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Human Body Portrayal in NCERT's EVS and Science Textbooks — An Analysis

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Abstract

Body is the most evident form of differentiating among people. Knowing the human body helps accept people who are different physically. It is vital to see how the physical aspects of a human body are depicted in textbooks. This paper tries to study how inclusive NCERT textbooks are in terms of including the full image of people with special needs. NCERT textbooks on Environmental Science (Classes III–V) and science (Classes VI–X) were analysed with reference to the aims reflected in the Position Paper for Children With Special Needs (CWSN). It was found that NCERT textbooks from Classes III–X are all–inclusive in nature and cover the criterion for CWSN as mentioned in the National Curriculum Framework (NCF)–2005. However, the body is described from a general perspective and differently abled body types, although included, are comparatively neglected as far as images used in the books are concerned. Thus, even though the school space has been made inclusive by welcoming CWSN into the classroom, the study material may make some children feel inferior. The paper observes that a slight rephrasing in language and inclusive examples may make it more relatable and address a wide range of audiences.

Introduction

Textbooks are an explicit manifestation of the implicit aims and objectives of curriculum being followed in schools. Krishna Kumar, in his article 'Origins of India's Textbook Culture', points out that there are two kinds of school system — one, where the school is free to select its textbooks or make textbooks of its own, and another, where the school uses textbooks prescribed by the concerned authorities. In the first kind of school, the teacher recommends texts from different books and other resource material the students can

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refer to. In India, however, the role of the teacher depends on the type of school (Kumar, 1988). In the second type of school, there is a pressure to complete the syllabus in a limited timeframe (Kumar, 1988). Here, the teacher is bound by the textbook as it is prescribed and not just recommended by the authorities concerned.

Schools in the Indian education system are mostly of the latter kind. There is a bombardment of syllabus, subjects, lessons, assessments, etc.

Freire (1974) raises the question of how the education system is suffering from 'narration sickness', where a teacher is the narrator and students are mere passive listeners, who have to mechanically memorise the narrated content. A typical Indian classroom is governed by textbooks. The overriding objective of the teacher is to complete the syllabus within a stipulated timeframe. At times, the students find it difficult to cope with this huge rush to complete the syllabus. In such a scenario, it is unlikely that anything beyond the textbook will be covered.

Apple and Franklin (2004) in their work, 'Curricular History and Social Control', point out that schools and curricula evolve in such a way that the interests of one community are subsumed by those of a more dominant community. In such scenario, schools can be used to normalise and infiltrate the power pattern of society. Such infiltration happens through the curriculum and hidden curriculum framework. The contents of each textbook need to be looked into carefully before introducing them in a class.

The NCF–2005 underlines the need for bridging the gap between school and home environment. The only way to achieve this is to make textbooks relevant to students. But with the same textbooks being studied by students across the country, a fully inclusive textbook is not possible. However, topics like 'disability' may be included to sensitise the teaching fraternity, students and their parents. For teachers in India, textbooks become their primary source of information. Therefore, it is important to have a closer look at the content of the textbooks.

The NCF–2005 propounds the idea of creating an inclusive classroom environment with emphasis on CWSN (NCERT, 2005). The document notes the difficulties that CWSN may encounter because of inappropriate pedagogic practices. It also highlights how 'labeling' can create inferiority complex among CWSN (NCERT, 2005). The Position Paper for CWSN notes that in 1970s, the government had launched a scheme of Integrated Education for Disabled Children (IEDC). This scheme attempted to integrate special children in regular schools (NCERT, 2006). "Segregation or isolation is good neither for learners with disabilities, nor for general learners without disabilities. A rational society desires that learners with special needs be educated along with other learners in inclusive

schools, that are affordable and have sound pedagogical practices" (Position Paper on CWSN, NCERT, 2006). Inclusion of CWSN helps in the holistic development of the entire class. All students learn to follow a code of conduct while interacting with each other. They learn tolerance and accept individual differences. The education imparted needs to be relevant to all students, irrespective of the differences. Therefore, textbooks play a crucial role in giving the right direction to education.

'The Focus Group Position Paper on Teaching of Science' puts forward a different set of objectives based on the level of education. At the primary stage, the aim is to nurture the curiosity of children and help them explore the world, people and artifacts. At the upper primary stage, there is gradual transition from environmental studies to science. The topics studied need to be relevant drawn from real-life experiences. The Position Paper argues that students at the upper primary stage enter adolescence and there is a need to conduct open discussions on topics, such as human body, reproduction and safe sex. At the secondary stage, concepts of science that require abstract thinking may be introduced (Position Paper on Teaching of Science, NCERT, 2006).

Objectives of the Study

- To study how images of people with special needs are represented in EVS and science textbooks
- To study the language used in the textbooks as an indicator of inclusion

Keywords

People with Special Needs (PSN)

They are individuals with any kind of physical impairment like visual, hearing or loco motor. Not much attention is paid to intellectual disability.

People with No Impairment (PNI)

They are individuals who have no physical impairment, whether visual, hearing or loco motor.

Comprehensive human body

It means identifying different kinds of human body, and not limiting the human body to a standard anatomy. It includes both PNI and PSN.

Comprehensive human body portrayal

This paper defines comprehensive human body portrayal in terms of the inclusive lens used to include PSN and PNI while portraying the human body through illustrations in chapters related to visual, hearing and loco motor abilities.

Methodology

The method used for conducting this study is 'content analysis' of NCERT's EVS and science textbooks of Classes III to X. The analysis has been done taking into account the

aims of NCERT's Position Paper for CWSN (2006) and comparing it with EVS and science textbooks published by the Council.

Perception of the Human Body in EVS and Science Textbooks

Knowing and appreciating one's body is important. The study aims to analyse the way topics related to the human body are introduced in NCERT textbooks. It also aims to analyse how different body types, especially, those of PSN, are depicted in the textbooks, and how the needs of PSN (especially, adults) are portrayed. Hence, it is important to understand that public perception is created through textbooks, magazines, social media, etc. This makes it imperative to analyse the contents of the human body in science textbooks that are taught to children in schools. human body. This study focuses on the depiction of physical body and information in the textbooks with regard to visual, hearing and loco motor abilities.

Analysis

Discrimination on the basis of differences in the physical body is common. Classroom reflects a mini society. Teachers need to see to it that differences in students' physical build must be used as resources for learning. Such cohesive environment will make them learn and understand the need to accept and respect everyone as equals. While advocating inclusive education, there are many factors that need to be considered, such as accessible infrastructure, special educator, counsellor and content taught in the classrooms. The students should be able to relate to the content being taught in a classroom.

Progression of content

It is important to understand that the early years of a person are the formative years and play a pivotal role in shaping one's personality. Curiosity is at its peak during childhood. This is obvious when one observes children picking up every little moving object or creature as they explore the world around using the mobility of their bodies. Hence, the exploration of one's body should start early in life. The major themes that run across Classes III to V in EVS textbooks are as follows.

- Family and friends (relationships, work and play, plants and animals, etc.)
- Food
- Shelter
- Travel
- Water
- Things we make and do

'Body' as a theme has not been explored much in NCERT's EVS textbooks meant for the primary stage. Topics related to the 'body' are incorporated as sub-themes of family and friends. For example, a Class III textbook tells the story of a blind man and how he reads and manages his daily routine and an exceptional piano player, who cannot hear or

sing. The textbook focuses on some abilities that one possesses and some one lacks.

NCERT's Class IV EVS textbook teaches students about how babies resemble parents.

NCERT's Class V EVS textbook has chapters on breathing and other sense organs a human being is blessed with. The chapters are explained through activities, stories and poems, making learning interesting and comprehensive.

In NCERT's Science textbooks of Classes VI to X, many themes related to the human body are discussed. There are chapters on body movements, respiration, cells, reproduction, life processes and the human eye.

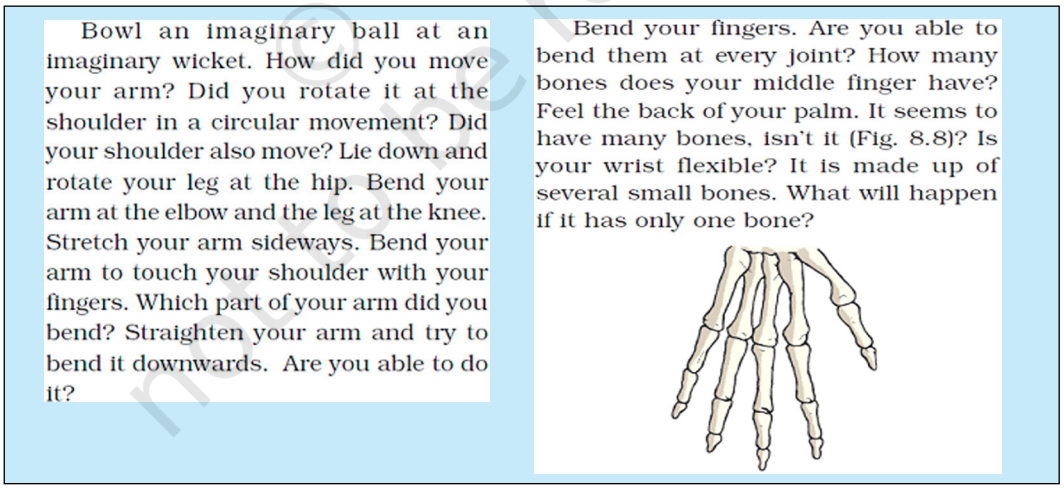
It is, thus, important to note that the 'human body' as a topic has not been explicitly dealt with in NCERT's science textbooks meant for the primary classes, while textbooks of elementary and senior grades have just three or four chapters on the subject.

Presentation of content and language used

The way a chapter is presented, in terms of the content chosen, illustrations used and language employed, plays a vital role in defining its learning outcome. In *Science* textbook of Class VI, a chapter titled 'Body Movements' talks about the different joints in a human body. It also carries activities for the students so that they can explore their own body movements and the different joints involved in making those movements.

One of the activities given in the textbook is illustrated in Figure 1.

Similar examples and activities are given in the chapter for every joint and muscle. As the chapter progresses, no stress is laid on how children with mobility impairment


Bowl an imaginary ball at an imaginary wicket. How did you move your arm? Did you rotate it at the shoulder in a circular movement? Did your shoulder also move? Lie down and rotate your leg at the hip. Bend your arm at the elbow and the leg at the knee. Stretch your arm sideways. Bend your arm to touch your shoulder with your fingers. Which part of your arm did you bend? Straighten your arm and try to bend it downwards. Are you able to do it?

Bend your fingers. Are you able to bend them at every joint? How many bones does your middle finger have? Feel the back of your palm. It seems to have many bones, isn't it (Fig. 8.8)? Is your wrist flexible? It is made up of several small bones. What will happen if it has only one bone?

Figure 1: Activity on joint movement in NCERT's Science–Class VI textbook (Chapter 8, 'Body Movements')

can become mobile with the help of technology.

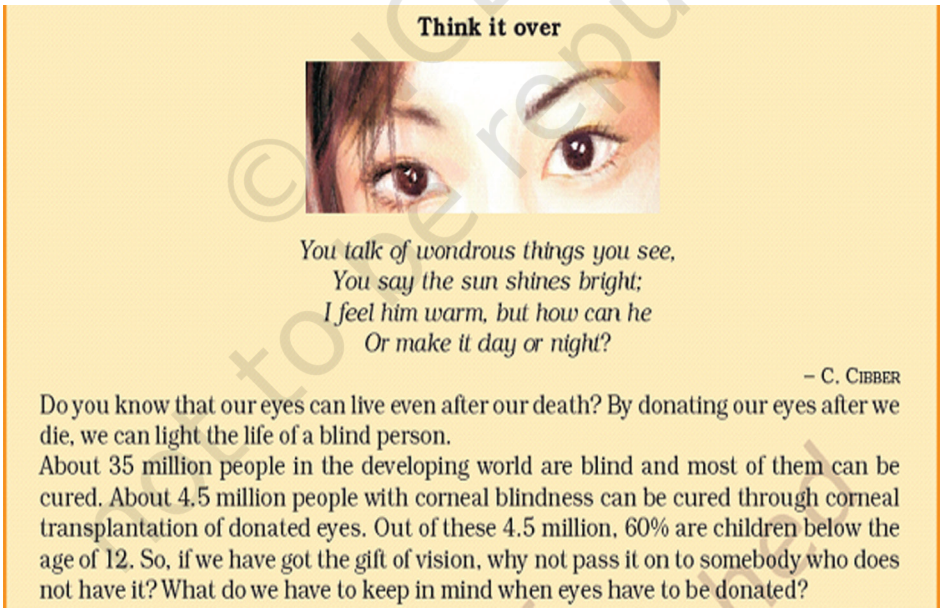
The textbooks should raise meaningful and interesting questions. By emphasising applications and problem solving, such topics can be included in the textbooks and present an all–inclusive picture.

In fact, the textbooks of all classes have activities relating to all children. In Class VII *Science* textbook, the chapter on 'Respiration in Organisms' carries illustrations that show people running, walking and skipping. The activities to be performed by the students are also related to these.

The Class X *Science* textbook has a chapter titled 'The Human Eye and Colourful World' (Figure 2), which deals with the structure of the human eye, how vision is formed and vision corrective measures. The chapter talks about myopia, hypermetropia and presbyopia. However, this will inevitably lead to a classroom discussion on blindness and why some people cannot see.

The chapter also stresses how the able bodied can donate their organs after death. "Do you know that our eyes can live even after our death? By donating our eyes after we die, we can light the life of a blind person." (*Science*–Class X, NCERT).

However, the words normally used in NCERT textbooks may give a mistaken impression that the textbooks place a PNI on a higher pedestal than a PSN. Words like 'you' and 'our' run across the textbooks. While such words make a personal connect with the readers, it is



Think it over

You talk of wondrous things you see,
You say the sun shines bright;
I feel him warm, but how can he
Or make it day or night?

– C. Cibber

Do you know that our eyes can live even after our death? By donating our eyes after we die, we can light the life of a blind person.

About 35 million people in the developing world are blind and most of them can be cured. About 4.5 million people with corneal blindness can be cured through corneal transplantation of donated eyes. Out of these 4.5 million, 60% are children below the age of 12. So, if we have got the gift of vision, why not pass it on to somebody who does not have it? What do we have to keep in mind when eyes have to be donated?

Figure 2: NCERT's Science–Class X textbook has a chapter titled 'The Human Eye and Colourful World'.

important to read them in context and understand the presumed audience it is catering to. These words when read in context clearly address a PNI. It is crucial to teach children the differences between different body types so that they develop empathy towards others as they grow up. Thus, it is important to realise the inclusivity of the audience that the books are catering to and try addressing all of them.

Conclusion

Hence, it can be concluded that it is important to redefine the term inclusion, especially, in NCERT textbooks, which cater to lakhs of students across the country. It is not merely getting special children enrolled in school but also giving them an education that they can relate to. Therefore, representation of PSN in textbooks is crucial not only to make the curriculum relatable but also imbibe sensitivity and empathy in students. However, it may be observed by some that comprehensive portrayal of the human body has had less attention in NCERT's EVS and science textbooks as far as images are concerned. Some of the points that need to be noted are as follows.

- Chapters dealing with the human body are few. Indeed, all perspectives and topics cannot be covered in a chapter or textbook but some rephrasing in language and examples can make it more relatable and address a wide range of audiences.
- Representation of PSN needs to be increased in terms of content and visuals.

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