was mathematics or science, children were finding it difficult to remember and understand the concept by listening. These tactile kits and models are improving children's knowledge and developing computational thinking skills.

Impact and Analysis

- Thinking power is developed with great enthusiasm and joy through CT games. • It also helps to learn the 'science' of what nutrients are available in vegetables, fruits and greens.
- All blind students learn addition, subtraction, multiplication, division, profit and loss with ease.
- Improves mental calculations, memory skills and problem solving skill. • As a teacher, I realized very well that the market game has greatly improved CT skills in the blind students. And there is an improvement in learning through touch and feel.
- Shyness and fear had been reduced and they had gained confidence.

- Their decision making skill is developed while selecting shops to buy things at the lowest price.
 - Joyful learning is witnessed. •
- Primary/ lower grade children love the game. So it is certain that education is effective and CT skills are being improved by playing this game.

Conclusion

Overall tactiles and models are invaluable tools for developing computational thinking skills in children with visual impairments. By providing them with accessible and engaging ways to develop their CT skills will certainly help them. Tactiles and models enable them engage in hands-on problem-solving activities and explore different solutions to mathematical problems, fosters creativity and critical thinking skills.

