

## Problemetising Prospective Primary Teachers' Understanding of School Textbooks — The Case of EVS

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### Abstract

*A textbook is a significant curricular input that propels and navigates the curriculum. NCERT Environmental Studies (EVS) textbooks for Classes III to V, written in the light of the National Curriculum Framework–2005, demonstrate an unconventional approach to knowledge and teaching–learning process. However, there has been a growing concern if these textbooks are actually reaching learners or even teachers. Text interpretation, in its intended sense, is often not as straightforward an intellectual activity as may be presumed, and more than text interpretation, it is the teachers' conceptualisation of EVS that may be needed to be closely examined. This lends support to the view that the teachers need to be facilitated in understanding the content, its transaction and significance. Hence, it is important that the teachers develop an understanding of the textbooks so that they can transact them in the intended sense. This paper discusses the results of an intervention that aims at enhancing future teachers' understanding of the EVS textbooks.*

Keywords: Prospective primary teachers, textbooks

### INTRODUCTION

A school curriculum is premised on certain assumptions about learners, the subject matter and its pedagogy. These assumptions may be assessed from policy documents, such as the National Curriculum Frameworks.

The policy vision spelled out in such documents is concretised in the form of syllabi. Textbooks are developed in light of the syllabi, which take the curricular idea to classrooms through teachers. Textbook is the prime curricular input, which shapes the process of curriculum enactment.

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Textbooks represent to each generation of students an officially sanctioned, authorised version of human knowledge and culture (Luke, DeCastell and Luke, 1989, p. vii). The statement is, especially, true in the context of a country like India, where a large part of textbooks is considered equivalent to the curriculum. McCutcheon (1982) came up with specific factors that were responsible for teachers' widespread use of textbooks. These were — requirement of school board (a committee in-charge of education in a particular city, area or school, especially, in the US, where this study was carried out), peer and parent pressure, belief in the necessity for uniformity and parity, lack of other material, ease of use, clear organisation, and responsibility to plan and teach multiple subjects to multiple ability groups.

Teachers, as mediators of curriculum and curricular material, intervene in a significant way to influence the understandings that are communicated during the process of classroom teaching and learning. Innovative and radical ideas can lose edge if not implemented in the intended sense. Unless a reform is adequately understood, the process of curricular reform may be severely impeded. One among the three key impeding factors for the implementation of curricular reform put forward by Cheung and Wong (2012), on the basis of a large-scale study, was teachers' inadequate understanding of the curricular reforms.

The teachers' understanding of textbooks is, usually, taken for granted as textbooks are meant for school children and the teachers have studied the subject at a much advanced level. This is more the case for primary school teachers as they supposedly deal with concepts and ideas that are considered 'simple'.

However, this premise may need to be revisited as demonstrated by various studies. Contrary to the expectation, it is found that teachers may not always comprehend the essence of ideas laid out in textbooks. Land, et al. (2015) observed that pre-service teachers tended not to read educative text features in potentially educative ways and often read them descriptively — not making an effort to understand the pedagogical approach. The personal meanings attributed by a teacher to new curriculum reforms give direction to one's path to curriculum implementation (Bantwini, 2010).

Yan and He (2012) made an important point when they stressed on the need to bridge the gap between macro-level driving ideas and micro-level school realities. Remillard (1997) suggests that teachers play a more direct role than textbooks in enacted curriculum as they are the key people, who informed by their beliefs, understandings and dispositions, interpret and implement the curriculum.

Enacted curriculum comprises teacher–student interactions focused on instructional material and teacher

intended curriculum. It may be understood as the operational form of the intended curriculum. Chau, et al. (2006) also support the view that local implementation of instructional reforms is not a straightforward exercise but quite a forbidding challenge to bring about substantive rather than cosmetic change.

Moulton (1997), on the basis of an extensive review of studies examining teachers' use of textbooks, observes that teachers tend to develop specific patterns of textbook use, which they maintain over the years. This means that once a teacher's pattern is crystallised, it is unlikely that the person will change it. It follows that future teachers need to develop an appropriate understanding of the curricular material before they start working. Therefore, teacher training programmes need to serve as junctures for the cultivation of understanding of curricular material.

Environmental Studies (EVS) textbooks for Classes III to V, written in light of the National Curriculum Framework-2005, demonstrate an unconventional approach to knowledge and the teaching-learning process by presenting EVS as a composite area of study.

Two underpinning thoughts that could perhaps best summarise the philosophy of these texts are — plurality of contexts and concern for social justice. Plurality is actively catered to by bringing in varied and diverse experiences and life situations

— variety in landforms, lifestyles, vegetations and food habits are reflected throughout, and inequalities are consistently questioned.

There has, however, been a growing concern, as suggested by off-hand observations, if the import of the text is actually reaching learners or even teachers. The present study was designed to investigate and address the issue at teacher preparation level. It was conceptualised in four phases — preliminary, pre-interventional, interventional and post-interventional.

### PRELIMINARY PHASE

An exercise to gauge the relevance and need for the study was carried out on first-year students of the two-year Diploma course in Elementary Teacher Education in the year 2015-16 in a teacher training institution, where the researcher was teaching. Forty-three students were divided into seven groups, each consisting of five-six students. Each group was assigned one of the following seven chapters of Class V EVS textbook — (i) '*Chakhne se Pachne tak*', (ii) '*Boond-boond, Darya-darya*', (iii) '*Paani ke Prayog*', (iv) '*Bolti Imaratein*', (v) '*Sunita Antariksh mein*', (vi) '*Jaayen to Jaayen Kahan*', and (vii) '*Kiske Jungle*'. The students were asked to read and collectively identify the embedded concepts, issues, sensitivities and skills in the chapters. The findings lent support to the premise that a systematic attempt to enhance the understanding of future teachers of the textbook was indeed warranted.

## Sample

The group consisted of 50 students. However, some students dropped out and few new ones joined during the course. In the end, 43 students, who were present at the time of initiation of the study, remained. These students comprised the sample of the study.

## Tool description, preparation and validation

The study was spread over seven months and was confined to seven chapters of the Class V textbook. The chapters were read out by the

researcher, who has been teaching the course in Pedagogy of EVS for 15 years. Drawing upon her experience and familiarity with the textbooks, she prepared a template that highlighted the inhering concepts, issues, sensitivities and skills in each chapter. This template was discussed on a wider forum with three experts and their views were sought on the same. The template was, then, modified in light of the suggestions received. An exemplar of the template pertaining to the chapter '*Paani ke Prayog*' is as follows.

**Table 1: Template exemplar  
Name of the chapter: '*Paani ke Prayog*'**

Concepts or understandings	i) floating and sinking
	ii) floating and sinking of an object depends on the material it is made of, its mass, shape and presence of solutes in the water, in which it is dissolved
	iii) solubility and insolubility of different substances in water
	iv) particulate nature of matter
	v) conditions affecting the solubility of substances in water
	vi) viscosity of liquids
	vii) conditions affecting the rate of evaporation
	viii) separation of dissolved substances — getting salt from water
Issues	i) state ownership and levying of tax on natural products (salt)
	ii) mass mobilisation over an object of everyday use and common concern
Skills	i) hypothesising
	ii) planning and investigation
Sensitivities	i) providing science–society interface
	ii) challenging gender stereotypes
	iii) challenging stereotypes related to science and scientists
	iv) challenging science as an 'exclusive' practice

## **PRE-INTERVENTIONAL ASSESSMENT PHASE**

The students were divided into seven groups, each having almost equal number of members initially. However, it may be pointed out that the study was initiated in the early days of the academic session and there was a considerable influx and withdrawal of students. Consequently, the number of students in each group varied in the end. During the pre-interventional assessment session, each student was asked to identify the concepts, issues, sensitivities and skills in the chapter assigned to the child's respective group. The time taken by the students to complete the task was about one-and-a-half to two hours. The students' responses were recorded. Each student was assigned a code and the response was marked as 'yes' or 'no', depending on whether the student was able to identify a particular understanding, figuring on the template developed for each chapter. Reflecting on the responses received, the researcher designed an interventional exercise.

## **INTERVENTIONAL PHASE**

The pattern of responses received during the pre-interventional phase was reflected upon so as to come up with the nature of interactions that would help the students understand the intent of the textbook in a better way. The intervention consisted of the following components.

### ***EVS kya hai***

This module was written with the primary objective of broadening the

concept of Environmental Studies in prospective teachers.

### **Syllabus and textbook scan**

This module was intended at familiarising the participants with the EVS curriculum and Class V textbook, and ensuring that they read both in entirety. The questions raised as part of this interaction were specific and dealt with the nature of the two documents.

### **Vision, curriculum and textbooks**

This module was premised on the hypothesis that the prospective teachers would be able to appreciate the intent of the curriculum and textbook in a better way, if they were themselves facilitated to trace how the ideas reflected in the vision documents found correspondence in the content of the syllabus and textbook.

### **Interaction with textbook adviser**

It was opined that participating in a face-to-face interaction with the textbook adviser would give a humane face to the entire process of textbook conceptualisation and development. The understanding, thus, forged would help the teachers comprehend the ideas and insights that form the essence of the textbook in a better way.

### ***Lekhakon ke mukh se***

This module was based on the researcher's interaction with the adviser and two authors of the textbook to gauge the philosophical backdrop against which it was written. Certain

key ideas that were highlighted by them were sifted out to ascertain if these had reached the students and the students were asked to cite examples from the textbook to support how they saw a particular idea being reflected in the book.

### **EVS — perspective and pedagogy**

A face-to-face interaction of the students with the advisor and one of the authors of the textbook was again organised to give them a first-hand account of the considerations that shape the content and process of developing a textbook, the rationale behind the inclusion of certain concepts and the challenges faced.

It was opined that this would help the students arrive at an understanding, which is illuminated by the basic premises and key ideas of the book. The modules varied in their content and scope, and therefore, the students' time of engagement with each module differed.

### **POST-INTERVENTIONAL ASSESSMENT PHASE**

Like the first session, the students were again divided into seven groups and asked to work on the chapter that they had worked on in the previous session. They were asked to identify the various concepts, issues, sensitivities and skills included in the chapter. The time taken for post-interventional assessment was one-and-a-half to two hours.

### **Identifying the challenges**

The students responded differently to the intervention. While there was an increase in the number of students' ability to identify many concepts, issues and sensitivities, there were some for whom the intervention proved completely ineffective. It would be informative to examine these uncommunicative understandings to actually be able to gauge the challenges that beset the textbook writing process.

### **Use of narratives**

The textbook consistently uses narratives as pedagogic devices in the form of historical instances, biographical notes or first-hand experiences of people, who have made significant contributions to the society and knowledge, life stories or everyday events in the lives of people. These have been included for specific educative purpose, which does not seem to always reach the prospective teachers. The text is layered in meanings. Though the prospective teachers may be able to access the outside of an explicitly stated idea, they may not often be able to reach the fundamental and core issues being addressed through it.

### **Challenge to stereotypes**

Prior to intervention, gender stereotypes were not easily identified even in iconic cases, such as that of Sunita Williams. Gender stereotype,

however, seems to be more amenable to recognition on providing appropriate cues. Challenges to other kinds of stereotypes are not easily recognisable.

### **Linkage between textbook knowledge and contemporary national concerns**

Despite there being an explicit reference in one of the modules to raging national debates, it has been found that a linkage between political goings-on and classroom is not readily established. This also brings to question self-awareness of the prospective teachers and their responsiveness to socio-political issues, which need to be addressed perhaps through more coherent and concerted systemic efforts.

### **Identification of 'science' vs. 'social science' concepts**

It was observed that during pre-intervention, concepts of science were more easily recognised by the students as compared to social science concepts. This could perhaps be attributed to the tendency among the students (especially, before the intervention) to equate Environmental Studies with Environmental Education, and predominantly, with conservation and plantation perspectives. Also, insights from social sciences are mostly classified as sensitivities and not as concepts. Post-intervention, there is a definite increase in the number of

students, who are able to identify the various social science concepts in a given chapter.

### **CONCLUSION**

Given that the sample size was small and the scope limited, the study can claim no generalisations. However, some pointers that emerge from the endeavour need to be flagged for further probing. It was observed that the students often found it difficult to differentiate between concepts, issues or sensitivities. This led the researcher recognise that there was a need to revisit this idea.

Though the students were able to identify several additional understandings post-intervention, it may perhaps not be academically tenable to attribute it solely to intervention. In some instances, those ideas were identified to which there was no explicit reference in intervention. This leads the researcher to hypothesise that sometimes re-reading of the text may in itself be a useful exercise.

Contrary to how it may seem, textbook interpretation comes across as a complicated process impinged upon by many factors. The study highlights that the understanding of future teachers of primary level textbooks cannot be taken for granted. Elementary teacher preparation courses need to find space for systematically engaging prospective teachers with the school curriculum and textbooks.

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