



# REFLECTIVE TEACHING

A handbook towards  
preparing a Reflective Teacher





एक कदम स्वच्छता की ओर

# Reflective Teaching

A handbook towards preparing a Reflective Teacher

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एन सी ई आर टी  
NCERT

**राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्  
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towards preparing a Reflective Teacher

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## FOREWORD

The National Council of Educational Research and Training (NCERT) is constantly engaged in the concerted efforts of improving the quality of school education through development of curricula and syllabi, textbooks, reference books, educational kits, teachers' handbooks, etc. The Council also tries to bring about quality through the implementation of its various schemes and programmes aiming at the continuous professional development of teachers and teacher educators. The NCERT and its Regional Institutes of Education, (RIEs) at Ajmer, Bhopal, Bhubaneswar, Mysore and Umiam are responsible for preparing quality teachers and teacher educators. The Department of Teacher Education, in particular, addresses the issues of enriching the quality of the in-service teachers through its extension, research, and publication activities. At the same time, National Council for Teacher Education (NCTE), an apex level statutory body is responsible for regulating norms and standards for Teacher Education in the country.

Justice Verma Commission (JVC) 2012, made several recommendations to revamp the system of teacher education by introducing integrated teacher education programmes of longer duration, and upgrading the status of teacher education, making it a part of higher education. The NCTE accordingly revisited its regulations, norms, and standards for various teacher education programmes and notified new regulations on 1 December 2014. It has emphasised the need of reflective teaching as the central focus of teacher education programmes. Thus, taking a cue there from, the Department of Teacher Education decided to develop a Handbook on Reflective Teaching to facilitate student-teachers, teachers, teacher educators and researchers in teacher education to become reflective practitioners.

The NCERT appreciates the initiative taken by Raj Rani, *Head and Professor*, B. P. Bhardwaj, *Former Head*, Department of Teacher Education and the continuous endeavour of Jitendra Kumar Patidar, *Assistant Professor*, who conceived the project and coordinated the entire project of development of the Handbook.

It is hoped that the handbook will be a useful addition to the corpus of knowledge for the teaching-learning community, in

general, and teachers, in particular. Comments and suggestions are welcome to enable us to improve the handbook further for the benefit of all stakeholders in teacher education working towards quality of schooling.

HRUSHIKESH SENAPATY

*Director*

New Delhi  
*August 2019*

National Council of Educational  
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## PREFACE

Reflection is a key to successful learning for teachers and also for learners. It is an underpinning value and a necessary condition to become a professional teacher. Being able to reflect on what, why and how we do things, and develop and enrich our practices, is an essential characteristic of a good teacher. Teachers working in schools, to be effective teachers, will have to evaluate their own practices. This comes through the process of reflection.

Reflection on one's own experiences and assumptions, as part of the course and classroom enquiry; critical observation and reflective analysis of the practices of teaching, which are some of the key components of professional growth of a teacher, is crucial professionally. Therefore, this handbook on Reflective Teaching has been developed to serve as a reference material to improve one's professional practice and expertise. This handbook is expected to facilitate the need to think which aspects of their professional practices are most effective in teaching context; which they would like to continue to use and which one requires to be improved upon.

*National Curriculum Framework (NCF-2005)* recommends a paradigm shift in teaching-learning process from behaviourist to constructivist approach. Keeping in consideration the socio-cultural context and varied experiences of learners as laid down in the Framework, teachers are expected to be reflective practitioners and be competent to use multiple methods and techniques to engage the learners. Subsequent changes in teacher education programmes visualised in National Curriculum Framework for Teacher Education (NCFTE-2009) and *National Council for Teacher Education (NCTE) Regulations, 2014*, also emphasises the need of reflective practice in teaching. 'Reflective Practice' has emerged as the central focus of teacher education programmes in the present context. Pedagogical practices of teachers need to constantly change and grow to meet the diverse needs, through critical reflection by teachers on their own practices. Hence, there was felt an urgency to bring out a handbook towards preparing reflective teachers, to help transform teaching into a new mode for emerging aspirations.

The chapters of the present book are divided in three broad sections, namely: (I) Conceptual Framework, (II) Developing Reflection, and (III) Reflection on Action: A Few Illustrations. Section-I: Conceptual Framework covers two chapters that is Reflective Learning and Teaching, and Teacher as a Reflective Practitioner. Section II: Developing Reflection covers three chapters that is Areas for Reflection; Writing Reflective Journal, and Assessment of Reflective Teaching and Learning. Reflective Teaching in Language: English; Reflective Teaching in Environmental Studies; Reflective Teaching in Social Sciences; Reflective Teaching in Science; and Reflective Teaching in Mathematics have been covered under Section III: Reflection on Action: A Few Illustrations.

First chapter is focused on what is reflection?; meaning and concept; reflection in action, on action and for action; reflection: an ongoing personal process; levels of reflection: descriptive writing, descriptive reflection, dialogic reflection, and critical reflection; stages of reflection: five stages of reflection and four stages of adult learning; reflective teaching: traits of a reflective teacher and action spiral; reflective learning; reflective teaching-learning: individual and group reflection. These concepts have been explained with examples in the present chapter. The understanding of these concepts and their application in teaching would help a teacher become a reflective teacher.

Second chapter determines the understanding and appreciation of the diverse contexts of children. The chapter makes an attempt to familiarise teachers with the characteristics of a reflective practitioner— open-mindedness, accountability, socially awake and cooperative, informed, and helps them make conscious decisions; a flair for research and be sensitive towards values; understanding the self: self-awareness, shaping one's own destiny and shaping as a group member; SWOT analysis; Jo-Hari window: open area, blind area, closed area, dark area and merits of Jo-Hari window for developing insights for reflective teaching. Teacher also understands children and their context; understands content and pedagogy: content, pedagogy, and Information Communication Technology (ICT) in teaching-learning for reflective teaching. Towards the end, the chapter summarises the understanding of educational issues and concerns — quality, access and equity, and some other issues that one must know in order to teach reflectively in the classroom.

Third chapter is centered on the understanding of the school environment and ethos. Crucial areas of reflection in teaching-learning including managing and organising inclusive classroom; areas of reflection such as school as an institution, teacher beliefs and behaviours, policy, classroom management, learner, content, pedagogy, learner-teacher and learner-learner relationship, assessment, and learning outcome have been discussed.

Fourth chapter emphasises on purpose, stages, and assessments involved in writing the reflective journal and its application in improving teaching practices. This would help the teacher to become a reflective practitioner.

Assessment of reflective teaching and learning process is discussed in fifth chapter. This chapter deals with the concept of Comprehensive and Continuous Evaluation (CCE); why use CCE?; formative assessment: assessment for learning and assessment as learning; summative assessment or assessment of learning; tools and techniques of assessment; communicative feedback on assessment; assessment and reflection; and making assessment more learner-friendly for improving student's performance, and teaching-learning process would facilitate a teacher to become a reflective practitioner.

Chapters six to ten covered under Section III: Reflection on Action : A Few Illustrations, have subject based reflective teaching at primary and upper primary levels. Reflective entry and their discussion based on different school subjects are focal points of these chapters. A reflective practitioner would learn from these chapters and improve their classroom transactions.

It is earnestly believed that this handbook would go a long way to facilitate student teachers, teachers, teacher educators, and researchers to become reflective practitioners.

JITENDRA KUMAR PATIDAR  
*Assistant Professor*  
Programme Coordinator  
Department of Teacher Education



*I am uncompromising in the matter of woman's rights. In my opinion, she should labour under no legal disability not suffered by man. I should treat the daughters and sons on a footing of perfect equality.*

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## ACRONYMS

CCE	Comprehensive and Continuous Evaluation
CPD	Continuing Professional Development
DCC	Double Cotton Coated
DVD	Digital Versatile Disc or Digital Video Disc
e-books	Electronic-Books
e-content	Electronic-Content
e-Gov.	Electronic-Governance
e-learning	Electronic-Learning
e-mail	Electronic-Mail
e-resources	Electronic-Resources
EVS	Environmental Studies
ICT	Information Communication Technology
ITE	Initial Teacher Education
Jo-Hari	Joseph Luft and Harry Ingham
LA	Long Answer
LED	Light Emitting Diode
LOs	Learning Objectives
LSRW	Listening, Speaking, Reading and Writing
MIS	Management Information System
NCERT	National Council of Educational Research and Training
NCF	National Curriculum Framework
NCFTE	National Curriculum Framework for Teacher Education
NCTE	National Council for Teacher Education
NPE	National Policy on Education
OER	Open Educational Resources
RTE Act	Right of Children to Free and Compulsory Education Act, 2009
SA	Short Answer
SSA	Sarva Shiksha Abhiyan
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VSA	Very Short Answer
Web	Website

## SECTION I

### CONCEPTUAL FRAMEWORK

- REFLECTIVE LEARNING AND TEACHING
  - TEACHER AS A REFLECTIVE PRACTITIONER
- 

## Chapter 1

# Reflective Learning and Teaching

### INTRODUCTION

Why should a teacher understand the concept of reflection, its dimensions, and levels? Why should a teacher engage in reflective learning and teaching throughout one's career? What are the expected outcomes, if a teacher becomes a reflective teacher? This chapter will be helpful in finding answers to questions raised here. Our knowledge and understanding of reflection, along with its various parameters and strategies, to facilitate reflective teaching will be further enriched during the course of articulating the subject matter.

Reflective teaching has come to be recognised by teachers, teacher educators and researchers as a major characteristic of effective teaching.

### BEING AN EFFECTIVE TEACHER

Teachers working in schools, to be effective, will have to evaluate their own practices. This comes through the process of reflection. It is the key to successful learning for teachers and also for learners. It is an underpinning value, a necessary condition, to become a professional teacher. Being able to reflect on what, why, and how we do things, develop, and enrich our practices, is an essential characteristic of a good teacher.

## REFLECTIVE TEACHING

Reflection on one's own experiences and assumptions, as part of the course and classroom enquiry; critical observation and reflective analysis of the practices of teaching, are some of the key components of professional growth of a teacher, and are crucial for being an effective teacher. Therefore, reflection can serve as a tool to improve upon one's professional practices and expertise. Reflection helps the teachers improve upon their professional skills and identify their strengths and limitations as professionals. Reflection on the part of teachers stands for deliberate thinking and questioning all aspects of their teaching practices. Teachers need to think which aspects of their professional practices are most effective in the teaching context; which they would like to continue to use, and which ones need improvement. Reflection helps the teachers understand their context properly and devise alternative approaches to address the imminent emerging problems, which may arise during the course of teaching practice.

### **Teacher Preparation**

“Teachers are expected to be reflective practitioners, competent to use multiple methods and techniques, to engage learners, keeping the socio-cultural context and experiences of the learners in mind” (*National Curriculum Framework-2005*).

Subsequent changes in the teacher education programmes visualised in the *National Curriculum Framework for Teacher Education* (NCFTE-2009) and *National Council for Teacher Education* (NCTE) Regulations, 2014, also emphasised on the need for reflective practice in teaching. Therefore, in the immediate context, ‘reflective practice’ assumes the central focus of teacher education programmes, where the teacher's pedagogy ought to change constantly and grow effectively to meet the needs of the diverse contexts through critical reflections by teachers on their own teaching-learning practices. Teacher education programmes need to help teachers enhance their capacities for constructing knowledge, dealing with various contexts, and creating child-friendly

teaching-learning environment. (NCFTE-2009, pp. 20-21) recommended the following in this context—

- “Teachers should be prepared to take care of the students and enjoy being with them, seek knowledge, own responsibility towards society and work to build a better world, develop sensitivity to the problems of learners with commitment to justice and zeal for social reconstruction.
- Teachers should view learners as active participants in their own learning and not as mere recipients of knowledge. They need to enhance their capacity to construct knowledge, and ensure that learning shifts away from rote methods. Learning needs to be viewed as a search for meaning emanating from personal experiences, and knowledge generation as a continuously evolving process of reflective learning.
- Teachers should be trained in organising learner-centered, activity-based, participatory learning experiences through play, projects, discussion, dialogue, observation, field visits, etc.
- Teacher education should provide opportunities to teachers for reflection.
- Teacher education programmes should be designed to engage prospective teachers with students in real contexts rather than teach them through theories alone. They should help teachers understand the psycho-social attributes and needs of learners, their special abilities and characteristics, their preferred modes of cognition, motivation and learning resulting from home and community socialisation.
- Teacher education programmes should help prospective teachers to develop social sensitivity and consciousness, and finer human sensibilities.
- Teacher education programmes should provide opportunities for teachers to broaden the curriculum (both school and teacher education), that include different traditional knowledge; and to connect school knowledge with community knowledge and life outside school.
- Teacher education programmes should help teachers to appreciate the potential of hands-on experience as a pedagogical medium, both inside and outside the classroom.
- In view of the many-sided objectives of teacher education, the evaluation protocol needs to be comprehensive and provide due place for the evaluation of attitudes, values, dispositions, habits and hobbies, in addition to the conceptual and pedagogical aspects through appropriate quantitative as well as qualitative parameters.”

## REFLECTIVE TEACHING

Sub-section (2) of Section 29 of RTE Act, 2009 articulates that, while transacting the curriculum, a teacher has to take into consideration all-round development of the child; they should facilitate learning through activities, discovery and exploration in a child-friendly and child-centered manner and make comprehensive and continuous evaluation of the child's understanding of knowledge. All these are not possible if teachers do not become reflective practitioners.

### THE WAY FORWARD

This brings us to the point where we need to engage with the concept of reflection, reflective learning and teaching. A rational view of reflection involves thinking about things. Most of us spend time thinking about what we do and how it affects others, but we do not always take a further step to reflect on our actions and make plans to do things differently. However, in a professional setting, we are bound to reflect on our actions.

In this chapter, one would learn, among others, about reflection, reflective learning, levels and stages of reflection, reflective teaching and reflective teaching-

#### ***Let us reflect***

The need for reflective teaching has been increasingly felt over the last few decades. Justify based on various reports of Commissions and Committees of Education.

learning. Understanding of these concepts and their use in teaching would help you become a reflective teacher.

### WHAT IS REFLECTION?

#### Meaning and Concept

John Dewey (1933), advocated the concept of child-centered learning and stressed on the importance of each individual's lived experiences as a starting point for learning. With key to his philosophy as development of thinking, particularly reflective thinking, in every child, he stated:

“Thought affords the sole method of escape from purely impulsive or purely routine action. A being without capacity for thought is moved only by instincts and appetites, as these are called forth by outward conditions and the inner state of the organism. A being thus moved is, as it were, pushed from behind.” (p. 15).

Such a person is, in other words, not in control; is dragged along by events, unable to understand or change them. Such a person is merely reactive rather than active or proactive; and as such may not move from routine action to reflective action.

Difference between reflective thinking and routine thinking—

“Reflection is broadly defined as the deliberate and purposeful action in which teachers engage in order to improve upon their professional practice. It lays emphasis upon rational and logical analysis of the problem. On the other hand, routine thinking is guided by impulse, tradition and authority”. Further, reflection begins in a state of doubt or perplexity which, for teachers, is most likely to be encountered when working with learners, particularly new or unfamiliar learners. When we are faced with difficulties and uncertainties in practice, when things do not go according to plan or do not fit with the theory, we may feel powerless and unable to resolve the situation. For Dewey, these are the key moments for learning; we can reflect on these problems to solve the perplexity and learn from it. More so, reflective thinking is used by people when a solution to a problem cannot be found with certainty. This is helpful to you as a teacher because there is never anything certain in teaching and learning. Dewey defined reflective thinking as an “active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and further the conclusions to which it tends.” (p. 118).

### **REFLECTION-IN-ACTION; ON-ACTION; AND FOR-ACTION**

Donald Schon (1983) defined reflection in terms of “reflection-in-action” and “reflection-on-action”. The process of “reflection-in-action” and “reflection-on-action” is presented in Figure 1.1.

These two concepts mean ‘reflecting while you are doing it’ and ‘reflecting after you have done it’, respectively. “Reflection-in-action” necessarily involves experimenting, indicating that “reflection-in-action” and the new ideas that evolve, as a result, must be trialled

REFLECTIVE TEACHING

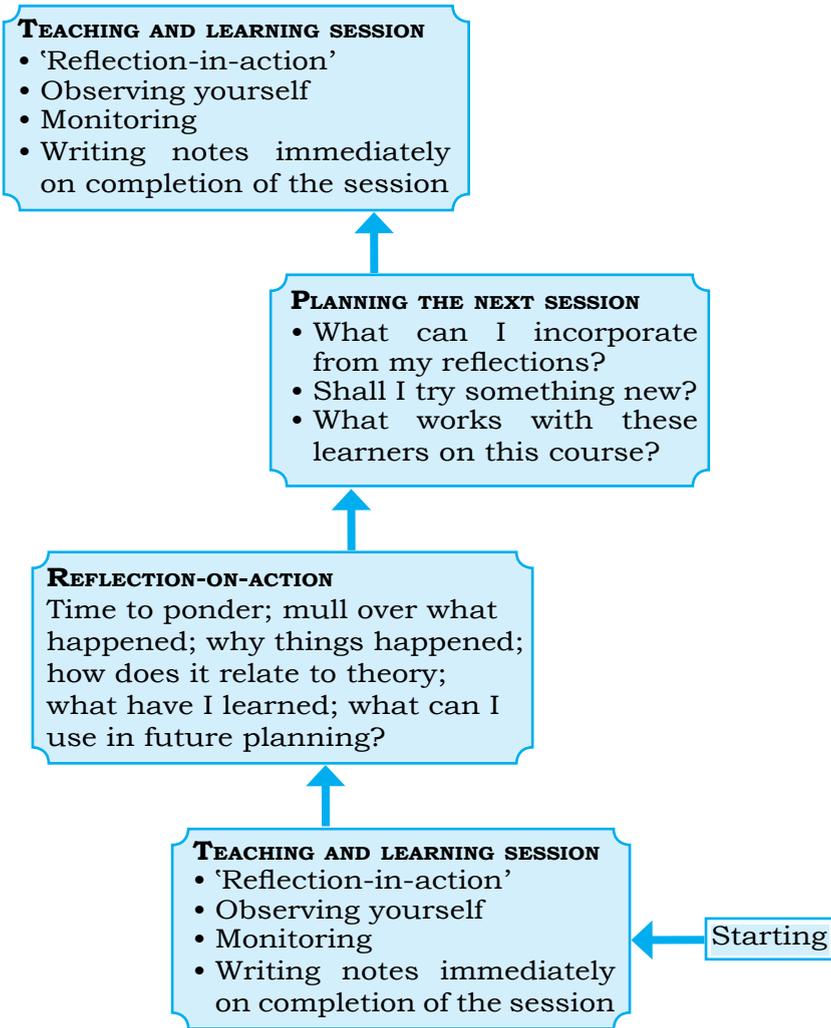


Figure 1.1: Using reflection-in and reflection-on-action to improve teaching and learning

in a supportive professional arena — the classroom context. When transacting a lesson that you may, as a teacher, have carefully planned and prepared, you need to be constantly aware, and monitor the session as it develops. This awareness allows you to make changes in the situation as you reflect on it. You may analyse and evaluate the learning-teaching process and make changes accordingly. This post-action reflection then

informs your subsequent planning and preparation, leading to a cycle of continuing improvement.

### ***Reflection-in-Action***

This is almost instantaneous and on-the-spot. It is generally observed that the more experienced professionals solve the problem on-the-spot. For this, they draw upon their repertoire of knowledge and skills to understand the situation. In other words, rather than randomly trying any other approach, the professionals use their accumulated experience and knowledge to address the problem instantly. An illustration of “reflection-in-action” is presented in Box 1.1.

#### **BOX 1.1: “REFLECTION-IN-ACTION” BY A TEACHER**

Sudha, a teacher of Class VI, was teaching the topic — ‘Benefits of Trees’. After 20 minutes, she observed that a good percentage of students in her class were not attentive to the learning task. She knew that unless the students pay full attention to what she was doing, they would not understand the topic. She contemplated on how to address the problem of the students’ wavering attention. She further contemplated and reflected on possible cause(s) of the problem to find that one of the possible reasons of the problem could be that she alone had been talking in her classroom for the last 20 minutes, that made the students mere passive listeners. This might have led to the problem.

She reflected and realised that the use of the same stimulus in the teaching-learning process for a longer period causes boredom to set in. To address the problem, she immediately decided to change her teaching process by varying the stimuli.

She started writing on the blackboard, the main benefits of trees. Earlier, the students were using only their auditory sense. This change in the teaching process involved their visual sense too. After three minutes, she put a question to her students and asked volunteers, as well as non-volunteers, to answer her question. Soon, she observed, that she was able to gain and sustain the students’ attention on the learning task and was able to solve the problem on the spot.

**Reflection-on-action**

This occurs after the action has taken place in the classroom. It is a deliberate and conscious process, involving a greater critical analysis of the action and looking back at the problem or event. An illustration of the same is presented in Box 1.2.

**BOX 1.2: “REFLECTION-ON-ACTION” BY A TEACHER**

Tushar, a teacher of Class VII, was teaching the concept — ‘formation of rainbow in the sky’, in the class. After spending about thirty minutes to explain it, he put a question to the students, “Why is the occurrence of rainbow in the sky a rare phenomenon?” None of the students in the class raised their hand to respond. He explained once again, why the occurrence of rainbow was a rare phenomenon and put another question, “What is the function of water vapours present in the atmosphere, in the formation of the rainbow?” Only one student, Suhani raised her hand and responded.

Suhani — “Water vapours in the atmosphere act as prism to split the rays of the sun into seven colours.”

Teacher — “Very good, Suhani”.

He put another question to the students — “What are these colours?”

No one responded. The bell rang and the period was over.

In the evening, while taking a cup of tea at his residence, he pondered over what had happened in the class and introspected.

This is “reflection-on-action.”

The teacher taught the lesson skillfully and drew the sketch of the formation of the rainbow in the sky on the blackboard and yet the students did not learn. What could be the reason(s) for this? He thought, one possible reason could be that, he himself went on talking in the class for about thirty minutes, at a stretch, in a single channel communication with the class. This made the students passive listeners, who have a tendency to lose attention in learning as their learning span is very short. He realised, unless the students pay apt attention to the learning task, they cannot learn, and for that, it is essential to ensure student participation. The next day,

he went to the class with full confidence, to ensure the students' participation in teaching a new lesson. This made the students active learners. He enlisted their participation from the very beginning, putting questions and encouraging the student with remarks like "good, very good, excellent" on a right response. Such reinforcements made them participate in two-way communication and that showed amazing results.

According to Schon, as practitioners continue to reflect, they improve upon their teaching practice. It is through reflection on our teaching, that we become more skilled, more capable, and better teachers.

### **Reflection-for-action**

Killion and Todnem (1991), expanded Schon's reflection model to include the concept of "reflection-for-action". This type of reflection, guides future action based on past thoughts and actions. It combines "reflection-on-action" and "reflection-in-action".

Reflection-for-action is said to be a desired proactive outcome for both "reflection-in-action" and "reflection-on-action". It is the process of analysing events and behaviour, with the sole purpose of making changes in the future. The purpose of reflection, more so of, reflective practice, is not merely to think about past events, experiences, or behaviour, but also to guide a positive future action. Teachers can practice "reflection-for-action" to prepare for the future, by assessing the information gathered from what actually happened in the class and what they reflected upon after the class. This would also allow them to identify any dissonance, between their beliefs and actual practices. Teachers who practise "reflection-for-action" are able to move forward from focusing on non-desirable events and experiences of the present, and concentrate on how to change the situation into what they want it to be. This gives them an action plan for the future. An illustration of "reflection-for-action" is presented in Box 1.3.

**BOX 1.3: “REFLECTION-FOR-ACTION” BY A TEACHER**

Based on the illustrations of “reflection-in-action” (Box 1.1) and “reflection-on-action” (Box 1.2) of both the teachers, they reflect on their thinking and change their teaching-learning process, based on their observations and experience.

Sudha found that students in her class were not attentive to the learning task. She tried her best for the students but they were only passive listeners. Then she changed her teaching-learning process by varying the stimuli during action (reflection-in-action) and found the students were more attentive and participated in the teaching-learning process.

Tushar taught in his class the concept of formation of rainbow in the sky. But the students did not understand the concept in the thirty minutes period. In the evening, while taking a cup of tea at his residence, he pondered over what happened in his class in the school (reflection-on-action). He thought about his teaching-learning process and found there was a single channel (one-way) communication in the class. The next day, he ensured student participation in the teaching-learning process and found students more active and responded correctly.

These two cases shows reflection for future planning of the teaching-learning process. Both the teachers faced problems in their teaching-learning process and found the proper solution. This experience helped teachers for future planning for providing qualitative education to students. Hence, it is called “reflection-for-action”.

***Let us reflect***

Write your experience on reflection-in-action, “reflection-on-action”, and “reflection-for-action”, and explain how these benefited you for improving your teaching-learning process.

Gore and Zeichner (1991), discussed four “varieties” of teacher reflective practice, each with a different focus:

- an academic version which focuses on teachers’ skills in disseminating the discipline content and

presenting it in such a way as to maximise its accessibility for their students;

- a social efficacy version which is based on research findings and focuses on evidence-based practice;
- a developmental version, which primarily considers age and developmentally appropriate teaching strategies that focus on student interest and thinking; and
- the social reconstructionist version, in which reflection is focused on the political and social issues of schooling and on classroom interactions designed to promote greater student equity and justice.

Some educationists identify reflection as a tool for “deep learning”.

“Reflection deepens learning. The art of reflection is one which causes us to make sense of what we have learnt, why we learnt it, and how that particular increment of learning took place? Moreover, reflection is about linking one’s increment of learning to the wider perspective of learning, heading towards seeing the bigger picture. Reflection is equally useful when our learning has been unsuccessful. In such cases, indeed, reflection can often give us insights into what might have gone wrong with our learning and how on a future occasion we might avoid now-known pitfalls. It is increasingly recognised that reflection is an important transferable skill, and is much valued by all around us, in teaching profession, as well as in life, in general.”

As defined by Moon, J. (2005), “Reflection is a form of mental processing that we use to fulfil a purpose or to achieve some anticipated outcome. It is applied to gain a better understanding of relatively complicated ideas and is largely based on the reprocessing of knowledge, understanding and, possibly, emotions that we already possess”.

It is a deliberate, purposive and meta-cognitive thinking in which a person engages to improve one’s professional practice.

### **REFLECTION: AN ONGOING PERSONAL PROCESS**

Reflection is a continuous process. You need to reflect upon your teaching practice, on a continuing basis,

throughout your career, since there is always scope for improvement in teaching practice. Besides, reflection is a process which is personal.

### **Major Components of Reflection**

The concept of reflection, as discussed above, highlights its major elements as follows:

- conditions, situations, or circumstances prompting engagement in the reflective process;
- processes, types, concepts, or opinions on how this is undertaken;
- content, what exactly needs to be analysed, examined, discussed, challenged in the reflective process, and with what perspectives or ideologies; and
- product, improved understanding of professional practice and/or action as a result of reflective thinking.

#### ***Let us reflect***

- Write your own definition of 'reflection'.
- How is reflection a mental process?
- Distinguish between reflective thinking and routine thinking.
- Why should a prospective practicing teacher be engaged in reflective teaching?

### **Levels of Reflection**

Individuals reflect at varying levels, ranging from mere description to deeper critical questioning of events and/or actions.

Valli (1992) described five levels of reflection — “technical-reflection”, “reflection-in-action” and “reflection-on-action”, “deliberate-reflection”, “personalistic-reflection” and “critical-reflection”. Hatton and Smith (1995) proposed a hierarchical developmental model, involving reflections at different levels, and in depth; as depicted in Figure 1.2.

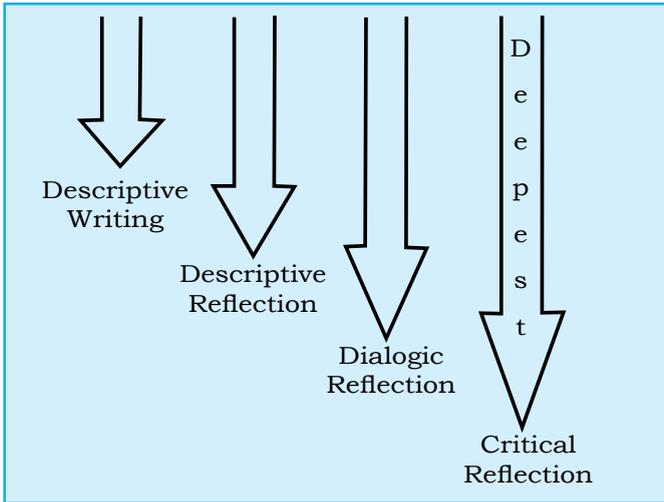


Fig. 1.2: Levels of reflection

### ***Descriptive Writing***

This entails simple description of events and/or actions that have occurred in time and place. No attempt is made to provide any reason(s) or give justification for such happenings. Nor is any alternative action explored to address the situation. A teacher can use this level of reflection, describing it in simple written statements, or orally, with children of any age, individually or in groups, or in the whole class. A teacher, after teaching a lesson, can ask the students to narrate the main points of the lesson transacted. An illustration of this level of reflection, as observed by a class teacher, in cognition is presented in Box 1.4.

#### **BOX 1.4: DESCRIPTIVE WRITING BY A TEACHER**

I went to the class. Students were making noise. They settled down in a few minutes and I started teaching. I was to teach 'metals and non-metals'. I had prepared a chart. I showed the chart to the students, explained the important points and asked them to jot these down in their notebooks. I observed that some students did not jot down the main points nor did they pay any attention, when I was teaching the lesson.

***Descriptive Reflection***

The second level of reflection, that is, “Descriptive Reflection”, though also descriptive in nature, goes much deeper than the first level. The teacher makes an attempt to provide a rationale for reporting the events, as illustrated by a teacher in Box 1.5.

**Box 1.5: DESCRIPTIVE REFLECTIONS BY A TEACHER**

Students soon settled down and I started teaching. I had planned to teach ‘metals and non-metals’, and had prepared a chart for the same. Students grasp an abstract concept more easily if it is presented in a concrete form such as charts. I asked them to jot down important points in their notebooks. Since a few students did not jot down the main points. I tried to analyse the reasons for their behaviour and found that they did not find anything important enough for noting.

***Dialogic Reflection***

This demonstrates a “stepping back” from the events or actions, leading to different levels of mulling about, discourse with self, and exploring the experiences vis-a-vis different ways or criteria of judging an event or action, based on alternative explanations found for the same happenings. Here, a discourse or talk with oneself is initiated, to reflect on the recognition of inconsistencies in one’s own thinking and rationale.

This third level of reflection, obviously is deeper than that of the first and second levels, where the teacher steps back and ponders over the events or actions that occurred in the class and to contemplate alone, on how to address the problem. It is illustrated by a teacher in Box 1.6.

**Box 1.6: DIALOGIC REFLECTIONS BY A TEACHER**

The topic to be covered was a tough one. I was aware of this and had prepared a chart of metals and non-metals for greater clarity. I believed that concrete examples in the form of charts would help in understanding metals and

non-metals. Now, I think I was not very successful, as there were many students who did not learn the concept. I could have shown them metals and non-metals, such as iron, aluminium, carbon, and sulphur. I was further irritated by Tushar's question. Was his question valid? Or was he just interrupting the class to catch attention? Should I have scolded him? Or should I have discussed his question? Can an element be converted into another element?

### ***Critical Reflection***

Reflection at this level demonstrates an awareness that actions and events are not only located in, and explained by, multiple perspectives but are also located in, and influenced by, multiple historical and socio-political contexts. This is, in addition to the dialogic quality of reflection, showing an awareness that the same actions and events, maybe seen in different contexts and with different associated explanations. It takes into account the social-political context in which events take place and decisions are made, for example, roles, relationships, responsibilities, status, gender, etc. Teachers reflecting at this level can see how their actions and efforts are shaped by moral, socio-political, economic, and institutional structures. They can also discover whether and how the ideologies used in their teaching are in conflict with the pupils' interests. This type of thinking leads to deeper questioning about educational issues, based on moral and ethical dimensions of the experience.

Among all the four levels of reflection, critical reflection is the deepest, where the professional practitioner applies critical approach to all the facets involved in professional practice. It brings a teacher's own teaching practice under scrutiny and results in improvement of one's teaching practice on a continuous basis. An illustration of critical reflection by a class teacher is presented in Box 1.7.

**BOX 1.7: CRITICAL REFLECTIONS BY A TEACHER**

I had planned to teach metals and non-metals. This topic is a bit difficult to understand. I was aware of this and had prepared a chart of metals and non-metals, so that, the students could comprehend my explanations. I believed that providing a clearly laid out chart on what are metals and what are non-metals, would bring about greater clarity. I explained the concept, but observed that some students were not able to understand the concept. On reflection, I thought it was not an effective strategy. I should have adopted different approaches like searching the internet for resources like video clips, showing the external and internal models of metals and non-metals, and by zooming in it would have been possible to bring to their notice the internal model of the micro level concept of metals and non-metals. I should have shown them metals and non-metals to explain how the physical and chemical properties of metals and non-metals differ?

I did think of this option earlier, during the planning stage but was reluctant as it involved special arrangements like seeking official permission for using the computer lab and also taking the students there or bringing the metals, non-metals and reagents in the class.

I shall adopt this approach in my next class. During the class, Suhani, asked me whether the metals and non-metals would break if we pressed them hard enough? Her question seemed weird to me, and I snapped at her in the class. But thinking now, I wonder if her question was valid? Or was she just interrupting the class to catch attention? I think I should have discussed her behaviour with her class teacher. I was very much perturbed by this. The blank expression on the faces of many students had perturbed me and Suhani's question further infuriated me. She has a tendency to interrupt the class with many questions. But I wonder, if my abrupt reactions curbed her curiosity? Well, I should not assume that her question was a futile interruption. Thinking back, I feel, her question was valid. As a teacher, I should probably have used her question to elaborate the explanation further, and reclarified the concept. In future, I must give her a fair hearing.

**Let us reflect**

- Which level of reflection is practiced by you and why?
- Write your experiences about why critical reflection is the deepest.

**Stages of Reflection****Five Stages of Reflection**

Griffith and Tann (1992) classified reflection into five stages:

1.	Rapid Reflection	Immediate and automatic “reflection-in-action”
2.	Repair	Thoughtful “reflection-in-action”
3.	Review	Less formal “reflection-on-action” at a particular point in time
4.	Research	More systematic “reflection-on-action” over a period of time
5.	Rethorising and Reformulating	Long-term “reflection-on-action” informed by an academic theory

The first stage of reflection, called ‘rapid reflection’ is likely to be personal and private, a part of what Schon referred to as ‘reflection-in-action’ in that teachers reflect immediately and automatically, while they are teaching.

The second stage of ‘repair’ is still a ‘reflection-in-action’, with a quick pause for thought to see such things as the teacher’s ‘reading’ of students’ reactions to a particular lesson and adjusting their reactions, on the basis of these readings.

The third stage of reflection, ‘review’, and all the remaining ones are part of what Schon (1983) meant by ‘reflection-on-action’ that takes place after the action is completed. Review, which is often interpersonal and collegial, can happen at any time, during or after the teacher’s work day. Here, the teacher thinks about or talks over such things, as the progress of a particular students or groups of students, or the development of curriculum units and, as a result of which, the existing plans are modified.

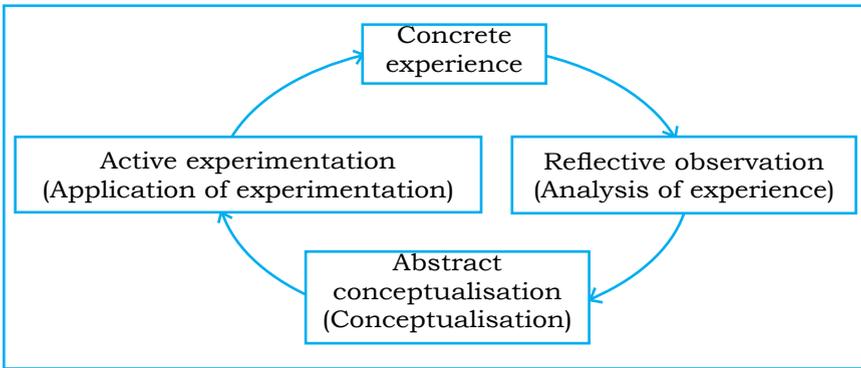
## REFLECTIVE TEACHING

In the fourth stage of reflection, ‘research’, the teacher’s thinking and observations become more systematic and sharply focused on particular issues. Here, the process of collecting information about one’s teaching may involve a matter of weeks or months, although the process of changing plans for action, as a result of this analysis, remains the same.

In the fifth and final stage of the reflection, ‘retheorising and reformulating’ reflection is more abstract and rigorous than in the other dimensions and it takes place over a space of months or years. Here, the teacher critically examines practical experiences or working theories, and also considers these theories in the light of academic theories. In one sense, advanced study and teacher certification (at the master’s and the doctoral level) should aim at this theorising.

### **Four Stages of Adult Learning**

David Kolb (1984) asserted that knowledge results from the interaction between theory and experience; and with it, adult learning takes place in four stages, in a cycle that continues throughout one’s learning (Figure 1.3.)



*Fig. 1.3: Four stages of adult learning*

Learning is a process, whereby knowledge is created through the transformation of experience. Kolb’s model needs to be considered as you analyse, reflect, and write about your practice. This will help you demonstrate where and how you have created knowledge, through the experiences you have gone through. You may want to share your experiences and cycle these experiences

with your mentor teacher or teacher educator. This model can be the basis for a meaningful dialogue on:

- discussion of concrete experience;
- analysis of experience (reflection observation);
- conceptual learning (abstract conceptualisation);
- application of learning (active experimentation); and
- additionally, you will be rated in the areas of documentation and writing skills.

By using Kolb's model, you can reflect on your past learning experiences and form a strong structure for the future of learning. Teachers can begin the cycle at any point, but must follow each step as per sequence.

For example, a teacher may use role play in a session (concrete experience), and the role play is partially successful. The teacher reflects on the use of this learning method and considers, how it could be improved and made more effective. This would require, reading further about, theory and use of role play and discussion with more experienced colleagues, and, as a result, reformulate an improved version of the role play (abstract conceptualisation), followed by a repeat process — to plan use of role play, incorporating new ideas into the planning (active experimentation), that would lead to a new concrete experience, with repetition of the cycle.

#### Activity 1.1

You will select any one concept, from a school subject, and will get experience from selected concept through classroom learning based on Kolb's four stages of adult learning. Then, you will analyse your experiences based on Kolb's four stages and write how these four stages help you to improve your classroom teaching.

### REFLECTIVE TEACHING

This means looking at what you do in the classroom, thinking about why you do it, and thinking about it if works as a process of self-observation and self-evaluation. Reflective teaching is a cyclical process; and once you start to implement changes, the reflective and evaluative cycle begins.

### Traits of a Reflective Teacher

Understanding reflective practice as a concept is crucial. In order to be clear about what it means and

## REFLECTIVE TEACHING

in order to understand reflective teaching, it is necessary to emphasise five key features as traits of a reflective teacher, who:

- examines, frames, and attempts to solve the problems of classroom practice;
- is aware of and questions the assumptions and values entailing teaching;
- is attentive to the institutional and cultural contexts in which to perform;
- takes part in curriculum development and is involved in the efforts to bring change; and
- takes responsibility for one's own professional development (Zeichner and Liston, 1996, p. 7).

Whether apprentice teachers, teacher educators, school teachers or mentors involved in school-based training, all have a chance to clarify what we understand by it and what we expect of it to entail. Our starting point is that it is much more than just “thinking about teaching”. Being a reflective practitioner at any stage in teacher development, involves a constant, critical looking at teaching and learning and at work as a teacher.

Reflective teaching stands for self-critical approach to teaching. All aspects of one's teaching are open to critical observation. The purpose of reflective teaching is to solve the problems that arise in the class when a teacher is engaged in the teaching-learning process. You, as a reflective teacher, will be a classroom researcher; and the research setting is your own classroom. Think in terms of your own teaching context because who better than you understands your own teaching context and your own strengths and limitations with which you work. Therefore, you alone can solve the problem(s) arising in your teaching, in your specific context.

Mere thinking or contemplation about teaching-learning process cannot be termed as reflective teaching. You, as a reflective teacher, need to question all the facets of your teaching practice.

There is no quick fix solution to the problem(s) encountered by a teacher in teaching. Action taken by a teacher, should not be cosmetic only. It needs more than tinkering with one's teaching. You, as a reflective teacher, need to plan the action systematically and execute the same to address the problem(s) encountered by you in your school and teaching context.

*Observe Your Own Teaching Process:* Imagine yourself as an observer in your own classroom. What do you observe? Think, whether you are able to connect the previous knowledge of the learners to the new information, which you intended to impart? Are the questions put to the class, distributed appropriately among all the students? Is there something that you would like to improve upon? Is there something excellent that you would like to continue in your teaching practice?

*Process of Reflective Teaching:* This consists of two interrelated activities. These are actions-based-upon-reflection, and reflection-based-upon-action (Figure 1.4). When you reflect on your teaching, you may decide to improve upon it in a specific direction. For that, you plan action. After taking the action, you again observe whether the desired change in your teaching has taken place. Reflective teaching implies planning for the action and then, the need to make observations on which to reflect.

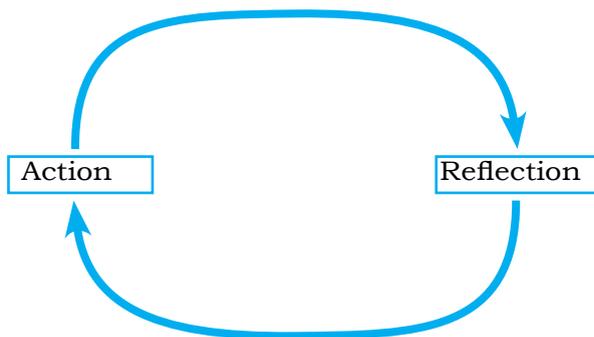
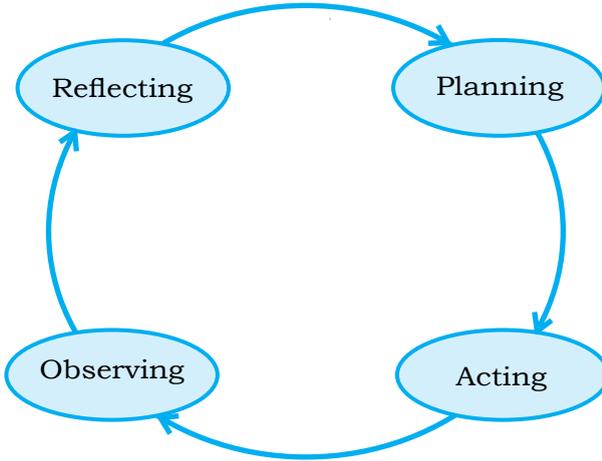


Fig. 1.4: Process of reflective teaching

**Action Spiral**

As a reflective teacher, if you decide that there is a need to make changes in your teaching process, then you need to follow the steps given in Figure 1.5.



*Fig. 1.5: Stages of reflective cycle*

There are four stages in this cycle. Each stage is related to the preceding as well as the following stage. It suggests no defined beginning and no fixed endpoint in the process of self-reflection. This cycle is known as “action cycle” or “action spiral”.

*Planning:* Once you identify a problem that occurs in your classroom or perceive any aspect of your weak teaching, you need to plan, to address the problem.

*Acting:* This is the stage when you execute your plan to solve the problem.

*Observing:* At this stage, you monitor the effects of your inputs or you plan with regard to your problem.

*Reflecting:* At this stage, you realise whether you have achieved the desired outcomes. You should know what has worked and what has not worked. If the desired outcomes are not achieved, you again plan input(s) to obtain the same. This process continues, till you have achieved the desired outcomes. An illustration of the action spiral is presented in Box 1.8.

**BOX 1.8: ACTION SPIRAL USED BY A TEACHER**

Sudha, a teacher of Class VI, in an upper primary school, finds that five students in her class were not attentive when she was teaching during the last few days. At times, these students would simply sit and do nothing, whereas at other times, they would get into arguments with one another, disrupting the rest of the class, using inappropriate language in their arguments, with one another. She is frustrated with the situation and starts thinking, how to address the problem.

**Planning:** She focuses on devising ways, to address the problem and plans activities, which are interesting for the students.

**Acting:** Next day, she engages these students in activities and ensures that each child works at one's own pace. She moves from one group to another, addressing their queries and difficulties.

**Observing:** She observes that students do not disturb the class, when they themselves are engaged in meaningful activities. Students enjoy working in groups.

**Reflecting:** She reflects that her earlier approach to the problem did not work. She thinks, what should she do next to address the problem?

- (i) She decides to use cooperative learning approach in teaching for transacting the content.
- (ii) She changes her teaching approach from lecturing to cooperative learning. Later, she observes that disruptive behaviour of the students has completely vanished. She reflects that, change in her teaching approach, worked in her teaching-learning context.

Sudha initially attributed the problem entirely, to the students and decided to fix the deviant behaviour of the students. After finding her approach unsuccessful, she begins to reflect again on her own teaching, rather than locating the problem entirely with the students. She makes changes in her teaching approach. This helps her solve the problem. The cooperative learning approach, provided the students with an opportunity to become active partners in the teaching-learning process.

***Let us reflect***

Write one situation where you changed your teaching strategy on the basis of your reflection.

## REFLECTIVE LEARNING

Reflection is an important tool for learning. It facilitates ‘deep’ learning. As it is, each one of us — child, adolescent, young or old — reflects on one’s experience(s). Reflection helps in learning from experiences. For instance, if a student fails in Mathematics in Class VIII examination, this is open to introspection and reflection — ‘why did it happen’ Reflection provides insight into what might have gone wrong and how one should avoid such a mishap from occurring in the future. Take another example. A football team stands defeated in a series of matches that compels the team members to reflect on why did they lose the matches? This will create an insight into what led to their defeat, and to look for strategies, which might help them avoid the mistake(s), committed earlier.

The process of reflection maybe personal in nature, both individually as well as collectively. We reflect on events in different ways, depending upon the context, previous experiences, and a host of other considerations. Reflection thus, does not follow a set pattern. Like students, teachers, too, learn from reflection. There may be situations, when teachers find themselves under team teaching are unsuccessful in promoting understanding of a concept, among learners through their teaching. It compels them to reflect on— why did it happen and how should teaching-learning process be modified, to facilitate a better understanding of the concepts and principles among the learners. Hence, they need to develop the skill of reflection among prospective, as well as practising teachers. Reflection on their own teaching, will serve as a new learning experience, about their strengths and limitations, to enable them, in turn, to become reflective beings, enriched by a deep understanding of the reflective process and how to use it as a tool, to hone reflective skills of analysis, evaluation, and creativity, not only among themselves but also amongst students under their charge to make room for reflective learning.

***Let us reflect***

How can reflective learning, help you to improve your teaching practice?

**REFLECTIVE TEACHING-LEARNING**

NCTE Regulations, 2014, emphasise adopting participatory teaching-learning approach in the classroom, which help students and teachers develop reflective thinking and questioning skills. Kaur (2014) suggests that student-teachers who are educated in a, 'culture of reflection' will be more likely to become reflective practitioners, in their later professional practice. For this, experiential learning through field exposure, can play a key role in providing teachers opportunities, to think reflectively. Teacher education programmes at all stages, should provide opportunities to the teachers, for understanding the self and others; and to develop a capacity to reflect. Teachers should also be provided ample opportunities, to observe and engage with learners and to work collaboratively in groups. They need to be provided adequate curricular space, for content and pedagogical engagement.

Teachers will have to determine the needs of students, while drawing their plan for transaction of curriculum. They should conduct continuous and comprehensive evaluation; and maintain observation records and reflective journals, which provide opportunities for reflective thinking.

Teaching-learning strategies need to be planned, according to the diverse needs of students. There are variations in their abilities, dispositions and personal social attributes. Some students have special needs (physical, sensory, and/or emotional) that have a bearing on their learning. Disadvantages such as gender discrimination at home, developmental delay, and limited experiences, in the early years, adversely influence their learning. Providing appropriate and enriching experiences, and modifying teaching-learning strategies, help in meeting the identified learning needs

of students. Inclusive approach to education, not only addresses the diverse needs of the students, but also provides opportunities to learn from each other. School programmes may be coordinated with community services to meet the social, emotional, physical, as well as the learning needs of all the students.

Providing such experiences to teachers will make it possible for them, to think critically and plan deliberate action, to improve their teaching and learning. This will widen their professional knowledge and understanding, to include new ways to reflect, evaluate, and use research to develop their own practices and to share them with others. As part of their professional practice, they will also share newly acquired practices with others and achieve continuing professional development. Availability, quality, appropriateness, and sufficiency of feedback are essential for learning and to be a reflective practitioners.

### **Individual and Group Reflection**

Reflection can be done individually, as well as in groups. Individual reflection is a dialogue, one has with oneself. It can be done either inwardly or mentally (implicitly/silently) or through written forms of expression — both help in organising one's thoughts. In group reflection, one's reflections are also shared with the others. Reflection undertaken in a group has a number of advantages, such as:

- it provides an opportunity to listen to the reactions and observations of others as sharing reactions and observations creates additional opportunities to reflect on one's own teaching process;
- colleagues may provide different perspectives by sharing their own experiences, asking questions, and commenting upon the reflections you had. This may prompt further reflection on your part; and
- listening to and reflecting on the teaching practices of your colleagues, may encourage you to reflect on certain aspects of your own teaching practices that did not receive due consideration earlier.

You need to be very careful in forming the group for reflection. Only those who are receptive to the comments of others on their teaching process should be included in the group. Further, they should be supportive of others in their comments.

Regarding the size of the group, it may comprise three to four members only. A smaller group may restrict the variety of perspectives shared. On the other hand, a group of more than four members, may restrict the amount of time, that you find for sharing reflections on your teaching practice and commenting on the observations of others.

As for the frequency of the group meetings, it is suggested that group meetings work best when they are organised on a regular basis. One meeting every four or five weeks, seems desirable and convenient. This allows adequate time for the members to experiment with any change(s) they intend to make, in their teaching-learning approach.

### ***Let us reflect***

Does group reflection have more advantages than individual reflection? If yes, why?

### **SUMMING UP**

Reflection is a deliberate and purposeful action, in which professionals engage with a view to improve upon their professional practice. Reflection involves linking theory and practice; that helps individual professionals to identify their strengths and limitations in their professional practice. Reflection on a continuing basis, aims at helping professionals to become effective performers at the workplace, irrespective of the models suggested and practised.

It is important to develop reflective thinking among prospective and practicing teachers, as well as teacher educators as a top priority, to help teachers as well as students, become effective reflectors over a period of time.

### **SELF-ASSESSMENT EXERCISE**

Mentioned below are ten questions. Respond to each and then compare your answer, with the answer provided in the text.

- What do you understand by the term “reflection”?
- Why is reflection essential on the part of teachers throughout their career?
- Explain in brief, different stages of reflection.
- Distinguish between reflection-in, reflection-on, and reflection-for-action.
- What are the different levels of reflection? Which one of them is likely to be more useful to teachers?
- Distinguish between traditional teaching and reflective teaching.
- Is there a need to foster reflective thinking skills, among learners, at different stages of school education? If so, why?
- What does reflective learning imply?
- Explain in brief the “action spiral”.
- Is group reflection feasible in our schools? If yes, explain its merits. If not, explain the reasons and suggest remedies?

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- <https://www.mheducation.co.uk/openup/chapters/9780335222407.pdf>  
- The Reflective Teacher

## Chapter 2

# Teacher as a Reflective Practitioner

### INTRODUCTION

In the first chapter, you read about the meaning of reflection and its role in learning and teaching. Like all other professionals, a teacher is also expected to be a professional, a reflective practitioner, well-versed in the profession. This poses another set of questions, like—What is required to become a reflective practitioner? What are in your opinion, characteristics of a reflective teacher? Does understanding oneself, as an individual and as a member of a group, help a teacher engage in reflective teaching? What is the significance of understanding the context of children, content and pedagogy, educational issues and concerns in becoming a reflective practitioner? This chapter will help you find answers to such questions, among others.

### BEING A REFLECTIVE TEACHER

The new vision for teacher education, highlights the need for reflective practitioners capable of taking up proactive action, to bring about radical changes in the process of schooling for children. Reflective practitioners need to inculcate among children, certain characteristics such as open-mindedness, cooperativeness, and so on and so forth. Teachers will be able to achieve this objective, if they themselves possess these characteristics. This may equally apply to teacher educators at the helm of

teacher education institution, who are responsible for training teachers with accountability, towards their profession, as well as other stakeholders in the fold.

Along with these characteristics, teachers must display an awareness about oneself and recognise one's place and role as a member of a larger group. This, too, is essential in becoming a reflective practitioner, despite multiple constraints in the classroom and at the level of the system that an average teacher has to cope with. The constraints can be social, cultural, skill-based, or gender-based. The capacities, skills, knowledge, and attitudes of teachers towards these issues and the school environment are the pre-requisites that determine the quality of transaction of curriculum in the classroom.

### **Salient Observations**

Internship in teacher training is very valuable.

“...The internship model is firmly based on the primacy and value of actual field experience in a realistic situation, on the development of teaching skills by practice over a period of time.” (Acharya Ramamurti Committee, 1990, 13.6.2).

Keeping this observation in mind, a relatively long and deep engagement with the field, is required to inculcate capacities for reflective action. A reflective teacher, as you already know, observes carefully and based on the observations, acts innovatively. It is one of the skills that all teachers must develop in themselves:

“.....teachers should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs of and capabilities of and the concerns of the community.” [National Policy on Education (NPE, 1986, 9.1)].

Further, “...teacher education is a continuous process, and its pre-service and in-service components are inseparable” (9.4). In this context, in order to innovate and teach, keeping the needs of learners in mind, it is necessary for teachers to understand capabilities of the learners and their context. Teachers have to be responsive and sensitive, to the social context

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of education and the disparities in the background of learners.

For strengthening the teaching-learning process, it is imperative that a teacher has a sound knowledge of the content and its pedagogy, and is able to reach out effectively to all students, regardless of the differences in their background and context. Along with this, knowledge of the issues and concerns pertaining to education, also provides a teacher with the capacity to think and act reflectively, in the learning and teaching process. Obviously, understanding of oneself, as an individual and as a member of a group, facilitates reflection in teaching; so do the concepts of self-awareness and self-consciousness, in relation to the issues of identity in reflective teaching.

The reflective practitioner must highlight their salient characteristics such as—

- Focus on understanding children's contexts and appreciation of diversity in their contexts during teaching-learning process related to content and pedagogy.
- Provide insights on key educational issues and concerns during teaching-learning process.

### ***Let us reflect***

How do internships prepare one to become a reflective practitioner?

## **CHARACTERISTICS OF A REFLECTIVE PRACTITIONER**

John Dewey (1933) and Zeichner and Liston (1996), viewed teachers as reflective practitioners, as professionals who could play a very active role in the curriculum development and educational reforms. For becoming a reflective practitioner, a teacher must possess certain characteristics that are helpful in making the teaching-learning process effective. Some of these characteristics include the following:

### **Open-mindedness**

An open-minded person is receptive to change, and is always willing to accept positive transformations

in the learning environment and teaching strategies. Teachers are supposed to introspect their own teaching behaviour; the results of their actions; and to make deliberate attempts to change their behaviour, according to the needs of the students. They examine their own assumptions, beliefs, and approaches to suit different situations, with an attitude to learn something new. A reflective teacher tries to justify various viewpoints and activities, which are beneficial for the growth and development of students; examine one's own attitude towards the students; and the reasons thereof. A reflective teacher does not get stuck in one's own beliefs; and, being an enabler of change, is receptive to new ideas, paying full attention to alternative possibilities, besides being sensitive to the viewpoint of others and accepting their suggestions. In short, a reflective teacher practitioner is expected to be open-minded at all times.

### **Accountability**

Teachers are necessarily autonomous in professional judgement (Ruddick and Hopkins, 1985). Hence, they bear responsibility for their actions vis-à-vis their students. According to Dewey, an attitude of responsibility, involves careful consideration of the consequences of an action. Responsible teachers are accountable for what they do and why and how they do the given task. When the accountability is directed towards teachers, they become responsible for their own activities. Accountability may be directed towards the process or towards the outcome. With reference to outcomes, teachers are supposed to be responsible for the consequences or results of their actions, that is, for the teaching-learning process, the quality of teaching, and the students' performance. A responsible teacher's actions must have a definite purpose; and an obligation to consider the consequences, in relation to the students under one's charge. A responsible teacher evaluates one's own teaching, asking broader questions like — “are the results good? For whom? And, in what ways?” More so, “have my objectives been met?”.

### **Socially Aware and Cooperative**

A reflective teacher is spontaneously social and co-operative, meets new people, looks for new experiences, shares activities about the students' learning with co-workers, with students and their families; and does not feel shy in discussing classroom observations, with peers, in order to seek their suggestions, to make teaching-learning effective, besides accepting valuable insights, provided by the students and their families, to help improve the learning environment and create congenial conditions, such as readiness to help and co-operate with others, even in odd situations, wherever possible. In short, the spirit of co-operativeness, too, makes a teacher reflective.

### **Informed and Conscious Decision-making**

A reflective teacher, most often aware and conscious of one's thinking, takes into cognizance, both the positive as well as the negative aspects of a situation and of actions that may be attempted in such a situation while taking decisions. A reflective teacher believes that, there are many ways to interpret a particular situation. Openness creates the possibility of inquiry, where questions are genuinely investigated and taken care of. These help them arrive at informed decisions, while solving problems related to teaching-learning.

### **Flair for Research**

A reflective teacher is a good researcher also. According to Dewey, it is blindness, to act without questioning our received truths, and arrogance. The holistic way of responding to problems, is the characteristic of being a teacher. Reflection involves intuition, emotion, and passion; and it is not something that can be neatly packaged as a set of techniques for teachers to use (Greene, 1986). A reflective teacher continuously reflects on the teaching-learning process, researches in a systematic way and revisits one's reflections. There are various means through which a teacher can strengthen,

classroom dynamics. For instance, action research directed, focused, and engaged with a teacher's own practice. In short, a reflective teacher is at once, curious to solve various problems through research and investigation, with a deep seated intuition, emotion, and passion for it.

### **Sensitive towards Values**

A reflective teacher is expected to be sensitive towards social values such as equality, justice, freedom, concern for the well-being of others, secularism, respect for human dignity, and human rights as enunciated in the Constitution. In teaching reflectively, a teacher uses stories, poems, songs, drama, etc.; maintains democratic atmosphere in the classroom; respects cultural diversity, and inter-cultural relationships to inculcate desirable values amongst the students; and being always sympathetic and caring towards the students; listens to their difficulties and problems considerately. A reflective teacher puts in all efforts to understand the behaviour and feelings of students, and, if need be, tries one's best to boost their morale.

A reflective teacher, possessing the qualities of observing and engaging with the children and keeping communication open with them, not only understands oneself but others' beliefs, assumptions, and emotions. A reflective teacher values self-directed learning, thinking, assimilation, novelty, and self-criticism. A positive attitude towards self-analysis and self-evaluation, leads to adaptability, flexibility, creativity, and innovation, as well as the ability to acquire disciplinary knowledge, to examine social realities; and to relate subject-matter with social milieu. A positive attitude also helps develop critical thinking; and knowledge and skills in content, as well as pedagogy.

#### ***Let us reflect***

Examine the characteristics of a reflective practitioner, based on your being an experienced teacher or teacher educator.

## **Understanding the Self**

It is necessary for a reflective teacher to know and accept the various dimensions of one's self and identity. We know that our self and identity do not develop and operate only at an individual level, they also develop at the group level. Let us try to understand, how an understanding of the self, helps one become a reflective teacher, through the various steps suggested here.

### **Self-awareness**

This is about understanding ourselves in a way, that allows us to understand who we really are and why we do things in the way, that we do them. Being self-aware requires reflection, and reflection requires one to think about one's actions, feelings, interactions, and thoughts. A teacher needs to be ever-aware of one's own processes as well as of one's being; to help learn and teach reflectively. Reflection can be undertaken at an individual level or with other people, that is, at the level of a group. Often, people reflect when things go wrong; discuss, or think about why they went wrong and how they could have been done differently. It is a good practice to reflect when things go wrong, but it is also a good practice to reflect, when things turn out well or better than expected.

### **Shaping One's Own Destiny**

Rogers (1961), believed that human being are basically good, but their personalities become distorted by pressure and expectations, in the environment. The main ingredients of Rogers theory, that is, 'self' and 'incongruence', imply:

#### **Self**

Self, or self-concept, is one's own mental picture or image of oneself, as distinct from other persons or things. Self-image incorporates our abilities and limitations, how we feel, and our perceptions about:

- what are we really like (self-image)?;
- our sense of self-worth, as a person (self-evaluation); and

- our aspirations for growth and accomplishment (self-ideal).

Every individual has a real self (true-self) and an ideal self (what the self would like to be). In case of a mismatch or incongruence between the two selves, there is trouble.

### ***Incongruence***

This is the degree of disparity between one's self-concept and one's actual experience. If a person's self-concept is reasonably accurate, it is said to be congruent with reality. Everyone experiences a certain amount of incongruence.

However, too much incongruence results in rigidity, defensiveness, maladjustment, and undermines one's psychological well-being. Such a person become rigid, defensive, and maladjusted. Mature and well-adjusted people display congruence between their total person and their self.

You may have experienced in your class, that some children have very incorrect, often over inflated estimates of their own abilities and other characteristics. These children get highly disappointed when they face reality and are not able to meet the high standards, they have set for themselves. They tend to ignore their experience of failure and blame others for their failure.

Maladjustment or incongruence in the self, could be removed in the following ways.

- (i) Development of Self: Childhood experiences promote congruence or incongruence, between one's self-concept and one's experience. People have a strong need for affection, love, acceptance, and approval from others. Early in life, parents provide this affection. Some parents make their affection very conditional; that is, it depends upon the child behaving well and living up to expectations. When parents' love seems conditional, children often block out of the self-concept, those experiences that make them feel unworthy of love. On the other hand, some parents make their love unconditional.

Their children have little need to block out unworthy experiences, because they have been assured that they are worthy of affection, no matter what they do. Hence, a teacher needs to reflect on one's own childhood experiences, to understand one's acceptance of being oneself, in that the teacher also has to understand the students' childhood experiences vis-à-vis their level of congruence or incongruence, in order to accelerate their learning in the classroom.

- (ii) **Anxiety and Defence:** Experiences that threaten people's personal views of themselves, are the main causes of deep anxiety. To ward off anxiety, individuals often behave defensively in an effort to reinterpret their experience, so that it appears consistent with their self-concept. Thus, they ignore, deny, and twist reality to protect their self-concept. If the teacher knows, that a particular child is encountering some incongruence, it needs to be taken care of urgently, to make the child fight back and win over.
- (iii) **Fully Functioning Person:** We must recognise and accept our feelings and actions, rather than denying them. All people live in a subjective world, which can be known, in any complete sense, only to themselves. The more rigid and inflexible an individual's self-concept, the less open, one will become. In contrast, relatively well-adjusted individuals, want to grow into, what Rogers calls, "fully functioning people".

A teacher can realise one's own strengths and weaknesses and also help the students in realising theirs, so that all of them become fully well-adjusted persons.

"If I can form a helping relationship to myself, if I can be sensitively aware of, and have acceptance towards my own feelings, then there is greater likelihood that I can form a helping relationship towards another person." (Rogers, 1961).

It is very necessary to develop self-awareness, which is an essential tool for teachers. It facilitates developing reflective practice. A teacher can undertake the following activity for developing self-awareness.

## Activity 2.1

You are new to the teaching profession. After some early experiences in the classroom, think about your answers to the questions listed, then share your thoughts with prospective teachers or other teachers who are just beginning—

- about the status of teaching; and
- with what public perceptions of teachers you can identify yourself?

Teaching is much similar to the process of acting. In the process of teaching, the audience are the students, whereas in the process of acting, the audience are the viewers. The audience, namely students and viewers, are constantly viewing the process of teaching and acting. These processes involve constant vigilance of the audience. Both teachers and actors make constant efforts to imagine how one comes across the audience.

Regular on-the-job evaluation of whether attempts at communication are being understood by the students or viewers is intended. Cooley (1902), compared teaching with acting, emphasising on the “looking-glass” nature of teaching. The essentially reflective nature of identity in his articulation of the “looking-glass self”, a teacher finds oneself reflected, in a variety of mirrors such as, learners, their parents, colleagues, school administration, government, and media. All these provide the teacher with multiple images of the teacher’s professional identities. Self-image of teachers may compete or fit with these images, and this brings about a need for self-reflection. A teacher can find oneself reflected in these mirrors. A teacher can look in the mirror and introspect objectively, to find one’s own strengths, weaknesses, some unique mannerisms, etc.

If a teaching session is recorded with the help of a video camera, the teacher can see and reflect on the teaching, as many times as one wishes. If a teacher is open to accepting and understanding oneself, it can be done using such techniques. Sometimes, the self-image maybe positive, thus strengthening the reflective nature of teaching; sometimes, the self-image maybe at variance with

one's personal identity, which may distort the self-image and bring about a need for further self-reflection.

***Let us reflect***

- Express your understanding of the 'self' as an individual and as member of a group.
- How can a reflective teacher, strengthen one's capacity by understanding the 'self' as an individual and as member of a group?

Till now, we have focused on the 'self' of a teacher as an individual and how different aspects of the self can be developed further, in relation to reflective teaching. In the section that follows, let us try to understand how understanding the 'self' as a member of a group, helps a teacher reflect on one's self and one's learning, as well as, teaching.

**Shaping as a Group Member**

It has also been recognised that identity at the workplace (school) is not fixed and singular; it is multiple, changing, and provisional in nature (Weick, 1995). Identity construction is always a social process, which involves continuous construction and reconstruction of relationships with others at the workplace. A teacher's identity is reflected through a variety of mirrors in the school — as observed by Cooley above — by colleagues, students, parents, school administration, etc., who can serve as sources of genuine feedback.

Since teaching is an interactive process, a teacher comes across one's colleagues — who can be good as a source of feedback, who can provide feedback if they perceive that the teacher really seeks feedback from them; has readiness to learn and refine one's teaching; where the teacher's pedagogical beliefs (learner-centered education) may not coincide with other teacher's beliefs (teacher-centered methods); or where one's perception about the subject's status may differ from those of the peer teachers of other subjects. Such confrontations are a regular commonplace, in a school situation. A reflective teacher accepts them for their betterment of teaching, as a dynamic process.

A teacher can be in the students' mirror, that is students as mirror. Students are the best source of feedback, provided they remain unbiased, objective, and behave in a responsible manner. If a teacher is successful in involving students in the teaching-learning process, giving equal importance to all students in the class, then, teaching is bound to be better. Students can articulate, whether they are able to grasp concepts adequately, through methods or procedures employed by the teacher, which can provide insightful feedback to be a successful teacher, vis-a-vis the student's learning to help refine one's teaching accordingly.

In short, a reflective teacher must identify themselves individually and also, as member of a group, as working in a group provides enough opportunities for gaining advice and feedback. Reflective teaching, furthers improvement in practice. It is necessary for a teacher to learn about one's self and to engage with students; as also to know difficulties of the students, to be ready to solve them. Reaching out to each and every student in the class is the primary obligation of a reflective teacher.

### Activity 2.2

Try to observe and record, if some changes have taken place in your general approach to teaching and learning, in terms of reaching out to all students in your class.

## SWOT ANALYSIS

An estimation of one's strengths and weaknesses, helps one to understand one's feelings towards the opportunities and challenges one sees around and ahead. Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis involves assessing oneself not in isolation, but in terms of the overall situation. For example, under strengths, you may list particular skills and qualities you possess as an individual (for example, word processing skills, persuasiveness, etc.), and you might also list people and resources, available to you. So, it would be appropriate to list, say, 'supportive friends and family' or 'good Internet access' as strengths.

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Your weaknesses, may include skills you wish to acquire and qualities you wish to develop, as well as things you currently do not have access to.

Opportunities include resources available to you. These are linked with your strengths. These might include, for example, potential part-time work opportunities, social and leisure opportunities, chances to travel, etc. All potential situations which could positively affect your personal and professional development can be called opportunities.

Threats are factors that have the potential to hinder your progress. They will be linked to your weaknesses and might include opportunities you do not have. Something as simple as lack of time may be a threat; for example, if you want to develop a skill or get a specific work experience, but you already have a lot to or study work and family responsibilities, which make it difficult to achieve your purpose.

Activity 2.3

Record your strengths, weaknesses, opportunities and threats in the context of a problem you are facing or a task you have been called upon to accomplish and analyse your situation, under different headings; that may help you reflect on the issues, problems, plans, and events that concern you right now.

<b>SWOT Analysis</b>	
My strengths	My weaknesses
My opportunities	My threats

## JO-HARI WINDOW

For understanding the self, Joseph Luft and Harry Ingham (1963) gave the concept of the Jo-Hari Window, as a result of their work on group processes. Jo-Hari window is a technique which helps people, to understand themselves better. On the basis of the feedback given by other people, one can learn more about oneself. You can see in the Figure presented below, the aspects covered in the Jo-Hari Window:

Areas	Known to self	Unknown to self
<b>Known to others</b>	Open area	Blind area
<b>Unknown to others</b>	Closed or Hidden area	Unknown or Dark area

*Fig. 2.1: Jo-Hari Window*

Jo-Hari window technique helps a teacher find out different aspects of one's self in the following categories:

### Open Area or Arena

This entails things which both you and others know about yourself. In other words, "I know about myself and others also know this about me". These things are publicly known, for example, my name, my profession, etc. In this area, there is a lot of feedback from others and also one can share many things with others. This window is large in proportion to the other three areas.

### Blind Area

This comprises of things that others know about you, but you yourself may not be knowing. In other words, "I do not know about myself but others know this about me". For example, there are certain mannerisms exhibited by a person of which the individual is not aware at all but others know about them. Some teachers, while teaching, play with chalk or their wrist watch, which they are unaware, but others do know about these mannerisms of theirs. This area can be reduced if a teacher is ready to receive feedback from other teachers, friends, and students and start following their suggestions.

### **Closed or Hidden Area**

This comprises of things that you know about yourself, but others do not know. In other words, “I know about myself but others do not know about me.” For example, “there are some very personal things about myself which only I know but others are unaware of”.

While teaching, I know there are sometimes, some teaching points in the content, about which I am not confident and I may find difficulty in teaching them; hence, I skip them intentionally but others do not know about this. This area can be reduced by sharing our weak points and difficulty areas with others. The closed area can also be reduced by letting others know more about yourself. One must not be in a cocoon. As teachers, we must be ready to confide in others, trust others, and then we will be in a position to enhance our positive aspects and reduce the negative ones.

### **Dark Area**

The fourth and the last one, includes things that you do not know about yourself and others also do not know about you. In other words, “I do not know this about me and others also do not this know about me.” For instance, some hidden talent that a teacher may not be able to identify in them and which others also do not know.

A teacher may have the potential to act, but being unaware of it cannot do so, others also do not know about the potential of this teacher. Maybe, after years, one of the friends notices it, to motivate the teacher to participate in dramas, one act plays, etc., and to avail oneself of the opportunity to exhibit one’s acting talent; maybe, it is greatly appreciated by others.

It is also possible that sometimes a teacher might be unaware of one’s problem, adversely affecting one’s teaching effectiveness. Others, also are unaware of the problem. Here, the counselling process may help overcome the problem. If, we interact with others, we can revive our old memories, experiences, and skills that lay hidden or are forgotten. Some things in the

dark area can be reached out for by providing more feedback or greater disclosure among people.

#### Activity 2.4

Taking a cue from Figure 2.1, create an intuitive map of your own, based on the Jo-Hari window.

#### ***Let us reflect***

Make and analyse a self-appraisal report of your capacity on the basis of your own knowledge and information collected from your parents or teachers or colleagues based on the Jo-Hari window technique.

#### **Merits of the Jo-Hari Window**

It is a very helpful tool for a reflective teacher to understand one's strengths and weaknesses individually, as well as a group member. As an individual, a reflective practitioner has a large open (public) area to discover one's great potentials for self-awareness. A reflective teacher, with eyes and ears open, must think objectively and honestly about one's potential self, also called self-reflection; concentrate on one's earlier experiences as a learner or as a teacher in order to develop awareness of instinctive reasoning that determines how we work. By questioning the self, a teacher can reveal the vital aspects of one's personality as well as the pedagogy for adjustment or strengthening one's improvement mechanism. By receiving feedback from others and self-reflection, a teacher will get inspiration and gain confidence, to achieve teaching goals and receive appreciation of the students.

A reflective teacher, as a member of a group, with a large open (public) area, would feel comfortable while working in a group, that is always willing to give feedback to others and also, to receive feedback from others. Such people are ready to share their viewpoints with others and, consequently, it facilitates professional acumen.

A teacher, with a large 'Blind Area', can manage to reduce it by asking others, for example, peers and students for more feedback during and after interaction. Similarly, a teacher with a large hidden area, can

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manage to reduce it, by letting others know more about oneself. Such a teacher, while interacting in a group, shares information with peers and students and by doing so is likely to be relieved of all the stress and guilt being experienced. Such teachers do encourage group discussion. Likewise, a teacher, with a large 'Dark Area', must be willing to reveal as much of one's lacuna as possible through self-disclosure and feedback from others.

Hence, to become a reflective teacher, it may not be sufficient only to know oneself as an individual or as a member of a group; one must also familiarise oneself with children whom one is going to teach and also with the contextual milieu they come from.

## UNDERSTANDING CHILDREN AND THEIR CONTEXT

This section presents the diversities of the children's contexts to enable a teacher, to take cognizance for optimising the learning in the classroom, based on an understanding and appreciation of the children's developmental dimensions.

Elaborating on classroom conditions that optimise learning, it needs to be accepted and realised that children are active and can construct knowledge on their own. Children learn at their own pace, interest, inclination, motivation, and, therefore, they exhibit varying indicators of learning and behavioural characteristics. Everything that children experience, leaves lasting impression on their mind and gets engraved onto their psyche. Hence, a teacher's paramount role is to provide an encouraging, positive, and conducive environment for children to explore and learn. A teacher, who does not reflect on the students' learning, may not be able to facilitate their learning, optimally. Likewise, schools need to support children to develop their knowledge, understanding, skills, and dispositions to face life in the future as productive citizens.

All students neither have the same abilities, attitudes, interests and aspirations nor do they come from the

same social contexts and situations. As part of the State's responsibility towards all children, through RTE Act, 2009, children up to the elementary stage, irrespective of their abilities or disabilities, social-economic ethnic background or gender, religion, caste, socio-economic, cultural, linguistic background, geographical location and disadvantaged group<sup>1</sup> are entitled to the Right to Free and Compulsory Education, to ensure that, despite differences, all children will have a right to get education. This implies that a teacher will have diversity in the nature of students in the classroom. Hence, the teacher must be aware of the differences and diversities among the learners.

Learning is a divergent process, that occurs through various exposures. It is basically a participative process, in which the learner constructs knowledge in one's own ways, through absorption, interaction, observation, and reflection. In this process, the learner goes back and forth. This process, therefore, is not linear; it is spiral and complex in nature. Hence, a learner has to be seen as an individual with unique potentials, living in a particular socio-cultural context.

Learning process is not merely psychological, as the learner is a vibrant participant; an effective participant who recognises meanings from the social, cultural contexts, develops attitudes, begins to understand and interpret phenomena in one's own ways, based on personal experiences. This is greatly influenced by the social context from which a learner comes. Thus, a teacher must familiarise with the learners' socio-cultural contexts and the unique realities of the children's lives.

Some children have different special needs (physical, communication, sensory, and/or emotional) that affect their learning. Any disadvantage such as gender discrimination at home, developmental delay and limited

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*1* ["child belonging to disadvantaged group" means [a child with disability or] a child belonging to the Scheduled Caste, the Scheduled Tribe, the socially and educationally backward class or such other groups having disadvantage owing to social, cultural, economical, geographical, linguistic, gender or such other factors, as may be specified by the appropriate Government, by notification". Weaker Sections are defined as those "belonging to such parent or guardian whose annual income is lower than the minimum specified by the appropriate Government, by notification."]

experiences in early years may influence their learning. Providing appropriate and enriched experiences and modifying the teaching-learning strategies help in meeting the identified learning needs of these children. Inclusive approach to education not only addresses the diverse needs of the children but also provides opportunities for them to learn from one another. School programmes and activities may be coordinated with the community services to meet the social, emotional, physical, and learning needs of all children.

In order to pursue these goals, teachers need to find new ways of breaking the barriers that prevent the participation of children from disadvantaged backgrounds. Teachers need to appreciate learning variations among learners as it is a dynamic process. They have to reflect and find ways of facilitating learning without being prescriptive or without restricting learners' 'learning routes'. For example, girls do not constitute a homogenous category; therefore, particular challenges of girls within different communities have to be reflected upon while teaching them.

Further, the realities of the children's experiences are multiple, forms of disadvantage that children face must inform planning and implementation of teaching methods with regard to education of children.

Majority of children in the country attend mainstream schools. In every school, learners and learning processes are organised in slightly different ways. The specific nature of a school, school population, student-teacher ratio, infrastructure, teaching-learning material, and resources etc., also have to be borne in mind while planning and reflecting on the teaching-learning, especially for weak students.

### ***Let us reflect***

How does a teacher understand children and their context and why must teacher do so?

### **Understanding Content and Pedagogy**

This section provides insight into the importance of understanding content and pedagogy vis-à-vis reflective

teaching. Recognising the key role, a teacher plays in facilitating and supporting learning — helping learners realise their potential, articulating their personal and context-specific experiences — teacher's knowledge of the content and pedagogy is both to guide, as well as be directed by it.

Reflective teaching is a process where a teacher thinks about one's teaching practices, analyses how something is being taught, and how practices might be improved or changed, for better learning outcomes. A reflective teacher recognises, that in a learner-centered learning situation, curriculum and content are not 'pre-designed'; they rather 'evolve'. A teacher is 'prepared' for providing possible support in the process of learning.

Every subsequent learning situation, cumulatively provides better insight to the teacher in discerning learner needs. In this sense, a teacher is a participant in a learner's efforts at evolving learning experiences and helping to develop programmes for learning. It is imperative to understand, that although any teacher education programme equips a teacher with content knowledge and pedagogy, yet new situations bring new challenges, and hence, a teacher has to reflectively modify pedagogy, according to new challenges faced in everyday teaching situations.

Just as the content is ever-evolving, likewise, there is no one method that is effective in making all the learners learn in a similar manner. Similarly, each teacher has to find one's own 'style' of teaching-learning through perceptive practice, but recognise the fact that all learners learn in their own way. 'Teaching method', therefore, has two aspects for assessing its effectiveness or appropriateness. One, pertains to the learner's way of learning; and second is the teacher's style, with which one uses the method or methods, as per one's own rationale. A teacher has to keep in mind both the students' learning styles and one's own as well. While both the teacher and learner participate in a learning situation, they are beneficiaries. Acquisition of knowledge on the part of students, has been a

major concern in educational situations. In this sense, technically, both of them are simply learners of content and pedagogy, whatever be the status of their expertise or mastery in these areas.

### **Content**

The meaning of content is 'subject-matter'. Content knowledge is the teacher's knowledge about the subject content, to be learnt or taught. Knowledge of content may differ with the level of students. A teacher must be well-versed with the contents to be taught in the class (Shulman, 1986). Knowledge includes knowledge of concepts, theories, ideas, organisational frameworks, evidence, and proof. The nature of knowledge is different according to the subject. Content knowledge is important, because it determines the discipline-specific modes of thinking, unique to each field. Teachers need to understand the subject-matter, in a way which promotes learning.

Content area, that a teacher teaches, has been a very contentious one. Some teachers feel that they should not go beyond the specified and prescribed content, and some others are for teaching the content, which is understandable, only to a specific group of children, instead of addressing all children. All these practices are based on certain assumptions and reasoning about the nature of content, pedagogy, and students. Teachers, while focusing on their subject content, need to occasionally break the monotony of teaching and learning, by taking an inter-disciplinary approach to teaching-learning. Content boundaries can be made less porous, by encouraging students in thoughtful exercises and or activities. This gives them an understanding that, though we see the world through the subject-specific lenses, yet, when it comes to the reality, it is all a one-single entity.

Inter-disciplinary and multi-disciplinary approaches, that teachers can use, become powerful instruments for making learning a highly dynamic and useful activity. The content that is discussed in a classroom in the school system is always class-grade-specific, and the learning has to happen as per the prescribed annual schedules. While there is nothing wrong in assuming that a child

should learn the specific content within a prescribed time period, it is also necessary that, like multi-disciplinary or inter-disciplinary approach to learning (horizontal linkages), vertical linkages should also be undertaken by teachers. Under vertical linkages, teachers occasionally establish the learning experiences of students across classes. This helps in conceptual recapitulation, conceptual strengthening, and cumulative learning. The content for all this needs to be generated by the teacher, through one's own experiences and also, through the experiences of the children.

### Activity 2.5

You have to teach the concept of “citizenship” to Class V students. Attempt content analysis of the prescribed book for the class.

### **Pedagogy**

This too, has been a contentious term. It involves activities that evoke changes in the learner. Pedagogy is ‘any conscious activity by one person designed to enhance learning in another’ (Watkins and Mortimore, 1999, p. 3). Again, pedagogy ‘is a sustained process whereby somebody acquires new forms or develops existing forms of conduct, knowledge, practice and criteria from somebody or something deemed to be an appropriate provider and evaluator’ (Bernstein, 2000, p. 78). Bernstein contrasts two models of pedagogy, that focus on the teacher’s organisation, management, discourse, and response to the students, which provides a useful theoretical framework with which to understand the different pedagogic approaches.

Teaching is an “act” while pedagogy is both an “act” and a “discourse” (Alexander 2001, p. 540). Pedagogy comprises of teachers’ ideas, beliefs, attitudes, knowledge, and understanding of the curriculum, teaching-learning process, and students.

***Pedagogical Approaches:*** Teachers’ thinking and ideas are manifested in their overall pedagogical approaches, garnered from the teaching-learning experiences of

## REFLECTIVE TEACHING

school students themselves, approaches to teaching-learning taught in Initial Teacher Education (Ite), and Continuing Professional Development (CPD) programmes. Recent curriculum reforms have moved away from 'teacher-centered' pedagogic approaches to learner, or child-centered "active" learning approaches. Less explicitly and sometimes more distantly, pedagogic approaches are also informed, of late, by theories of learning such as behaviourism, social constructivism, and other schools of thought.

Teachers should not only understand the paradigm shift in the construction of knowledge, content, and pedagogy but should also own it. This requires well thought-out meetings, workshops, debates, discussions, seminars, and conferences, where they get an opportunity to discuss and understand their role alterations, as well as become equipped, to deal with learner dominant situations. Some of the major shifts are given below.

<b>Major shifts in teaching-learning</b>	
From	To
Teacher-centric, stable designs	Learner-centric, flexible processes
Teacher directions and decisions	Learner autonomy
Teacher guidance and monitoring	Facilitation of learning
Learner receptivity	Learner participation in learning
Knowledge as 'given'	Knowledge as 'it evolves'
Linear exposure	Multiple exposures
Common learning tasks	Individualised learning routes
Disciplinary focus	Multi-disciplinary educational focus

Teachers' strategies signify their dispositions towards teaching and learning, as well as concrete expression of their approach. Teaching practices are specific actions and discourses, that take place within a lesson and that embody the approach and strategy. Taking a cue from Alexander (2001), teaching practices comprise:

- teacher spoken discourse (including instruction, explanation, metaphor, questioning, responding,

- elaboration, and management talk); pedagogy, curriculum, teaching practices, and teacher education;
- visual representation (using a chalkboard, writing, diagrams, pictures, textbooks, learning aids such as stones, experiments, drama) to understand or construct the new knowledge, being presented or indicated to the learners;
  - the act of setting or providing tasks for the learners to cognitively engage, with new content or develop physical skills, such as experimentation, reading, writing, drawing, mapping, rehearsing, problem-solving, practising;
  - a variety of social interactions, in which the language is central between the learners or learners and teachers such as pairs, groups, individually, or whole-class; and
  - teachers' monitoring, use of feedback, intervention, remediation, and formative and summative assessment of the students or assessment by the students themselves.

### ***Effective Pedagogy***

As with the term 'pedagogy', the term 'effective' is contested. The ultimate goal of any pedagogy, is to develop student learning, and yet the Global Monitoring Report on Quality (UNESCO, 2005) includes creative, emotional, and social development, as the indicators of quality learning. Studies on pedagogy consider 'effective' pedagogy as those teaching and learning activities, which make some observable change in students, leading to a greater engagement and understanding and/or a measureable impact on student learning. Implicit in these definitions is a starting point or a baseline with which, to contrast the observable change in behaviour or learning, taking place as a result of the teacher's pedagogy.

### ***Critical Pedagogy***

This originates from Paulo Freire (1972) in Brazil, and is aimed at pursuing a fuller humanity, social emancipation,

and transformation, led by “the oppressed”, such as the poor and women. This is through a dialogic, reflective approach, wherein the teacher is no longer authoritative but, as an intellectual, enables students to develop critical consciousness (*conscientização*) of their own oppression and to act on the world, as they learn in order to change it. Freire proposed that there is a fluid relationship between the teachers and students, that is, teachers are learners and learners are teachers. Therefore, learners are not recipients of knowledge, rather they become creators. “No one teaches another, nor is anyone self-taught, humans teach each other, mediated by the teacher” (Freire, 1972).

Teacher and student engagement is critical in the classroom because it has the power to define, whose knowledge will become a part of school-related knowledge and whose voice will shape it. Students are not just young people, for whom adults should devise solutions. They are critical observers of their own conditions and needs, and should be participants in discussions and problem-solving, related to their education and future opportunities. Hence, children need to be aware of their experiences and perceptions of the importance of, and should be encouraged to develop the mental skills, needed to think and reason independently, and have the courage to dissent.

What children learn out of school — their capacities, learning abilities, and knowledge base, they bring to school — are important to further enhance the learning process. This is all the more critical for children from the underprivileged backgrounds, especially girls, as the worlds they inhabit and their realities are under-represented in school knowledge.

Reflective teachers are best placed to engage in effective pedagogical practices, where they can competently select and use quality resources and/or approaches. With an awareness of what will be demonstrated to be effective, the choice of a particular pedagogical approach, or the selection of a particular programme, will then depend on the response to identified student-learning needs.

Critical teacher should be able to elicit student opinions, about the programme structure and curriculum, to set-up a classroom that is involved in dialogic interaction, and to find a way when the class discussions are obstructed. Teachers also have a critically reflective role, that is, for producing an open and equal environment they must engage in self-reflection about their position, and the affects of their authority in the classroom. Self-reflection enables teachers to make their classes student-centered, by accepting unsuccessful educational ideas and oppressive forms in their own educational practices.

### **INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN TEACHING-LEARNING**

All teachers are required to have a working knowledge of Information and Communication Technology (ICT) and practical skills, to handle a range of subject-specific applications. Also, they must be able to make use of opportunities to use ICT, appropriately, in different learning situations, whenever and wherever required.

Information and Communication Technologies are defined as all devices, tools, content, resources, forums, services, including digital and those that can be converted into or delivered through digital forms, which can be deployed for realising the goals of teaching-learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. These will not only include hardware devices connected to computers, and software applications, but also interactive digital content, internet, and other satellite communication devices, radio and television services, web-based content repositories, interactive forums, learning management systems, and management information systems. These will also include processes for digitisation, deployment, and management of content, development, and deployment of platforms and processes for capacity development and creation of forums for interaction and exchange.

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“Information and Communication Technologies (ICT) refers to forms of technology that are used to transmit, process, store, create, display, share, or exchange information by electronic means. This broad definition of ICT includes technologies such as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, and computer and network hardware and software, as well as the equipment and services associated with these technologies, such as videoconferencing, e-mail, and blogs (UNESCO, 2007)”.

Kirschener and Pass (2001) defined e-learning as: “learning (and thus the creation of learning and learning arrangements) where the Internet plays an important role in the delivery, support, administration and assessment of learning”. This type of learning can take on a number of forms, including the use of Internet for research purposes or to just find us data.

In this context, technological use, that turns teachers and students into mere consumers and technology operators, needs to be reviewed and discouraged. Interaction and intimacy, are key to quality education, and this cannot be compromised as a principle, in any curricular intervention.

Use of ICT in meaningful ways, makes it easy for the teacher to create interesting projects, problem-solving situations, and virtual exposures to effective learning conditions. In fact, possibility of exposing teachers to effective learning settings, created by the teachers under varying social, cultural contexts, and texts on success stories, can be explored. In places where meaningful school experience to teachers is difficult, this would be a very meaningful exposure.

Opportunities for use of ICT and e-learning, are increasingly embedded, within subject skills of work and whole-school policies. When used with care, ICT resources of all kinds can aid development and facilitate learner interaction through:

- e-content (audio, video, learning objects, e-books, etc.);
- training of teachers and educators;
- online learning, examinations, e-Gov./MIS;
- Open Educational Resources (OER);

- ICT-Pedagogy integration;
- synchronous communication channels;
- asynchronous communication channels;
- knowledge generation and knowledge construction;
- creation of e-resources;
- collaborative and cooperative learning;
- flexibility of pace and time worldwide; and
- connect: many to many-peers, trainers and experts.

ICT also enhances the potential to develop virtual learning environments and communities. However, reflective teachers need to develop both confidence and competence in using ICT. Media provides immense learning choices and possibilities. Facilitating meaningful and positive learning, in the face of unprocessed information, is the task of a teacher of contemporary times. Disparities in access, to such a powerful medium, are bound to persist. Reflective teachers need competence, to be effective in situations with and without access to ICT, and also the sensibility in leading young learners to understand and accept the situation in a proper context.

Teachers need to be reflective in what they do in the form of teaching and facilitating student learning. Reflective teachers ask themselves, 'How will ICT enhance my teaching?' Reflective teachers should be aware of the lacunae that exist in their teaching. A reflective teacher should ask, 'Do I need to be empowered?' 'What more can be done?' 'What is the most effective way of teaching?' 'How will more students benefit from my teaching?' 'Will ICT help me?'

### ***Let us reflect***

- Write a report on major pedagogical shifts, in teaching-learning based on your school experiences.
- Give an example of critical pedagogy from your class.
- How does ICT support one to become a reflective teacher?

## **UNDERSTANDING EDUCATIONAL ISSUES AND CONCERNS**

We should remember that the larger context must, impacts educational systems and processes contained, within them. Teaching-learning is greatly influenced by the social environment and context from which learners and teachers come. The social climate of school and the classroom, exert a deep influence on the process of learning. A teacher must learn to see all educational issues and concerns through a lens that contextualises the social context.

Teacher education provides the space for engagement with issues and concerns of contemporary Indian society — its pluralistic nature and issues of identity, gender, equity, and poverty. This can help teachers contextualise education and evolve a deeper understanding of the purpose of education and its relationship with the society. In the contemporary Indian society, major concerns in education are assumed to be the following.

### **Quality in Education**

This assumed great significance throughout the world; at the same time, it continues to be an issue of great complexity. While there is a growing acceptance that, focus on quality is the key to successful education system, but there is much less agreement on what the term ‘educational quality’ means in practice. There is currently a significant deficit seen in terms of having a common understanding and a common discourse for interactions within and among various stakeholders. Quality education through school improvement is best carried out by understanding a set of dimensions that are to be improved within each school, that is students’ learning outcomes (what students learn) and the governance of schools (how schools are run). The third dimension for school improvement is through provisioning (providing the resources the school needs to improve).

### **Access and Equity**

The paucity of progress in elementary schools, has many correlates, that include a range of individual,

household, school, labour market, and livelihood opportunities, and community-related factors both on supply and demand sides of decision making. The increasing opportunity costs of keeping children in school, as their earning potential increases along with their age, are significant. Additionally, there are socio-cultural factors related to gender, caste, and religion that may limit demand. All the above factors that shape decisions to access and complete elementary school need to be understood, to manage expansion so that it does not favour the already-advantaged and it does not result in a higher drop-out rate at the school level.

A variety of school systems, with distinct features and purposes, have mushroomed over the years. They share the broader goals of different stages of school education, at the national level. Teachers have to be familiar with these variations and the corresponding expectations that they are set for. This, in turn, seeks to ensure readiness in teachers, to adjust themselves effectively in any of these school systems.

### **Some other Issues**

There are other equally important issues that need to be addressed, so that the learning outcomes could be enhanced and classroom transactions could become more meaningful and enriching. Some of these issues and concerns maybe only suggestive, as stated below:

- inadequate teaching staff and under-qualified teachers;
- overcrowded classroom, that is, high student and teacher ratio;
- assessment in learning (teacher and student/parents are not aware of the CCE);
- poor attendance;
- teacher absenteeism;
- preparing out-of-school children for age-appropriate classes; and
- politicisation of schools like appointment of staff, construction, mid-day meal scheme, and others.

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In short, reflective teaching aims to provide insight into the importance of understanding educational issues and concerns, that is, quality, access, equity, etc., for reflective teachers, who have to play a key role in facilitating and providing quality education.

### SUMMING UP

Reflective teaching helps teachers to develop their professional competence and improve the teaching-learning process. Reflective teachers develop in themselves, certain characteristics, both personal and professional, like open-mindedness, accountability, sympathy, aptitude for research, and so forth. These help one, become an effective teacher. To become a reflective teacher, it is not sufficient to look for factors outside oneself — knowing oneself as an individual and as a member of a group helps in becoming reflective, which will enhance the learning of students.

Certain techniques such as SWOT and Jo-Hari, can be utilised to understand one's strengths and weaknesses, and other aspects of one's personality. Similarly the feedback from peers, students and other members of the group that helps in improving teaching strategies. The importance of understanding children and their context, is also very crucially reiterated. Differences and diversity among the learners need to be reflected upon regularly, by the teachers to furnish themselves with necessary leads, to improve the conditions of learning. Knowledge of content, pedagogy, methodology, helps teachers to make their teaching-learning process meaningful as well as progressive.

In short, this effort, more or less, explores answers to the posed questions raised in the beginning of the chapter to help teachers become reflective practitioners within the classroom and beyond.

#### **SELF-ASSESSMENT EXERCISE**

Using a Jo-Hari Window, find out whether you have a large 'Open Area' or a 'Hidden One' as a distinguishing aspect of your personality.

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## SECTION II

### DEVELOPING REFLECTION

- AREAS FOR REFLECTION
  - WRITING REFLECTIVE JOURNAL
  - ASSESSMENT OF REFLECTIVE TEACHING AND LEARNING
- 

## Chapter 3

### Areas for Reflection

#### INTRODUCTION

In the second chapter, you have read about what is required to become a reflective practitioner. Can you recall, some characteristics of a reflective teacher? Does understanding oneself as an individual and as a member of a group, help one engage in reflective teaching? What is the significance of understanding the context of children; the content and pedagogy; educational issues and concerns, in becoming a reflective practitioner?

This raises many other important questions as well. Take a little time and find out the answers to the questions asked in the text that follows. What do you know about school? Or what is your understanding of the school environment and school ethos for reflective teaching? What are the areas for reflection and how are these helpful in reflective teaching? This section may help you discover answers, among others, to the questions raised above. Our knowledge and understanding of the school environment and school ethos, also as areas of reflection, will be further explored in greater details in the discussions that follow.

Providing quality education through the process of schooling requires, among other things, a clear perspective of the nature of the classroom surroundings. A variety of approaches are used in the classrooms for

curriculum transactions, which teachers feel, are helpful for children to learn and realise their full potential. The pre-requisite in creating child-centered classrooms, is a favourable learning environment for all children to take care of both their physical as well as psychosocial aspects.

Various strategies and methods for organising and managing child-friendly classrooms and improving the ongoing teaching-learning processes, are based on the belief that each child is unique, learns, and responds to situations in one's own special ways. It is quite crucial that every teacher, appreciates these differences and welcomes diversity within the classrooms and also understands that the process of assessment, too, is an integral part of teaching and learning.

Assessment should contribute rather meaningfully, to improving the learning of every child. We should have faith and belief in every teacher who has the potential to create, innovate, adapt, modify, and work towards changing classroom practices, within one's local specific context, with an eye on building a congenial school and classroom climate, to ensure quality schooling.

Thus, the focus here is mainly on understanding the school environment and its ethos; the most crucial areas of reflection in teaching-learning; and the learner-teacher and learner-learner relationship in school for nation building, with active participation and contribution of teachers as reflective practitioners.

### **UNDERSTANDING THE SCHOOL ENVIRONMENT AND ITS ETHOS**

Teaching-learning in the classroom depends, to a large extent, on the school environment and its very ethos. A safe, secure and happy school environment helps students learn better and achieve more. For this, it is necessary that the school makes available necessary facilities, such as learning materials, aids, equipments, and a safe space for doing activities, group work, and playing. Children's learning in elementary classes promote much more child-centered approaches through play-way methods.

Talking about a classroom situation, the first thing that comes to mind is its diversity — diversity in terms of social, cultural, economic, political, geographical, ethnological, and psychological contexts. An example depicting diversity in school as presented in the Position Paper: National Focus Group on Teacher Education for Curriculum Renewal (2005), is reproduced in Box 3.1.

### **BOX 3.1: THE ANIMAL SCHOOL**

Once upon a time the animals decided, they must do something decisive to meet the increasing complexity of their society. They held a meeting and finally decided to organise a school.

The curriculum consisted of running, climbing, swimming, and flying. Since these were the basic behaviours of most animals, they decided that all the students should take all the subjects.

The duck proved to be an excellent swimmer, better, in fact, than its teacher. It also did well in flying. But, it proved to be very poor in running. Since it was poor in this subject, it was made to stay after school to practise and even had to drop swimming in order to get more time in which to practise running. It was kept at this poorest subject until its webbed feet were so badly damaged that it became only average at swimming. But, average was acceptable in the school, so nobody worried, about that except the duck.

The rabbit started at the top of the class in running, but finally had a nervous breakdown because of so much make-up time in swimming — a subject it hated.

The squirrel was excellent at climbing until it developed a psychological block in flying class, when the teacher insisted it started from the ground, instead of from the tops of trees. It kept at attempting to fly until it became muscle-bound, and received a C in climbing and a D in running.

The eagle was the school's worst discipline problem; in climbing class, it beat all of the others to the top of the tree used for examination purposes in this subject, but it insisted on using its own method of getting there.

The gophers, of course, stayed out of school and fought the tax levied for education because digging was not included

in the curriculum. They apprenticed their children to the badger and later joined the groundhogs and eventually started a private school offering alternative education.

Reflect on similar experiences presented in Box 3.1 and discuss it with your colleagues. The situation presented helps in understanding that reflection plays an important role for the teacher to grasp the dynamics of the class. This, in turn, is helpful for the teacher to engage in and interact with the students accordingly; keeping in mind the diversity and differences that the class consists of; children's learning in elementary classes can be promoted much more through a child-centered approach. What does the term 'child-centered' imply? Let us look into two classrooms — one that is teacher-centered, and the other, child-centered, so that the concepts become clear. (Refer to Boxes 3.2 and 3.3.)

**BOX 3.2: CLASSROOM I: TEACHER-CENTERED**

In Class III, forty children are sitting on wooden benches behind desks with their exercise books open and pencils in their hands. The teacher, standing in front of the class with an English textbook in, is reading the lesson aloud; and all the children are repeating after them. Once the lesson is over, the teacher asks the whole class to re-read the lesson aloud. Some children are looking out from the window, a few talking to each other, and two are making paper planes. A child with a hearing aid is looking in front with a blank face.

Two boys sitting in the front, want to know more about them main characters in the lesson. The teacher ignores them saying, "I want to finish the lesson and give you questions and answers later." the teacher then writes the questions from the textbook on the blackboard and instructs the children to copy what they are writing. While doing this, they repeatedly bump the duster on the table asking the children to keep quiet and do their work. On finishing the blackboard work, the teacher calls one student to wipe the blackboard, before writing the next question, and its answer. A few children say they have not finished noting down the questions, and answers. they respond in an irritated tone, saying "I have to finish the lesson today, you can take it from other children." When the bell rings, they tell the children to learn all the answers well for the test next week.

**BOX 3.3: CLASSROOM II: CHILD-CENTERED**

In Class III, two groups of children are sitting on the floor in two circles. Both groups comprise girls and boys. Teacher is talking to them about fractions and showing different parts of a circle. Children handle different shapes and draw them as the corresponding fractions. One child with hearing difficulties identifies the fraction of a semi-circle as  $\frac{1}{2}$ . The teacher smiles at them and says “very good”, making sure that the child can see their lips as they speak. A parent who is the local village carpenter enters with wooden cut pieces of circles (community participation in teaching-learning). They distribute the wooden pieces to the two groups and sits, asking children to put the pieces together to form a circle.

The teacher follow this up with an exercise on the blackboard where they write two fractions and asks children to identify and add. They call each child to their table and asks each of them to point out two different shapes in the material lying around in the classroom. When the bell rings, they put back all the teaching-learning materials into the cupboard carefully with the help of students and cleans the space as well.

Moving towards creating child-centered classrooms requires rethinking the overall approach to teaching-learning.

***Let us reflect***

- Visit an inclusive school and make a report in respect of classroom management and school management.
- Can you narrate any experience related to teacher-centered and child-centered classroom?

**MANAGING AND ORGANISING INCLUSIVE CLASSROOM**

Managing learning involves many different elements. There is a need to strike a balance between content, teaching-learning process and assessment. It makes our work easier and helps children learn along different

pathways. Larrivee (2005) observed, “Classroom management is a critical ingredient in the three-way mix of effective teaching strategies, which includes meaningful content, powerful teaching strategies and an organisational structure to support productive learning”. Some key points that a teacher can consider to increase learning levels in the classroom and to organise and manage classrooms better should be:

**Planning:** Create a plan for classroom teaching-learning process with engagement of the children in a democratic manner. Indicate whether children will work independently, in groups or as a whole class. In a multigrade classroom, each group may be working on a different activity. Remember to focus on children with special needs and those coming from diverse backgrounds. Teachers should also be ready for situational activities.

*Preparing:* Prepare each classroom activity by reviewing your teaching plan. Ensure that all children participate in the teaching-learning process. Continuous assessment is a part of the teaching-learning process. Assess children on the job while engaged in doing activities.

*Gathering resources:* Collect a variety of materials, teaching-learning aids and equipments or create the teaching-learning resources needed for the teaching-learning process.

*Connecting learners to teaching-learning process:* Whether the teaching-learning process is a whole class discussion or projects done in groups, teacher can facilitate them. Try to make information or skills meaningful to children.

*Connecting learners to one another:* Take advantage of the ways children can help one another to learn in pairs and groups. Promote peer learning whenever possible, as it is easier for a child to learn and understand things from another child. Children work both individually as well as in groups, discussing, sharing, cooperating and

respecting one another's viewpoints. Children construct knowledge on their own, based on their experiences inside and outside the school. Children's progress is reported in qualitative terms and on all aspects of development. It is also shared with children and their parents.

*Facilitating and observing:* teacher provides learning situations that give children an opportunity to observe, explore, question, experience, and develop their own understanding of various concepts. When children are working on activities or projects (whether on their own, in pairs, or in groups), move around in the classroom. During the teaching-learning process, find out how well children are concentrating and in what ways they are interacting; and what they are finding interesting, etc.

### **Let us reflect**

- What, according to you, are some successful ways of grouping children for collective learning?
- How will you encourage children to engage in the teaching-learning process in the classroom?

## **AREAS OF REFLECTION**

There are several situations in teaching-learning and assessment process which play a significant role in enhancing the quality of learning in the classroom. A teacher is constrained by systemic requirements such as a time frame to complete the syllabus during an academic session; rules and regulations of examinations; and more importantly, the overall ethos of the school. In spite of all these, a reflective teacher, who is equipped with current developments in one's subject area and is motivated to make all children in the classroom understand, can always think and act differently for the greater benefit of students.

Therefore, reflection does play an important role in a classroom situation. There are multiple situations which have the potential to trigger reflection on the part of the teacher. These situations arise in different areas of school work and processes. Some of them are:

## REFLECTIVE TEACHING

- school as an institution
- teacher beliefs and behaviours
- policy
- classroom management
- learner
- content
- pedagogy
- learner-teacher and learner-learner relationship
- assessment
- learning outcome.

All these stand out as important aspects on which a teacher needs to reflect in order to make teaching-learning effective in the classroom.

### **School as an Institution**

Learning takes place within a web of social relationships, as teachers and students interact both formally and informally. Schools are institutional spaces for the community of learners, including students and teachers. Play and scuffle with one's friends on the school grounds, free time to sit on the benches and chat with one's friends during breaks, gathering together for morning assembly and other festive and significant occasions in the school, studies carried out in the classroom, and trips made with one's classmates and teachers to places outside the school — all these are activities that bring the community together, giving it the character of a learning community. Behind the scene, yet significant in giving the school its character, are teachers and the principal or headmaster, planning and carrying out daily routines, examinations, and special events that mark the school calendar.

There are a variety of school systems with distinct features and purposes. Yet, they share the broader goals of different stages of school education at the national level. Teachers have to be familiar with these variations and corresponding expectations that ensure readiness of teachers to adjust effectively in the school system and function purposefully.

Social climate of the school and the classroom also exerts a deep impact on the process of learning. Given this, there is a need to provide a major shift from an overwhelming emphasis on psychological characteristics of an individual learner to social, cultural, economic, and political contexts. Learning in school is influenced and enhanced by wider social contexts. When the learning outside is connected with learning inside school, it can be immensely valuable.

Since teachers function within the school education system — its goals, curricula, materials, methods, and expectations — they need to be prepared to cater to the needs and demands arising in the school context; and to engage with questions of school knowledge, the learner and the learning process. Expectations of the school system change from time to time, responding to broader changes taking place all around in that teachers need to be equipped not only to teach but also to understand students and the community of parents to help children to be regular in schools. Teachers have to be equipped with adequate understanding of curriculum, subject-content, and pedagogy, on the one hand and of the community and school structures or management, on the other. Teachers also need to reflect on the school or classroom tools like:

- infrastructure: school building suited to needs of children with special needs; sufficient space in classrooms, library, laboratories, activity rooms, etc; clean premises, good sanitary conditions, separate toilets for girls and boys and other facilities like drinking water and electricity generator;
- curriculum and learning resources and/or physical resources (textbooks and supplementary books; library; ICT resources; tools and laboratories; need for plurality and alternative materials; organising and pooling resources);
- proper seating arrangement in classrooms and comfortable furniture for reading and writing;
- nurturing, enabling environment for teaching-learning;

## REFLECTIVE TEACHING

- participation of all children in classroom and school activities;
- discipline and participatory management;
- space for parents and community;
- teacher autonomy and professional independence;
- time management; and
- cooperative academic and non-academic staff.

These are important things required to make a school function properly. However, if these basic facilities are not provided, then the functioning of the school becomes difficult with an adverse effect on the students learning skills. (Refer to case studies in Boxes 3.4 and 3.5.)

### **BOX 3.4: CASE 1**

This particular school is located in the middle of the city adjacent to a small cottage industry on a busy road. Most of time, the school does not have electricity while the industry runs on a private generator. This creates a lot of noise that makes learning difficult.

Alongwith these conditions, there are not enough desks and chairs to accommodate all the students in the classroom. There is a shortage of learning aids also. Blackboards too, are in a bad shape that strain the students' eyes and they do not want to copy from the blackboard. Toilets are in a very bad condition and there is no provision for safe drinking water. This makes the overall environment of the school gloomy and disappointing for students.

Students find it difficult to concentrate because of the poor conditions. The classroom does not have proper lighting which hampers the learning process. There are also a large number of drop-outs.

### ***Reflection***

In situations like this, the school as an institution fails to provide the basic learning environment to the students, or conducive teaching environment to the teachers. This makes the teaching-learning process a tough task. Adequate and optimal facilities are indispensable for school as an educational institution.

**Box 3.5: Case 2**

This school is situated in the foothills of a hill station with a beautiful scenic view and serene atmosphere, ideal for teaching and learning. It is an excellent school, equipped with all modern amenities essential for teaching and learning; and arrangements best suited for children and teachers in terms of resources like; library, health and yoga centre, and counselling for students. The school also has playgrounds for outdoor games and also provision of indoor. Yoga classes are held on a regular basis for mental and physical growth of students.

**Reflection**

The school may have good facilities but how they are effectively utilised is also very important. It is not only important for a school to have good facilities but also good processes which will lead to better outcomes.

**Activity 3.1**

Visit a government school and a private school, and prepare a comparative report on teaching-learning environment.

**Let us reflect**

How is a school as an institution doing for all-round development of children? And to what extent?

**TEACHER BELIEFS AND BEHAVIOURS**

As envisaged in the NCF-2005, and RTE Act, 2009, the role of teachers is to work with children and to respond to children's needs in imaginative and dynamic ways. Teachers, in the existing socio-cultural context of the country, need to be logical and reflective because of increasing social, cultural, regional, economic, and language diversities in schools and in society, and democratic values which demand broad-minded citizens. Empirical evidence suggests that teachers' own beliefs play a major role in how they respond to the diversity in classroom situations.

Teachers are expected to be competent and skilled as communicators, users, and designers of learning resources, learning facilitators and active participants in community life. Teachers should understand and examine the role

of school, peer teachers, curriculum, textbooks, etc., in challenging gender inequalities or reinforcing gender parity and inclusiveness. (Refer to case studies in Boxes 3.6 and 3.7.)

### **Box 3.6: Case 1**

A science teacher enters Class VIII. It is her first day in the school. After formally introducing herself, she recites a poem by William Wordsworth. After she has finished reciting the poem, there is silence in the class. One of the students in the first row raises his hand and asks “Ma’am, is this poem going to be in the examination?” The new teacher is taken aback, for she never intended to recite a poetry for the purpose of examination.

Her only aim was to convey to the students, the unity of nature and human beings; that nothing is in isolation and everything is connected to each other. However, with informal conversations with her colleagues, she got to know that the previous science teacher never really went beyond the prescribed textbook. As a result, students were conditioned to learn only for the purpose of passing examinations.

After school hours, the teacher thought for hours about how students can stop thinking in a stereotypical manner and not rote learn and make classroom transaction more innovative and interactive. Next day, she went to the class and delivered a lecture on atoms in the class. She asked students to write a poem on atoms as part of their assignment. Initially, there was a lot of mumbling about the nature of assignment but when the teacher said that they would not be evaluated and assessed on the basis of their poems, there was a sigh of relief.

Next day, what the teacher experienced was immense joy in the form of poems given to her by the students. Their poems were so meaningful and imaginative that the teacher was thrilled. However, the very same day, the teacher was called by the principal, as some of the parents complained about the nature of the assignment given to their children. The teacher tried her best to convince the principal that this technique of teaching was just a ploy to make the students to stop being passive and she had finally succeeded in doing so.

In this case, teacher managed to make students realise the importance of imagination and creativity to such an extent that despite the mundane sort of classes, there were occasions when even science was “questioned”.

### **Reflection**

What this case suggests is that teachers have to break the isolation between disciplines so that students do not have the illusion that science can only be understood within the four walls of the classroom in a subject-specific mode of teaching-learning, if nature too, is invoked in its presentation. Autonomy of teacher is another aspect to reflect upon here. Even when this particular teacher was trying to come up with new teaching-learning techniques, the school authorities and parents resisted this, assuming that this might hinder the learning of children.

### **BOX 3.7: CASE 2**

This is about a teacher who used to ask her students to read out paragraphs from the prescribed textbooks and if there were any interruptions from a student in the process of reading, she used to scold that student really hard. Eventually, students were scared of asking questions because of fear that their queries would invite the wrath of the teacher.

Before the examinations, this particular teacher used to give away questions beforehand so that they performed well in the examinations and this would boost her reputation as a teacher whose class always performed well in examinations.

### **Reflection**

In this sort of teaching technique, the major issue is the way of teaching because students are absorbing what teacher is saying. There is no questioning or interaction, which is an essential component of an active classroom. Also, the autocratic attitude of teacher is making students obedient but this deprives them of critical thinking. This will have a long-term effect on their overall development.

In the NCF-2005, certain guidelines are given which clearly state that being adept at one's subject is not enough; a teacher should try and come up with innovative teaching techniques that involve all students in the classroom. But, the attitude of the teacher under scrutiny seems to have violated the principle of becoming such a teacher.

### ***Let us reflect***

- What are the characteristics of a good teacher with regard to providing conducive learning environment?
- Do you think that students can make a good assessment of teacher performance?

### **Policy**

In the progress and development of a nation, policies play an important role working as a light house for all. Education is one such sector, created, and re-created from time to time. Today, education has become an important area of reflection, particularly, due to the impact of RTE Act, 2009 on elementary education.

Under the RTE Act, every child in elementary school is guaranteed quality education to improve the quality of life. Children are provided mid-day meals, free textbooks, other important learning material and school uniform. Other than these, students' participation is encouraged through making added innovative teaching-learning activities; a conducive learning environment, attractive school buildings with provision of clean toilets, safe drinking water, properly ventilated classrooms, etc., with student activity corners provided for many innovative and progressive schools, as also reduced teacher-student ratio to promote child-centric teaching-learning process.

The Act, states that every child from Class I to VIII will be assessed and evaluated on the basis of Comprehensive and Continuous Evaluation (CCE); also the child, not enrolled in the school or in case is a drop-out, would be given admission to a class suitable as per their age. In short, policy considerations do play an

important role in making schooling more and more vibrant and need-based.

***Let us reflect***

- What is your opinion for indicating students-teacher ratio in the RTE Act, 2009?
- What are your observations with regard to teachers' ability to handle large and multi-grade classrooms effectively?

**Classroom Management**

Classroom is a microcosm where children from divergent backgrounds study together. Managing several age-groups of students, socio-economic status, and cultural background is a very challenging task for a teacher, who tends to democratise the classroom process in order to facilitate participation of all children, empowering them to speak, involving, and actively engaging with their peers and teachers to help them be democratic enough in the future in all aspects of their life.

Classroom management is often based on classroom discipline and a fixed time schedule, which do not take into consideration the time required for activities and the pace at which all students learn. Flexibility helps in effective management of the teaching-learning process. Teachers should have the opportunity to conduct a class for an extended period. Team teaching for subjects of multi-disciplinary nature can be used if flexibility in time schedule is provided. This will enlarge the scope for providing an integrated perspective and also encourage students to engage in a more productive manner, without affecting the stipulated time limit for transaction of the content.

Classroom management should take into consideration the needs and aspirations of students in terms of content transaction. One of the key concerns in classroom management should be a judicious mix of building concepts and providing examples through which students can understand the concepts better. A classroom management which is skewed in either way will fail to fulfil the purpose of the lesson. To

succeed, as part of classroom management, children need to be dynamically organised in order to have a rich and varied scope for interaction, not only via physical restructuring, but also through providing scope for academic dynamism. Classroom management should have flexibility. The current practice of having a uniform and rigid classroom management has not been found to be effective in generating creativity and critical thinking. As part of the dynamic management of classroom activities, students can be given individual tasks, a pair tasks, and sometimes group tasks, to leave their impact on physical arrangement of the classroom as well as on intellectual and social values in terms of sharing mutual concerns.

As part of classroom management, it is often noticed that students sit in ability groups. This has a tremendous negative impact on students, as those who have never been made part of a higher ability group develop negative self-image. Mixed ability groups will enable students to interact and learn from one another. Not only those students who have picked up content knowledge faster can help others, but All students have something to give to other students. A relatively poor performance in one area does not necessarily withhold a student from performing well in other areas.

To manage a class better, for instance, the teacher can engage students in group work and different groups can work on different concepts. This will provide an opportunity to the students with advanced learning abilities, to teach different concepts to other students. This will not only reduce the need for allocating extra time to some students for conceptual clarification, but will also develop team spirit. Learning from other learners is sometimes considered a very useful exercise, as learners will not have inhibitions in getting concepts clarified by peers.

Under the classroom management, there are multiple components that form the sites for reflection. Some of these are:

- background, health, and hygiene of the students;

- properly ventilated and well-lit classrooms;
- blackboard/whiteboard/display screen / e-learning resources;
- seating arrangement;
- classroom discipline; and
- resource corner, etc.

Some of the said variables would help a teacher reflect on the larger issues of classroom management. This claim is substantiated by citing two case studies (See Boxes 3.8 and 3.9) which highlight the scope of reflection in the area of classroom management.

### **Box 3.8: CASE 1**

This case is about a school and its classrooms, all of which are in a bad state. English class was being conducted in an extremely dilapidated state — the students were sitting on a mat because tables and desks were limited in number and not in good condition. Sanitary conditions of the school were not up to the mark; classrooms and compound of the school were badly littered. Other than these obstructing situations, another major problem was that the school was located adjacent to a busy road where learning was continuously disrupted by the constant movement of vehicles.

### **Box 3.9: CASE 2**

This case depicts the situation of a school where classrooms were well equipped with lights, LED screen projector, resource corner, sound proof glasses, and windows. Classrooms were beautifully adorned with nicely painted walls; and the lessons were in progress.

### ***Reflection***

Think critically about both the cases. In which school, do you think, students will learn better and teachers will be able to manage classes more effectively? These classroom situations do indicate how physical conditions of a school are a crucial component in the teaching-learning process. In Case 1 (Box 3.8), the learning environment is not conducive and as a result, the achievement level of the students will not

be up to the mark. Classroom environment has to facilitate rather than being disruptive. Teacher needs to design engaging techniques that would help students concentrate on the text, despite a non-conducive learning environment. On the contrary, if a good and conducive learning environment is available, the students' achievement levels will be higher as in Case 2 (Box 3.9). Hence, classroom management is an essential component for reflection of the teacher to make the teaching-learning process interactive and engaging.

### ***Let us reflect***

- Assess your classroom management procedure and find out what effect does it have on the learning of students.
- Can you provide examples of any two-three classroom situations which have facilitated improving the learning of all students?

### **Learner**

Knowing and understanding children and their context is extremely important for effective learning in the classroom. Understanding children of diverse groups, their questions and observations of natural and social phenomena; enquiring into children's thinking and learning and listening to them with attention and empathy are necessary pre-requisites of effective teaching. Such engagements help teachers understand that learning is not a linear process; it is a divergent process, essentially spiral in nature; and takes place in a variety of situations, including everyday context.

When we talk about reflection, the learner plays an important role in it. When a teacher reflects upon one's actions and innovates teaching techniques, the focus of attention remains on the students' diversity in terms of socio-economic background. Therefore, when a teacher reflects, all these variables have to be kept in mind so that the learning outcomes could be more fruitful and prove helpful for students. (Refer to case studies in Boxes 3.10 and 3.11.)

**Box 3.10: CASE 1**

This case is of a girl student who is a favourite of her classmates and also of her teachers. She is regular with her homework and grapples with the classroom activities with enthusiasm. She also tries to help her friends who are not very good at academics.

However, when it was time to take the examination, she fell ill and could not appear for the examination. Because of her prolonged illness, she began lagging behind in her studies.

One of the teachers realised that something was wrong with her. She discussed it with her class teacher. They realised that the very idea of examination made her so anxious that she was unable to bear the pressure and fell sick.

**Reflection**

It is clear that the teacher has to keep many things in mind while dealing with students who require social and psychological support.

**Box 3.11: CASE 2**

This case is of a student of Class VII who is good at academics but is not liked by his fellow students because they feel that he is too loud while speaking to others. Initially, his teachers never realised this was an issue. But only when other classmates began to maintain distance from that child, it became an alarming situation. Even teachers realised that this boy was too loud in class.

When the teacher discussed this behaviour with him, he replied that he had difficulty in listening. Only then the teacher realised that he was not doing anything to offend others, but it was because of his hearing problem that he was speaking to everyone in a high pitch. The teacher then called his parents and discussed the problem with them, which led to the revelation that when he was young, he was diagnosed with brain malaria as a result of which his hearing got affected.

**Reflection**

We can now understand how important the role of reflection is, because teachers not only have to teach, but also to address the problems of children.

**Let us reflect**

- How does reflection help in promoting students' performance?
- Can you give other examples of how some students' behaviour affected others?

**Content**

Every discipline (and its content) has its own unique nature. Content, being of utmost importance in any discussion on reflection by a teacher, and in order to substantiate it, a case study of a school may prove to be a helpful evidence. For example, in Class VI in a school where students are being taught to read English, the biggest obstacle is that most students coming from middle class families with Hindi, and other regional languages or their mother tongue as their medium of learning, were not able to read the text fluently and their pronunciation also indicated unmistakable interferences of their mother tongue.

This kind of a classroom situation becomes the site of reflection for a teacher who will have to understand how one can develop reading skills among students who come from diverse backgrounds. Closely observing the pattern in which the students were reading, the teacher gets an idea of how to make them read in a better way, that is, assess the students in terms of their weaknesses and strengths in order to improve their reading and pronunciation in classroom teaching. Hence, content can be an effective area for reflection, as appraised in the case given in Box 3.12.

**Box 3.12: CASE**

NCF-2005 stated: The content has to be presented in an easy and simple manner. The content must be presented through stories and poems with beautiful pictorial presentation. To increase the curiosity of the students, stimulating questions must be asked in the classrooms. Field-based activities must be encouraged to enhance learning outcomes of the students.

In a school, a Class VI Hindi teacher teaches her students using the constructivist approach so that the students can understand the content easily. If the presentation of the content is interesting and attractive, students become inquisitive and shall learn better. Hence, content and its tangible presentation do play an important role in the learning outcomes of students.

### ***Let us reflect***

How does interesting content help in enriching the understanding of all students?

## **Pedagogy**

This is the most important area of reflection — the heart and soul of the teaching-learning process at all levels of schooling, deserving special attention not only of the pedagogues or method masters, teacher educators but also of teachers in-service or in the making. (Refer to case studies in Boxes 3.13 and 3.14.)

### **Box 3.13: CASE 1**

This case is about a school where an academically and professionally qualified teacher is teaching mathematics. She does not have any idea about the dynamics of the class in terms of level of learning. In her view, mathematics is logical in nature, and requires a specific type of temperament. She does not pay attention to the specific needs of children in the classroom, only solves mathematical problems on the blackboard. Students are aware of her rigid nature. They blindly copy solutions in their notebooks without having any understanding of the subject-matter.

Though the examination results came out to be extremely poor, even then the teacher did not bother and went on with the traditional teacher-centered method of teaching and had no room for classroom interaction. Consequently, students lagged behind showing fear of the subject.

### ***Reflection***

This case shows the importance of using appropriate pedagogical tools in a classroom to make it effective

to enhance learning outcomes of the student. This teacher, in particular, did not use any of the innovative pedagogical tools. As a result, students always had a fear of the subject and their learning outcomes were adversely affected.

**Box 3.14: CASE 2**

Assessment during the classroom process produces essential feedback for a teacher to think about various pedagogical tools, she can utilise to enhance students' learning level.

In a school, an academic and professionally qualified teacher, while teaching students to read Hindi, took into consideration diversity of socio-economic background of the students. She tried to understand the difference among the students in terms of their linguistic and cultural backgrounds. All these considerations helped her make teaching-learning process more inclusive and innovative. In classroom teaching, she tried the constructivist approach and experimented different teaching strategies, methods, skills and aids for proper assessment and evaluation. She also tried to involve all students in activities aimed at making a bridge between theory and practice. This, in turn, gave students a better understanding of the discipline and its content.

In a research study (2013) of Functioning of Rashtriya Military Schools and Sainik Schools: An Evaluation, it was found teaching-learning and assessment could be made an integral part of a classroom process. In one of the classroom observations of English class, under this study while discussing about sentence correction, the teacher wrote the sentences with errors on the blackboard and asked students to copy them down in their notebooks. He gave students time to correct the sentences themselves in their notebooks and, after a while, discussed each sentence and, as to why that sentence was wrong and how it should be corrected, etc. Later, of the five incorrect sentences, he asked how many students had done no wrong, one mistake, two mistakes, etc., with different clusters of students raising their hands in response to each case. The teacher and the observer could get an idea of the level of abilities of the students in the correction of sentences, as there were very few students who raised their hands in response to 'no mistakes' or 'all mistakes'.

The performance of majority of the students was average with a few mistakes, and a few others making a list of all mistakes. Besides, the informal assessment in this example was non-invasive, with faith in the student's claim on the number of mistakes made without verifying the same from his notebook, and giving instant feedback to the students. It had all the merits that any pedagogic expert would approve.

### ***Reflection***

NCF-2005 mentions that the job of the teacher is to enable the students to relate to the theory by applying it to the outside world and this should be facilitated by the teacher. The teacher should ask questions to raise the students' curiosity. Through the question and answer technique, a teacher gets feedback about the understanding of students which helps in building confidence about more and more use of innovative and engaging pedagogical practices to enhance learning abilities, both of the teachers as also of the students.

### ***Let us reflect***

- What components of pedagogy are responsible for good enhancement of students' learning?
- What teaching strategy would you adopt for making a classroom inclusive (students with special needs, socio-economic disadvantages groups, etc.)?

### **Learner-teacher and Learner-learner Relationship**

The nature of relationship between a learner and a teacher and among learners themselves has undergone a change, on account of the rapidly changing nature of society, including changes in social, economical, and political scenario; and this is much more due to the upcoming boom of information and communication technology over the years. Information at the disposal of students has become too huge to understand how to manage it. A teacher is supposed to constantly update one's knowledge so that the students get adequate inputs. Sometimes students question teachers' knowledge as they themselves are well-versed with the

latest information passed on by technology. A teacher should stay updated to handle the queries and to guide them better. Technological development does not reduce the importance of a teacher; it only means that a teacher has to play a more vital role in the changing context of teaching and learning. Teacher's role as a lifelong learner has become even more important in the light of making learner-centric classroom environment, taking along all students those who have access to technology and those who do not have it in a productive manner.

There are other critical concerns with regard to our classrooms, which include huge and unmanageable size of class and heavy curriculum load that put pressure on the learner-teacher relationship. Since all students, even in a small classroom, do not have the same level of learning, this sometimes becomes an obstacle in the process of teaching-learning and assessment. This situation has to be used creatively to augment effective learning. That can happen only when the teachers use the potential of students with different learning abilities to provide a facilitating environment to all students. (To understand this better, refer to the case studies in Boxes 3.15 and 3.16.)

**Box 3.15: CASE 1**

Every student participates equally in the teaching-learning process. There is a close bond among the students and they are always ready to help one another. They help their fellow students to learn from each other. The teacher does engage in interactive sessions with students, but does not entertain questions from them in the process of classroom teaching-learning.

**Box 3.16: CASE 2**

The teacher tries to engage the students in interactive and activity-based learning. Not only that, the teacher also encourages the students to ask as many questions as they can. She respects and answers each query of the students in an enthusiastic manner so that the students feel comfortable in asking questions. As a result, students do not feel intimidated and freely express their queries in the classroom.

However, the scenario gets completely changed in the same class in terms of learner-learner relationship. Students, though part of the community, do not interact with each other in a positive way. Each learner tries to demotivate the other student to ask questions. Therefore, the teacher has to find ways in which the students can learn not only from the teacher but also from fellow-students as well.

### ***Reflection***

What we understand from Case 1 (Box 3.15) is that although the teacher comes up with innovative teaching techniques in the classroom, she does not allow students' questions. And if a student asks a question, the teacher simply scolds the students. Hence, if the relationship of the teacher with the students does not encourage them to engage in a dialogue, it takes away initiative. The learner-learner relationship functions well but the learner-teacher relationship acts as a hindrance in the learning process of students. Therefore, the teacher has to reflect upon her actions in order to bridge the gap between her and the students' learning.

In Case 2 (Box 3.16), although the teacher makes an attempt to maintain a positive relationship with the learners, yet the students' relationship with one another is constrained and that affects the overall classroom environment. In order to make the classroom effective in terms of management, learner-learner relationship is equally important. That would not only help enrich the learning environment of the class but also enhance confidence, trust, and achievement level of the students.

In any classroom, to make learning outcomes meaningful, the relation between the students and teacher and the students and students is essential. If, in a classroom, a teacher has a positive relationship with her students, then learning in that classroom will be better as compared to a class where the teacher-student relationship is constrained. In a classroom when the learning activities happen, if the teacher

acts as a facilitator, it will help the students to know their strengths and weaknesses. A positive relationship among the students also makes the whole process of learning more learner-oriented, creating a space for interaction, which is dialogic in nature.

### ***Let us reflect***

- Analyse the effects of learner-teacher and learner-learner relationship on the teaching-learning process in the classroom.
- Can you highlight some of the positive and negative relationships that you have encountered?

### **Assessment**

This must be considered as one of the areas of reflection as assessment provides the basis of progress of student's learning. Since assessment is a continuous part of the teaching-learning process, it ought to be continuous as well as comprehensive, covering every aspect of the child's learning — physical, emotional as well as intellectual — to gauge the all-round development of every child as feasible. (Refer to case studies in Boxes 3.17 and 3.18.)

#### **Box 3.17: CASE 1**

In a school, a teacher teaches in a traditional style where they read the prescribed textbook. But, there is no interaction in the class. Therefore, when this teacher asks the students to read the textbook, some students do not read and, instead, talk to each other. After one lesson ends, they make the students write in their notebooks a few questions and answers which they memorise for the purpose of passing the examination.

The teacher repeats the same procedure again and again. Whenever they to assess and evaluate the students, they do it by giving weekly or monthly or quarterly tests, for which they ask the students to prepare a few questions which are 'expected' in the examination. On the basis of the examination, the teacher assesses the students and writes their report which does not encapsulate the holistic personality of students.

**Reflection**

On this basis, it can be said that this teacher had a style of teaching which is obsolete; it does not give any feedback to students which is detrimental to their growth and development.

**Box 3.18: CASE 2**

In a school, a teacher (for 30 students) teaches primary classes. Following the instruction, laid down by the government, that every student must be assessed through Comprehensive and Continuous Evaluation (CCE), the teacher comes to class, prepared with content and multiple tools of teaching. The teacher is aware of the background of each student in the class; gives equal opportunity to every child to participate in the classroom activities. Other than assessment of students learning she pays equal attention to the behaviours of students so that every aspect of student can be incorporated in the portfolio.

In order to assess the learning of students, the teacher observes their participation in the class or field and also their performance in the written tests in a manner that students do not fear that they are being assessed. Therefore, they are assessed without any pressure and trauma of an examination. Every student in the class gets involved in the teaching-learning process.

**Reflection**

Assessment works as a feedback mechanism to help the teacher work well. Assessment is also essential for administrators to bring about changes in the system that would prove beneficial to the students; and to bring about changes in utilisation of physical and human resources. Participation of community in assessment can also be useful. Involvement of parents in learning and growth of the children must also be emphasised.

Therefore, keeping in mind the above propositions and arguments, it can be said that assessment plays an important role in reflection. If a teacher is sensitive to needs of the students, then students can learn without fear of failure, which, in turn, will enhance the level and quality of their learning.

Assessment of student's performance may also go wrong due to innumerable reasons, beyond the control of a student. The following example explains this. In a programme conducted on error analysis of language and social science question papers of a state board of education, it was observed that for a question, "Why sangai deer does not get shelter during rainy season", a student wrote in answer, "Due to cutting and felling of the trees". As this did not match with the exact expected outline answer "Deforestation", the student was not given any marks or points. This shows how stringent the evaluator is in adhering to the marking scheme and turning a blind eye to the variety of expression. This raises many questions, some answered and some unanswered. First and foremost is considering the marking scheme as divine; second, lack of training in evaluation; third, lack of time to understand the contents written in varied forms; fourth, lack of analytical abilities; fifth, feeling of threat from higher-ups for going beyond the prescribed, etc. In view of the above teachers, we need to reflect upon students' performance in a contextual and creative manner and respect their individual diversity.

### ***Let us reflect***

How does classroom assessment support a teacher in enabling and enhancing the learning levels of students?

### **Learning Outcomes**

To understand the quality of education, learning outcomes have a major role to play. National and state level institutions conduct achievement surveys to find out learning outcomes of the students, so that the policy makers can take into consideration these findings for systematic improvement. The whole process works as a feedback mechanism and also, as a marker of altering and changing the existing policies for enhancement of learning outcomes. (Refer to the case study in Box 3.19.)

**Box 3.19: STUDY**

In a school, the Class VIII English teacher involves every student in learning activities. In the process, she also asks students questions to understand how students are learning. She also encourages students to ask questions so that the students' understanding of content improves. Whenever the teacher felt that students were having a difficulty in learning the content, she changed her style of teaching to meet the learner needs. The head teacher and colleagues also helped her in making teaching-learning more effective and child-centric.

***Reflection***

Feedback from assessment can be utilised to improve teaching-learning, class management, and student learning. Feedback provided by national and state level institutions surveys also helps to utilise physical, human, and financial resources to work efficiently to resolve various relevant issues as per the needs of the time and the concerned populace. Therefore, for improvement in the education system, learning outcomes assume an important place in the making of reflective teachers.

**SUMMING UP**

To become a reflective teacher, one needs to know well the school environment and school ethos. Teaching-learning is dependent on the school environment to a large extent. Classroom composition, modes of transaction, and overall classroom environment become some of the deciding factors on which the learning-teaching depends. Reflection on these aspects helps a teacher manage classroom effectively. A class may have a diverse group of learners. Reflection helps a teacher to plan and design effective teaching strategies; gather resources well in advance to be used in the classroom; to help better relations between teacher and the learners to facilitate learning.

There are several aspects of teaching-learning and assessment process which play a key role in enhancing the quality of learning in the classroom. For instance,

knowledge of the content to be transacted and pedagogy in the classroom helps to reach out to students from diverse backgrounds and address their different learning styles. There are many classroom management strategies that can be employed in the classroom to ensure the smooth functioning of the class. These include flexibility in holding the number of periods, physical restructuring, working in smaller groups, mixed ability groups, and so on. Teacher also needs to understand the learner-learner relationship in the class as it is a critical element in the classroom. Besides, her own relationship with the learners is a crucial factor that affects the students' learning. A teacher has to constantly reflect on all these concerns to improve the teaching practice and develop professionally.

Knowing and understanding children and their context is extremely important for effective learning in the classroom. Equally important is reflection upon the children's thinking and the ways in which they learn. This makes the teachers sensitive to their needs. Likewise, knowing their socio-cultural background provides teachers insights into improving teaching-learning.

School as an institutional space has a deep impact on the process of learning. The goals, curricula, learning materials, methods, and school climate impact learners as well as teachers. Teachers must continuously reflect on these aspects of school to refine their classroom interactions.

Keeping track of educational policy and other related policies teachers need to draw linkages between the children's lives and macro-structures of society. When teachers engage in a dialogue on all these issues, they get further insights into enhancing the professional practices.

Pedagogy plays a significant role in the classroom; hence, teachers must keep reflecting on it, remaining updated with teaching-learning approaches, strategies, techniques, skills, learning aids, including those of information and communication technology and

comprehensive and continuous assessment. These impact learning outcomes also. Hence, a teacher must reflect on all these areas that impact teaching and learning. These areas are only suggestive; there are other numerous issues and concerns that teachers have to constantly engage in and reflect upon in order to become reflective practitioners.

### **SELF-ASSESSMENT EXERCISE**

- What do you mean by ‘areas of reflection’?
- Which of the two classrooms I and II, do you think is inclusive and child-friendly?
- In what respects, teacher-centered and child-centered classrooms differ from each other?
- How does reflecting upon one’s own beliefs and values help teaching-learning?
- Reflect upon your own teaching and analyse your reflections.

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## Chapter 4

# Writing Reflective Journal

### INTRODUCTION

In the third chapter, you have read about the need to understand school environment and ethos interfacing reflective teaching; what were the areas for reflection and how these areas could be helpful in reflection or reflective teaching? This raises other important questions, too, such as — why should a professional, say a teacher, write a reflective journal? How does it help the teacher improve their practices on a continuing basis? Take a little time to find out their answers. This section might help you do so, that is, discover answers. Our knowledge and understanding of what a reflective journal is; why should a teacher write it; and what are the stages of writing a reflective journal?

One way of encouraging reflection in teacher development, is to understand that writing a reflective journal is a pre-requisite to make prospective teachers aware of what they do?; how they do it?; why they do it?; and what should they do to identify useful problem-solving strategies as well as recognise their own strengths and weaknesses, in content knowledge, procedures, and practical skills? Writing a reflective journal helps them organise their thoughts, develop awareness, awaken within them the consciousness for decision-making, in the ongoing teaching-learning situations.

Teachers quite often experience moments of joy, anger, surprise, intrigue, while teaching in the class; sometimes, they face peculiar behaviour on the part of their students, which they would like to discuss at length with their colleagues, as memorable moments or critical incidents in their life. They would also discuss learning outcomes, and how their teaching has improved through discussing and reporting such experiences. However, in their busy schedule, their ideas travel a little distance. If these thoughts are penned down on a day-to-day basis, it becomes easy to observe these thoughts very closely to improve their teaching. Ideas expressed in a black and white written frame, are called a reflective journal or reflective writing, that provides them an opportunity, to gain further insight into their work, through a deeper reflection on their experiences and performance, to help them engage more and more in reflective writing.

A reflective journal helps them revisit their experiences in the classroom over and over again, over a period of time. It helps them furnish a written record of short descriptions of how the class was conducted, how learners responded, followed by analytical and reflective statements about one's preparedness for the class, responses to learners' questions, capacity to include learners' experiences, response towards their errors, difficulties in comprehending new ideas, concepts, and issues of discipline, organisation, and management during individual and whole-class activities. Evaluation of the journal would mean looking at how a teacher has been able to gradually move towards writing reflections, rather than merely describing classroom events and processes (NCFTE 2009, p. 61).

A reflective journal depicts teachers' personal reactions to things that happen in a classroom or in school. Some teachers prefer audio and video to tape their responses to teaching. Keeping a journal can also be beneficial when one or more colleagues share their journals and meet regularly to discuss them (Brock, Yu, and Wong, 1992). A reflective journal is developed

## REFLECTIVE TEACHING

by teachers to record their thinking about all aspects of their professional practice. It may include stories about practice, meaningful words, drawings, symbols, articles, and photographs to be used as prompts for reflection or reminders for thinking and discussion. Some examples of questions that can be used during daily reflection as part of reflective journal could be:

- what are my strengths and weaknesses?
- how have I improved?
- what can I continue to do to improve my work further?
- how effective has been the pace of my lesson?
- how many chances did the students get to speak?
- what did I notice in the class?
- what would I do the next time?

It is quite important to learn how to write a reflective journal; how does it help a teacher improve upon one's teaching practice on a continuing basis; what are the stages of writing a reflective journal, and why must one write a reflective journal. An understanding of these concepts and their use in the teaching practice would help teachers become reflective practitioners at their workplace to grow, in turn, as reflective teacher-journalists.

### **WRITING A REFLECTIVE JOURNAL**

Writing a reflective journal is a continuous process of keeping a written record of the teachers' thoughts, experiences, and observations. It may be kept in the form of an e-journal. A reflective journal is "a teacher's inner dialogue expressed in writing to be a purposeful means of analysis and improvement of one's pedagogical activities" (Svec, 2005). Writing a reflective journal is to keep some kind of a journal of your thoughts and reflections, ideas, and new bits of knowledge gained. A reflective journal may include what you have done, what you have learned, and how you have found your day or week? Maybe you can include thoughts of the experiences — the things that

you have enjoyed, the things that you have done well and the things that you could have done better which you can then reflect on.

The advantages of keeping a journal, summarised by Brock, Yu, and Wong, (1992) are as given below:

- journals are a great instrument for reflection;
- they are easy to keep; and
- they increase the teacher’s knowledge of the way one teaches.

A reflective journal is a steadily growing document where the teachers record their reflections and thoughts on what they are learning and how it is changing their belief system about teaching and learning. A journal is an instrument for practising writing and thinking. A reflective journal differs from typical classnotes in which students “passively” record data and information given by a teacher. It should not be a mere listing of events; rather it should reflect upon lesson(s) you have learned — a personal record of your educational experience in class. In other words, reflective journal writing is an evidence of reflective thinking and involves a description of issues or experiences as well as explorations, critical analysis, and explanation of those events. Reflective writing is a process which helps in learning from one’s experiences and is often used to ‘reflect forward’ to the future as well as to ‘reflect back’ on the past.

#### Activity 4.1

- Observe your own teaching in the classroom and reflect upon it.
- Reflect on what you have learned from your own teaching this week.
- What is the one thing that really stood out and why?

#### ***Let us reflect***

- How did the teacher know their strengths and weaknesses during or after the teaching-learning process?
- What are the different ways in which we can capture our thoughts about teaching-learning?

## STAGES OF WRITING A REFLECTIVE JOURNAL

Having learnt what a reflective journal is, it is important to know how to write it; and what are its different writing stages. Writing a reflective journal has five stages.

### Stage 1: A Six-Minute Writing

To begin writing a journal may seem a challenging task. The following steps may help get started:

- a. write whatever is in your head, uncensored;
- b. write without stopping for at least six minutes;
- c. do not stop thinking or be critical, even if it seems rubbish;
- d. allow it to flow with no thought for spelling or grammar;
- e. give yourself permission to write anything; and
- f. whatever you write is right, it is yours.

Six-minute writing gives a generous sense of permission to write anything; respect for whatever is written; and a realisation that words can appear satisfying as if they appear from nowhere. It is good to stay with the flow without re-reading yet. (Refer to a six-minute writing written by a student-teacher in Box 4.1.)

#### Box 4.1

Today was my first day in school. As soon as I entered in the school, I noticed that some children were playing while some of them were simply gossiping. Some children were observing other's activities. When I reached the Principal's office in school, I noticed that the Principal and some teachers were discussing mid-day meal in principal's room. I took permission from the Principal sir to come into the room. He nodded in response but after that also he was busy in his discussion, so I stood at the corner and was listening to their conversation. At last, he asked me the reason for coming to the school. I told him that I came here from DIET for internship, so I would interact with all the staff members and students for approximately one week. After knowing the reason, he informed me that he got letter from my institute regarding my internship programme. He introduced me to the teachers sitting with him.

One of the teachers asked me which subject I would be dealing with? I responded him by mentioning Social Science in Class sixth to eight. After this introductory session, Principal sir told me *“I will tell you about your periods and classes after some time, till then you please go to Class six as students are having fun due to absence of teacher.”* When I entered in the class, I found no mat on floor to sit and no desk in the class. The classroom was scraps of papers and garbage all around. Students were gossiping in small groups. Windows were broken and fans were dirty and were not functional. Blackboard was also dirty and was appearing to be white. There was a small piece of cloth in the name of duster.

### Stage 2: Narrative

Writing immediately following six minutes is likely to be significant. Write straight away about anything you experience, telling the story simply and allowing it to come in its own order. Focus on a particular occasion, chosen, seemingly at random. Try to narrate about the first event which comes to your mind. The most vital thing to write about might seem to be the most mundane, yet writing on it could be the starting point to learn how to make a non-news item news worthy. This, in fact, is the core of the reflective journal. Alternatively, a writing theme may have arisen during the six-minute writing. No one else needs to read this — what matters is capturing what is there. (Refer to narrative written by a student-teacher in Box 4.2.)

#### Box 4.2

When I went to school on my second day, students were getting ready for prayer in queues. Class monitors and class teachers were engaged in managing students in lines in accordance of their respective classes. All students and teachers started singing National Anthem on the scheduled time and then left for their classes. As per the time-table prepared by the principal, I need to go to Class VII.

All students wished me in one tone on my entry into the class. I saw many paper scraps, dust and other rotten things lying all around in the class. I enquired about the cleanliness to the students in the class, to which students told me

*“we ourselves clean our class. Since there was no broom in class, so garbage is all around. The mat on which you are sitting is also dirty. Even if we clean it, it will still be dirty again.”*

I started the class by telling them the day’s topic, i.e., ‘cleanliness of our class and school’. Students told me in excitement that they will enjoy this discussion.

I told them to organise their mat and throw the garbages inside the dustbin. All the students did this by working in group, and as a result, the room started appearing somewhat clean. Then I told them to sit in an organised manner, which they followed, and they all sat in line. I called every student near me and told them to observe the organisation of the classroom from the place near me, which they also did.

Then I enquired the students how the organisation of class was looking like. They responded that the class is looking more organised and disciplined. I asked, “how did it happen? “The student replied” we all did this as you had motivated us to do so.” I asked the students if they could tell me something about cleanliness. The students responded one by one that *“cleanliness means the cleanliness of schools, home, streets and colony. It also includes hygiene of our clothes, hands, legs, nails, lifestyles and regular trimming of our hairs. Washing hands before having meals and after going to toilets is also included in cleanliness.”* One student said, *“Sir, organising school bags and writing beautifully in notebook is also cleanliness.”*

In this way, all the students expressed their views and shared their experiences. I asked them from where have they received this information? To this, the students replied, that they got this information from school, advertisements and programmes on TV, slogans and posters pasted on the walls. In conclusion, what was derived is that knowledge and awareness about cleanliness was there in the students, but they were unable to use that awareness in their classrooms. But, they cleaned their classroom all together with the help of my cooperation and guidance. Along with this, they cleaned the whole school premises by working together with other students of other classroom.

### Stage 3: Read and respond

Trust the process; have faith in yourself. Reading your own writing is significant, as it is created in camera, without really being aware of the content. Reading is then like a dialogue within the self, hearing what the hand had to say, and being able to respond back to it. Reflective interpretative thoughts might be written in response. Reading privately, slowly and respectfully, with response(s) noted, gives insight.

### Stage 4: Sharing writing with peer(s)

Your writing has the power to influence yourself as well as others who read it. Seeking just the right person or people to share your writing with can be worthwhile. Peer responses can open up fresh avenues for reflection; can augment deeper level(s) of reflection; and provide wider teaching and learning contexts. Their perspectives over the ideas raised in your journal can give you alternate ways to understand your own ideas in different lights.

### Stage 5: Developing writing

You are not supposed to write the wrong thing. Whatever you write, ought to be useful to you. Writing developmental pieces can deepen and widen understanding. The writer explores: *what would it be like....*; being the *other*; different endings; or altering other essential aspects.

After a reflective writing, you need to review what you have written.

#### Activity 4.2

Take a look at some of your writings, that you have done so far, particularly if you have not revisited any entry yet. The following prompts might help probe further where you could have taken your writing next:

- have you been able to write about your own personal experiences in the classroom?
- whose voice has more weight in your writing? Is it your own or can you hear the voice of someone else like your mentors, colleagues? If so, how could you make your voice that will have more resonance?

- identify where you have asked unanswered question(s). Have you been able to move towards a resolution, or a way forward with them? Would additional reading or discussions with colleagues support you with this?
- can you spot some themes arising through your entries?
- is there any aspect of your writing that you no longer feel the same about?
- is there anything you would like to say, but have not had the confidence to say the same?
- which piece of writing took you on the farthest journey?
- can you identify places in your writing where you had an ‘emergent’ moment? What happened as a result?

### ***Let us reflect***

I have:

- set goals for journal writing;
- set a time-frame for the written activity;
- systematically recorded events, details, and feelings about the current teaching experience in the journal;
- reviewed my journal entries to see what I could learn from them; and
- evaluated the writing experience.

### **WHY A REFLECTIVE JOURNAL?**

The purpose of writing a reflective journal depends mainly on the individual teacher’s needs for writing, and the aspiration to do it. Richards and Farrell (2005), put it this way: “Reflective journal encourages the development of metacognitive skills. Reflective journal is designed to help you think deeply about your learning, especially on issues such as — your progress in learning, the difficulties you encountered in the process of learning, the strategies you have taken to get around those difficulties, and your evaluation of your own performance”.

Reflective journal serves several purposes—

- provides a platform for synthesis of knowledge and ideas;
- helps to develop critical thinking and zeal for inquiry;

- helps to elicit topics of interest, challenging topics that need improvement, etc.;
- increases active involvement in learning and deepens the quality of learning and teaching;
- enables understanding one's learning and thinking processes;
- enhances professional practice;
- enhances personal ownership of learning and personal value, towards self-empowerment and builds your strengths;
- enhances creativity, by making better use of intuitive understanding;
- fosters reflective and creative interaction in a group;
- improves ability to communicate in writing;
- helps in analysing actions and experiences and their effects; and
- allows for making meaning out of experiences and creates the possibility of making new realisations.

A reflective journal gives space for regular, frequent, private, explorative, and expressive writing for personal use in the future as also one's own perspective on the issues challenged, always, leaving room for further interpretations. The focus of a reflective journal is primarily to:

- communicate with and advise one's own self;
- clarify beliefs, attitudes, and goals;
- evaluate decisions;
- rehearse future behaviours;
- reflect on current events, situations, and people;
- plan strategies to work towards clarity;
- exercise self-responsibility and reinforce self-trust, respect, and confidence;
- be expressive and creative;
- examine areas hard to voice with others; and
- respond to and reflect on how to apply professional theory.

### **Assessment of a Reflective Journal**

Reflective practice is in itself a self-enquiry leading to a form of self-assessment, that is not straightforward at all, as reflections are process-based. Reflective journal is complex and multifaceted, involving feelings and emotions, as also varied personal, cultural, and disciplinary perspectives. This makes assessment rather problematic, demanding a reasonably thought out and developed assessment criteria. One can read the journal written by oneself to revisit the ideas and thoughts written earlier, to assess their value; which helps, in turn, to reflect on one's own reflection as well. This helps to improve our teaching practice, manage classrooms, as well as personalised dimensions of the self. Besides considering self-assessment, peer-assessment can also be effective to give feedback to improve one's writing, still further as a continuous process.

#### ***Let us reflect***

- Why would you personally write a reflective journal and share among peers?
- Read any of the reflective journals written by you and examine what purposes did it fulfil.

### **SUMMING UP**

Reflection is a process of thinking about one's actions in the classroom and putting them in a written framework which constitutes a reflective journal. It is basically a dialogue of a professional with oneself, that facilitates a teacher to improve one's writing and teaching practice in one's career.

Teachers in their day-to-day teaching encounter many situations in the classroom. Some of these experiences may be pleasant, others unpleasant. Many a times, teachers do share their significant experiences with their colleagues to improve teaching. If these ideas, thoughts, experiences, incidents are penned down on day-to-day basis, it becomes easy for teachers to revisit and refurbish their teaching-learning practices.

Writing reflective journal, in short, is of immense significance in improving one's teaching on a continuing basis. Reflective writing can prove to be a tangible tool, to help a teacher ponder over one's success in coping with complex situations in the classroom.

#### **SELF-ASSESSMENT EXERCISE**

- What is meant by a reflective journal?
- What is the need for reflective journals written by teachers?
- Give some concrete suggestions on how to write reflective journals.

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## Chapter 5

# Assessment of Reflective Teaching and Learning

### INTRODUCTION

In the fourth chapter, you read about the importance of reflective journal and why a teacher should write it; and how it helps to improve one's professional competence on a continuing basis. This raises some other related questions — How does reflection help better assessment? How does pupil assessment help reflect upon and improve the teaching-learning process? What is comprehensive and continuous evaluation? Should it be for assessment or of assessment? What, how, and when to assess? How to receive feedback on assessment? How can assessment be made more student-friendly? Let us figure out answers to such questions as raised above.

“On the completion of the course, at the end of the lower or higher secondary stage, the student should receive a certificate from the school also giving the record of his internal assessment as contained in his cumulative record. This certificate may be attached to that given by the Board in connection with the external examination...” (Education Commission, 1964-66, 9.81).

Further, “This internal assessment or evaluation conducted by the schools is of greater significance and should be given increasing importance. It should

be comprehensive, evaluating all those aspects of the students' growth that are measured by the external examination and also those personality traits, interests and attitudes which cannot be assessed by it.' (9.84).

Some of the recommendations of the Education Commission are now part of educational legislation. These have been included in various guidelines prepared under the Central and State level programmes since the adoption of the National Policy on Education (NPE), 1986. It now needs to be strengthened to ensure implementation of the RTE Act, 2009. This is to give the student, adequate time to develop one's learning and understanding fully through an enabling educational environment and through a system of comprehensive and continuous assessment that aims at enhancing learning.

The *National Curriculum Framework (NCF) 2005*, portraying the student as a natural learner, emphasised giving space to students, to find their voice and opportunities to nurture their curiosity, to come up with knowledge as an outcome of their active engagement with the world around. Considering attitudes, emotions, and values as an integral part of their cognitive development, NCF 2005 preferred an integral school-based system of assessment that could provide information on a student's overall development, in a continuous and comprehensive manner.

The system of comprehensive and continuous evaluation, consists of identifying the learning needs, difficulties, and conceptual gaps; providing timely and appropriate interventions to reduce the stress and anxiety; enhancing learning to help the students' progress. It also intends to reduce rote learning, helps teacher reflect, review, and improve one's teaching and provide students with due feedback, to improve their learning, through various means that suit the context. The NCF, 2005 further envisaged the use of multiple techniques of assessment, to reflect the outcomes of learning, predominantly in terms of grades as compared to marks in examination.

Concern about the ill-effects, that examination has on the efforts to make learning and teaching meaningful and enjoyable for students, stipulates that good evaluation and examination system can become an integral part of the learning process and benefit both students as well as educational system as such by giving credible feedback. The purpose of assessment is necessarily to improve the teaching-learning process and materials and to be able to review the objectives identified for different school stages to the extent to which the capabilities of students have been developed. As long as the examination tests the student's ability to remember and recall textbook knowledge, all attempts to re-direct the curriculum towards learning will be thwarted. Firstly, tests in knowledge-based subject areas must be able to gauge what students have learnt and their ability to use this knowledge for problem-solving and application in the real world. In addition, they must also be able to test the processes of thinking, to gauge if the student has also learnt where to find information, how to use new information, analyse and evaluate the same?

The role of assessment for reflective teaching is to gauge the progress that both learners and teachers have made towards achieving the set aims and appraising how this could be done better. Opportunity for feedback, leading to revision and improvement of performance, should constantly be available, without examination and evaluation being used as a threat to study.

Unsatisfactory results of the assessment of the students' learning outcomes, have the potential to prompt teachers to reflect on the reasons for their low achievement. This reflection may, generate a host of questions, such as — (i) is it due to poor learning activity of students? (ii) is it because of inappropriate questions? (iii) is it because textual material is not easy to comprehend? (iv) is it due to my inability to make the concepts clear?

Assessment should also be used as a tool for reflective learning, on the part of students. Instead of rote memorisation, the nature of assessment should be such, as to provide opportunities to the students for

self-learning on the basis of observation, experimentation, and reflection.

***Let us reflect***

- Explore information regarding examination reform in India from different documents and reports.
- How does assessment help in reflecting upon the teaching-learning process?

**COMPREHENSIVE AND CONTINUOUS EVALUATION (CCE)**

Comprehensive and Continuous Evaluation (CCE) essentially means that assessment should be treated as an integral part of teaching and learning through the observation of students and maintaining records of their work done, in a portfolio, rather than as a judgement. More importantly, efforts should be made to give self-assessment exercises to students, so that they can creatively articulate what they can do and what support they need.

CCE involves the use of a great variety of modes of assessment for the purpose of guiding and improving learning and the overall performance of students. This mode of assessment of the students' learning is considered adequate, because it is all-inclusive, cumulative, and diagnostic. It provides an opportunity to take measures, to quicken the progress of students and help them develop self-awareness. The feedback provided on the basis of continuous assessment, is expected to be valid, reliable, and indicative of the holistic ability of students.

**Box 5.1**

**SSA Framework, 2011, defines:**

**Continuous Evaluation:** 'Continuous' means that the teacher's work should be continuously guided by the child's response and participation in the classroom activities. In other words, evaluation should be seen as a process, whereby the teacher learns about the child, in order to be able to teach better, and 'Continuous Evaluation' becomes a strategy of assessment, which is part and parcel of teaching itself (p. 68).

**Comprehensive Evaluation:** ‘Comprehensive’ implies the capacity to view the child from a holistic perspective, rather than merely in terms of a learner of different school subjects. A comprehensive evaluation strategy would imply that aspects such as the child’s health, self-image, sensibilities, etc., are also perceived in the context of development and growth (p.68)..

***Let us reflect***

- Differentiate between end term examination (quarterly/half yearly/annual) and comprehensive and continuous evaluation.
- Write an example of an instance of CCE in your class.

**Why Use CCE?**

Assessment, a crucial element of the teaching-learning process, is to be carried out for purposes beyond measurement, during the instructional process which will engage and motivate students by emphasising on their progress and achievement, rather than failure and defeat. Assessment should not be treated as an index of school success; rather it should be a cause of that success, by using it as a tool to promote greater student achievement.

Continuous assessment serves the following purposes:

- Improves learning of students: CCE improves learning and raises the performance level. There is a shift towards continuous assessment, by planning assignments, that is, class exercises, projects, tests, in a way that will involve the students in analysis, application, and problem-solving, and will entail carrying out of projects that will get students better involved in their own learning. By focusing on the learning objectives and success criteria, students are provided with specific, descriptive, and immediate feedback on

what they have achieved and where they need to improve.

- Provides better understanding of students: Any teacher would like to have a better understanding of students through groups as well as individual assessment at different times. The teacher can find out through frequent interactions, if, students have learnt what has been taught and to know their strengths and weaknesses.
- Improves teaching-learning process: Classroom assessment, which provides feedback to students, brings about improvement in learning as well as teaching. Feedback helps identify problems in teaching, ensures whether the teaching of that particular topic was effective and, wherever necessary, the need to modify the teaching-learning activities.
- Serves as a diagnostic tool: Continuous assessment, as a diagnostic tool, enables both teachers and students, to understand the areas in which they are falling behind, that need corrective measures; and provides accurate and descriptive feedback to the students to improve their knowledge and performance.
- Provides feedback to parents, administrators, and planners: Parents, who need to know specifically what their children are learning and their areas of difficulty, also receive the required feedback. Feedback from assessment can be used by planners and administrators to improve the system (NCERT, 2008).

### ***Let us reflect***

- While teaching, observe students' behaviour closely. Note down whether all the students are learning. If not, what needs to be done so that everyone learns?
- It is important to provide feedback to parents on the progress of students; identify a student each from the high and low performance levels. Note down the points you would like to discuss with their parents.

### **Formative Assessment**

Comprehensive and continuous assessment is formative in its nature, involving ongoing evaluation of students' performance for the purpose of assessing their learning and the teacher's teaching. Black and Wiliam (1998) defined it as, "all those activities undertaken by teachers and/or by students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged." Assessment is formative to the extent that information from assessment is used during the instructional segment in which the assessment occurred, to adjust instruction with the intent of better meeting the needs of students assessed (Popham, 2006). These definitions identify the following characteristics of formative assessment:

- it is an ongoing activity;
- it is part and parcel of teaching-learning process;
- it provides teachers feedback to modify subsequent classroom activities;
- it emphasises on the importance of teacher-student interaction in the teaching-learning process; and
- it provides students feedback about their weaknesses and strengths.

Assessment for learning and assessment as learning are essential components of formative assessment.

### **Assessment for Learning**

Teachers can make use of different strategies and techniques during the learning process, in order to help students progress towards the desired goal. This aims at bridging the gap between the student's current status and desired outcome.

The teacher needs to assess the students' strengths and difficulties and also, construct appropriate tasks and use strategies for enabling students to learn. Teachers must be aware of the learning differences and disabilities that are prevalent in an inclusive classroom. Main emphasis should be on improvement of students rather than achievement. Assessment has

to be developmental as it seeks to identify difficulties and find strategies that help redress them. It focuses on:

- strengths of the student;
- things which require improvement; and
- measures to overcome the difficulties.

### **ASSESSMENT AS LEARNING**

This is a student-oriented process. Through critical review of one's work, the student will be able to recognise the strong and weak areas of the activities conducted. It is a process where the students set learning goals, share learning steps and criteria of success, and evaluate their learning through discussion and self-assessment and peer-assessment.

#### ***Let us reflect***

- Write down one example of classroom situation for each the following:
  - (i) assessment for learning
  - (ii) assessment as learning
- How does formative assessment support summative assessment?

### **What to assess?**

Teachers often wonder what is to be assessed while conducting various classroom activities? Should they assess the learning process and its outcomes? Or should various assessment activities be designed, based on the learning objectives, to cover a range of skills.

For assessing students in school subjects, teacher may keep in view the following learning indicators. (All assessment activities need not necessarily cover all the indicators. While carrying out the activities, teachers may get an opportunity to assess more than one indicator.).

- Ability to reason: Apart from assessing 'knowledge' which implies only recall of factual information relating to principles, methods, etc., activities should

## REFLECTIVE TEACHING

address the level of understanding of concepts by students. Teachers provide opportunities to students to articulate main ideas in their own words, exemplify information, make inferences, as well as apply these in different contexts.

Students should be assessed on the basis of their ability to communicate their arguments effectively, through employing adequate evidence and sound reasoning. Assessment activities should help them learn how to make logical connections between a range of events.

- **Comparing and contrasting experiences:** Students are assessed on the basis of their ability to draw upon the main ideas in the text by comparing and contrasting concrete situations, comparing across periods, cultures and world views, implying thereby, being able to integrate what has been learnt within the classroom to understand a range of materials outside the textbooks and interpret this through their own experiences.
- **Inferring and extrapolating from situations:** Students are able to understand the narratives and make inferences and extrapolate from situations. They can locate and summarise evidence as well as ideas that support an argument.
- **Interpreting visual material:** Students should have an opportunity to read and interpret visual material. Activities based on pictures, tables, graphs, flowcharts, newspaper clippings, etc., will help in assessing their ability to interpret and reason.
- **Critical thinking:** Activities should facilitate assessment of the student's ability to integrate and evaluate information presented across a range of different texts as well as different media formats including TV and internet. Students may write stories with critical characters.
- **Capacity for empathy and imagination:** Assessment activities should help in assessing the student's ability: (i) to narrate an event in the way in which their action might influence the course of events

around a given situation, (ii) understand a situation from different viewpoints, and (iii) communicate effectively from a viewpoint that is not based on one's own experience (NCERT, 2008).

Thus, keeping in view the aforesaid indicators for what to assess, a detailed blueprint is needed to be developed in order to make a systematic assessment comprehensive and meaningful.

### ***Let us reflect***

Prepare learning outcomes for a school subject of a given class. How will the outcomes help in assessing the students?

### **HOW TO ASSESS?**

Teachers conduct assessment in a variety of ways over time to allow them to observe multiple tasks, and collect information about what students know, understand, and can do. A number of assessment strategies are employed throughout the teaching-learning process for improvement of desired outcomes. Teachers must be skilled in using various assessment strategies and techniques and/or tools to promote students' thinking ability by giving them explicit feedback and to modify teaching so that it becomes responsive to the students' needs.

It is observed in a majority of cases that the teacher is the primary source of information as well as the primary assessor of the students' learning. However, since assessment is a part of the learning process, students themselves can, and also need to play an important role in assessing their own learning and progress. Teachers can help students through activities and tasks designed to involve them in critically looking at their own work and performance. This could be done by asking students to assess their own work; discussing to what extent they are satisfied with their work; and how they can improve further.

For assessment to be comprehensive, teachers can interact with and involve other stakeholders like

parents, student-peers, head teacher, other teachers, and community members on a regular basis.

### **Tools and Techniques of Assessment**

The following tools and techniques can be used for assessing learning:

**Written Test:** A Hindi language teacher of Class VI conducted a written test on the content taught that day. The test was meant to assess the participation of students, their understanding of the content and also their writing skills.

Before giving the test, the teacher asked the students to use a good quality pen to write neatly and legibly. While assessing the answers, the teacher realised that the students had a good understanding of the content. However, the problem was in their writing skills because the answers written lacked coherence and were grammatically incorrect. Therefore, when the teacher assessed the scripts, they understood the weaknesses and strengths of each student and when they returned the answer scripts, they made sure that every student got feedback in the form of remarks, so that students could improve their weak areas.

Hence, the teacher through assessment understood the problems associated with the writing skills of students. This also provided opportunity to the teacher to think and reflect on their pedagogic tools and techniques that would enhance and improve the writing skills of students. A teacher's reflection and the ways of assessment are complementary to each other.

**Oral Test:** This is an effective way of assessment so that the teacher can get feedback from students in terms of their understanding of the subject matter, and the content of a particular subject taught to them.

A Class VII social science teacher uses child-centric teaching methods and teaching aids in the classroom. They ensure maximum participation of students. The teacher provides opportunities to students for interaction. They assess the understanding of students through oral tests. Oral test is conducted in

one-to-one situation and, therefore, teacher has an opportunity to discuss why a student has given that answer. The technique of oral tests also acts as a means of assessing understanding of content and the confidence level of students; it also acts as a feedback mechanism for the teacher to improve one's teaching style. Through oral test, the teacher could reflect upon one's teaching style, and also get an opportunity to amend one's technique of teaching so as to maximise the learning outcome of students.

**Observation:** Observation is a useful technique for the purpose of assessment. It can be used by teachers to observe students in the classroom and the school premises. Observation could be formal or informal. In formal observation, objectives are determined beforehand and questions are constructed according to objectives. In informal observation, objectives or goals are not pre-determined.

Students are observed, and then assessed in terms of how they behave in classroom and in school. It is also based on their participation in co-curricular activities like Sports and Yoga. Observation of classroom activities of students helps teachers understand student's understanding of the subject matter and development of skills. This provides feedback to the teacher to reflect upon and plan the next lesson and activities in the class.

Teachers can also use various learning activities for assessing the students. These include enquiry and experimentation, project work, presentations by the students, field visit, discussion and sharing of socio-personal experiences.

**Enquiry:** Enquiry, as a strategy, may be used for evaluating students' understanding of topics or problems. It not only helps in exploring the thinking of students, but also gives an insight into the level of understanding. Asking varied questions helps the teacher to understand how students are synthesising and applying content or information to situations and problems in other related areas.

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**Experimentation:** Teachers may provide opportunities to students hypothesise and draw generalisations; understand the process of certain phenomenon; understand how to apply their skills, drawing inferences and arriving at conclusions. This would help the teachers on assess their understanding and experimentation skills.

**Project Work:** Teachers may provide opportunities for students to collect and organise data on a chosen or given theme; enable them to explore, work individually or in groups; and enable them to analyse data and draw conclusions. This shall lead to reflective learning on the part of students.

**Presentations:** Presentations provide a glimpse of learning by students to summarise the work done; exhibit the knowledge and learning used to present the theme; give an idea of the extent to which a student has understood the concept; and whether an extra effort needs to be made by the teacher.

**Field Visits:** During the teaching-learning process, field visits may serve as a source of information for students. Essential guidelines may be provided to students before visit for various tasks, to help them reflect on their experiences and learning from field visits, which could be used to assess their observation, critical thinking as well as communication and writing skills.

**Discussions:** Teachers may hold discussions to observe the responses of students; help them diagnose and resolve learning difficulties; modify the teaching process; and plan instructions accordingly. Various aspects can be assessed during discussions such as: students involvement — active or passive — relevance of viewpoints related to the topic of discussion, etc. Teachers may initiate focus group discussion with a focus on specific theme or topic related to different areas and their applications, social and environmental issues, etc. This would help the teacher assess understanding, application and awareness skills of students.

**Socio-personal Experience Sharing:** This assessment strategy provides an opportunity for the teacher to assess how students relate a particular content or

theme with their daily life situations. Certain issues and problems faced by them can be utilised to effectively plan teaching, in line with interests and needs of concerned students.

**ASSESSMENT AS LEARNING: IT CAN BE CONDUCTED THROUGH SELF-ASSESSMENT AND PEER-ASSESSMENT.**

- **Self-assessment:** Students themselves should take responsibility of reflecting on their learning progress. Self-assessment exercises enable students to continuously review and strengthen their own understanding, and to work together to review each other's understanding. It also helps them to become active partners in the assessment process by self-monitoring, self-assessing and self-evaluating. This not only helps teachers to understand their students in a better way but also improves student ownership, on the one hand, and minimises distrust, on the other. This process would help students to be able to state their strengths and areas of confidence; express difficulties faced in the task, thereby mentioning the area in which they lack confidence.
- **Peer-assessment:** Effective feedback based on specified criteria helps both the peer who gives feedback and the student who receives it. For peer-assessment, students should be taught to identify the areas of strength of the peer and the areas that need improvement.

***Let us reflect***

- In what ways can tests be used as effective tools and techniques of assessment?
- How can we engage students in reflection on their individual class work or group activity performed in class?

**When to assess?**

Continuous assessment should occur, integrated into the teaching-learning process, frequently during

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the school year as part of regular teacher-student interactions to a certain knowledge, understanding, and skills attained by students. Tasks used for assessment have to be justified in terms of learning objectives that they serve, which can work well only if opportunities for students to communicate their understanding, are inbuilt into the teaching-learning process. A variety of tools and techniques of assessment, for example, discussion, debate, quiz, observation of activities, assessment of written work, projects, etc., should be designed and used in teaching, to provide opportunities for the students to express their understanding. Feedback provided to students, based on the teacher's assessment should be continuous, to bring about improvement simultaneously. However, reporting to parents should be done only at specific intervals.

### Activity 5.1

Select a topic in a school subject of your choice. What types of tools and techniques for formative assessment will you use while teaching it to students?

## KEEPING RECORD OF THE STUDENTS' WORK (PORTFOLIOS)

Students' record of work can be kept in the form of portfolios. A portfolio is the record of work done by students which reflects their achievements, knowledge, capabilities, etc., over a period of time. Sample works indicative of students' progress in understanding and learning be represented in the portfolio, which must be limited in collection of students' work based on their own observation, analysis and reflection.

**Students' Profile:** Individual profiling of students would help teachers in assessing the concept learning by students. It plays a guiding role in evaluation of learning as well as minimising gaps in the teaching-learning process. Assessment criteria included in the profile could reflect learning progress of students both in terms of quantity as well as quality.

**Let us reflect**

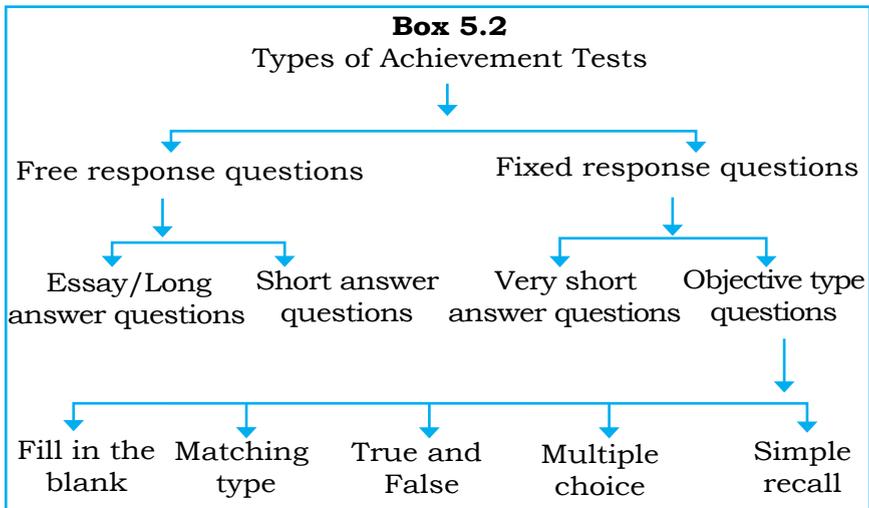
- How will you guide students to develop a portfolio?
- What abilities can be assessed during experimentation?

**SUMMATIVE ASSESSMENT**

Summative assessment is carried out at the end of a course of learning, to measure or 'sumup' how much a student has learnt from the course. It is usually a graded test, marked according to a scale or a set of grades. It certifies, at best, the level of achievement only at a given point of time. This assessment process is generally considered as assessment of learning, specifically used to determine the degree of achievement of competencies in particular subject areas.

**Tools and Techniques of Summative Assessment**

Achievement test is the most commonly used tool for summative assessment. It is of various types as shown in Box 5.2.

**Characteristics of Free Response and Fixed Response Questions**

- Free Response Questions. require the students to formulate their own responses in a descriptive manner, based on a sequence of ideas and facts,

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for example, essay or long answer questions. These questions have great potential to promote reflection on the part of the students.

### ***Essay Type Questions***

- are especially valuable when the teachers wish to assess the ability of students to express their thoughts and ideas in writing.
- are appropriate for measuring the students' capacity to discuss, evaluate, describe, organise, apply, elaborate, explain, or interpret.
- their most important limitations are restrictions in content areas that can be measured and subjectivity of scoring.
- are time-consuming.
- lack reliability and validity.
- can be used to test various intellectual skills and abilities.
- may not only call for recall, explanation, and application but also for inference.

### ***Short Answer Questions***

- are used frequently in unit and terminal tests.
- can be more objective and reliable.
- cover more syllabus.
- are more valid than essay type questions.
- Fixed response questions seek responses that are definite or fixed. Students can give an answer either as correct or wrong. Very short answer questions come under this category, requiring a oneword or a oneline answer.

### ***Very Short Answer Questions***

- can be one word or one sentence answer.
- are more reliable and valid.
- test more content.
- are limited to 10 to 15 words.

Examples:

- ✓ Discuss causes of Anaemia. (LA)
- ✓ List sources of water. (SA)
- ✓ Which office issues water bill? (VSA)

### **Objective Type Questions**

- have only one correct answer.
- seek one response from the options provided.
- are very often used in formative and summative evaluation.
- cover the whole syllabus in the test.

### **Kinds of Objective Type Questions**

(i) True/False Questions

- present a statement and students are asked whether it is true or false. (T/F)
- provide fair and quick assessment.

Examples:

- ✓ Boiled milk takes two hours in the stomach for digestion. (True/False)
- ✓ Unboiled milk also takes two hours in the stomach for digestion. (True/False)

(ii) Matching Type Questions

- have two parallel columns — an entry list and another choice answer list.
- have choice list systematically arranged.
- avoid correct answer in front of the same item.

Examples:

<b>Column 'A'</b>	<b>Column 'B'</b>
Vegetable	Wheat
Fruit	Potato
Spice	Mango
Grain	Cumin (Jeera)
	Gram

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### (iii) Multiple Choice Questions

- are most used among all objective type items.
- give choices to select the correct answer.
- are more reliable and valid.

Example:

Pashmina Shawl is made particularly in —

- a. Karnataka
- b. Tamil Nadu
- c. Jammu and Kashmir
- d. Nagaland

### (iv) Fill in the Blank Questions

- Give no option in the question.
- Ask appropriate knowledge-based questions.

Examples:

- ..... is the National Bird of India.
- There are ..... colours in a Rainbow.
- House in the polar areas is known as.....

## COMMUNICATIVE FEEDBACK ON ASSESSMENT

Sharing with Students: Majority of teachers provide informal feedback to their students while they are involved in different tasks and activities. Students also correct and improve themselves while observing the teacher, other students, or while working in pairs or groups. The problem arises when the students are given a report in such a manner that it reflects what they cannot do due to their failure or inadequacies. This demotivates students. Therefore, it will be more useful if a teacher does the following:

- discuss with each student what work has been done well or not so well, and what needs improvement;
- jointly identify areas with the help of students where more efforts are needed;
- encourage students to review their individual portfolio and compare it with one's previous work; and

- provide concrete tips while the student is working on the work already done.

More importantly, what needs to be encouraged through feedback is to equip a student to compete with oneself rather than with others. It should be with reference to ‘where was I yesterday or a week ago, and where am I today’? A comparison among the students does not always help. By and large, it leads to a sense of distress and defeat. ‘I am good for nothing’ is the obvious conclusion. On the other hand, if a student has done very well, getting the highest mark or grade, it puts tremendous pressure on the student to keep up the performance, often as a consequence of higher expectations on the part of parents and others.

Sharing with Parents: Parents are very often far too eager and want to know how is their child ‘doing’ in school? Teachers believe that they have communicated effectively through comments sent to parents such as ‘can do better’, ‘good’, ‘poor’, ‘needs to put in more effort’. For parents, what do these statements mean? Do they provide any clear information of what their children can do or has learnt? A teacher, in order to enrich the feedback, should focus on:

- what a student can do and is trying to do but finds it difficult;
- what does the student like or dislike to do;
- qualitative statements and quantitative feedback with samples of student’s work;
- how has a student learnt (process) and where do they face difficulty;
- whether the student could complete the activity in time or requires more time;
- share the student’s work with parents to highlight areas of success and improvement;
- aspects such as cooperation, responsibility, sensitivity towards others, interests, etc., both with students and parents; and
- discuss with parents how they can help and what they have observed at home about the student?

***Let us reflect***

Look at a few report cards of students. What types of comments are given by the teacher? Are these communicative? How would you modify the comments?

**ASSESSMENT AND REFLECTION**

Teachers conduct assessment in a variety of ways over time to observe multiple tasks and collect information about what the students know, understand, and can do. It can be used to promote learning (assessment *for* learning) and also to discern whether learning has occurred (assessment *of* learning). A number of assessment strategies need to be employed throughout the teaching-learning process to improve teaching and learning. Thus, assessment of every kind provides opportunities for reflection to teachers, students, and other stakeholders. Assessment must be designed to reflect on a variety of learning indicators on a given topic or subject. Teachers shall have ample opportunities to reflect on results obtained from self-assessment, peer-assessment, and their own assessment. Though the major purpose of assessment is to ascertain the students' strengths and weaknesses in learning, it needs to be utilised not only as a tool of learning but also as a tool of reflection.

***Let us reflect***

Illustrate how will you reflect upon the result of formative assessment, taking an example from your class.

**MAKING ASSESSMENT MORE LEARNER-FRIENDLY**

'Marks', 'ranks', 'grades', seem to emerge in the present day system as major concerns, thus, increasing the sense of unhealthy competition and often leading to traumatic experiences amongst students. Humiliation, low self-esteem, and demoralisation are inevitable outcomes which get associated generally with assessment of a large number of students. Tests or examinations conducted also, more often than not, focus on 'what the student does not know' rather than on 'what one knows'.

The entire teaching-learning process, thus, does little to help students learn. Results of assessment generally do not get followed up with remedial teaching to help the student, and in the process learning gaps get wider and wider still.

It is often overlooked that activity-based teaching by its very nature, lends itself not only to reinforcing students' learning, but also providing feedback to teachers regarding each student's attainment through continuous and comprehensive assessment.

***Let us reflect***

- Design a task where assessment will be used to diagnose strengths and weaknesses of the students.
- Also, prepare a follow-up or remedial teaching activity.

**SUMMING UP**

Assessment and testing policies and practices are central features of an education system. On the basis of assessment, teachers improvise their teaching-learning process to understand the students abilities in a better way.

Comprehensive and continuous evaluation involves identifying learning needs, difficulties, conceptual gaps, and providing timely and appropriate interventions to reduce stress and anxiety, and enhance learning to help children progress.

The purpose of continuous assessment is—improving learning; improving teaching-learning process; remediation and enrichment. Some learning indicators are needed while assessing the students in school subjects, which include ability to reason, compare, and contrast examination outcomes, interpreting visual material, critical thinking, explanation, and logical reasoning. The processes of formative assessment (assessment for learning and assessment as learning) and summative assessment (assessment of learning) are also needed. Various methods and strategies of assessment such as observation, experimentation, discussions, field visits,

projects, etc., also need attention while assessing. The need for communicative feedback on assessment too deserves sharing the experiences of children and parents.

### **SELF-ASSESSMENT EXERCISE**

- Write the main features of comprehensive and continuous evaluation.
- What has NCF-2005 suggested on assessment?
- Why should children be assessed? Explain.
- Explain 'assessment for learning'.
- Discuss five assessment strategies for formative assessment.
- How can assessment be made more child-friendly?

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## SECTION III

### REFLECTION ON ACTION: A FEW ILLUSTRATIONS

- REFLECTIVE TEACHING IN LANGUAGE: ENGLISH
  - REFLECTIVE TEACHING IN ENVIRONMENTAL STUDIES
  - REFLECTIVE TEACHING IN SOCIAL SCIENCES
  - REFLECTIVE TEACHING IN SCIENCE
  - REFLECTIVE TEACHING IN MATHEMATICS
- 

## Chapter 6

# Reflective Teaching in Language: English

### INTRODUCTION

English in India now-a-days, is eulogised as a symbol of people’s aspiration for quality education, and full participation in national and international perspectives of life. Its colonial origin is now forgotten or proven irrelevant; its initial role, tailored to higher education — as a “library language”, a “window on the world” — is now felt to be insufficiently inclusive both socially and linguistically. The current status of English stems from its overwhelming presence on the world stage and its reflection in the national arena, is reminiscent of what the elite intelligentsia believe even after seventy-three years of Independence. In that, we, as a nation, are still being governed through English as the premier language in the national Parliament as well as in most courses, not only at higher education level but also at all levels of schooling, alike in urban and rural areas, with a mushrooming growth of the so-called English-medium schools all over the country.

Teaching and learning of English, today, is characterised by a diversity of schools and linguistic environments supportive of English acquisition, on the one hand, and by systemically pervasive classroom procedures of teaching a syllabus for success in an examination, on the other. Among others, an important way to broadly characterise English-teaching situations

in India is also to view it in terms of: (a) teacher's English language proficiency; and (b) pupils' exposure to English outside the school, particularly mass media inputs as environmental forces to promote language acquisition.

### **LANGUAGE ACQUISITION**

This is supposed to meet the most stringent criterion of universal success, with a spontaneous and appropriate use of language at least for everyday purposes. This is a feat achieved in one's own language(s) by every pre-school child (Chomsky, 1975). It is this "minimum level of proficiency" (which can, however, be shown to require a mental grammar of remarkable sophistication, which allows for the comprehension and production of language in "real time") that the person on the street aspires to, "speak English", as against merely passing examinations or knowing its grammar.

### **MODELS OF ENGLISH LANGUAGE**

In its primary spoken form, language is a continuum of social and geographical dialects that are mutually intelligible at adjacent locations, whereas locations separated geographically, socially, or in time, may become unintelligible. Most speakers command more than one spoken dialect or register of language (for example, formal and informal varieties). Written varieties of language, after invention of print, have tended towards a standard variety that serves as norm, particularly in education and academic life; and this is necessary, given the relative permanence of such communication.

Discussions, on what model of English is appropriate for India, centre mostly around pronunciation (that is spoken English), and secondarily on lexis or vocabulary. The criterion for an acceptable pronunciation is intelligibility. The concept of a tri-dialectal model (David Crystal, 2004), with speakers moving smoothly from a regional dialect (such as Punjabi English or Tamil English), to a national dialect (Indian English), or an international dialect (Queen's English or American English) where required, seems to be a feasible one. Success of young Indians at call centre jobs shows

that “accent training” is a matter of unlearning obvious regionalisms and arriving at a neutral speech style. This is achieved in a large part by learning to slow down speech, speaking in rhythm, and articulating with clarity factors that improve the sound of speech in any language.

As for the sounds themselves, spoken “Indian English” has been described as having some pan-Indian characteristics such as long vowels, instead of diphthongs and retroflex consonants instead of alveolar ones. Many more characteristics of “Indian English” reflect the impact of various mother tongues of speakers, given the fact that “India” is a nation, but “Indian” is not a language. The less obtrusive these mother-tongue characteristics are, the more acceptable the pronunciation of the other tongue. It is also a common experience that a person may have more than one speech style, being exposed to many accents other than one’s own. (NCERT, 2006, pp. 28-29).

### **OBJECTIVES OF LANGUAGE TEACHING**

Language teaching objectives, among others, by and large include:

- a. Competence to understand what they hear: Learners must be able to employ various non-verbal clues coming from the speaker for understanding what has been said. They should also be skilled at listening and understanding in a non-linear fashion by making connections and drawing inferences. It is also important to appreciate that the sounds that are fundamental to the growth of children are not just individual language sounds; connected real-life speech with all its hesitation pauses and silences is most important. Then, there is a whole world of sounds out there; not just of fan or bus, but also of *tabla* and *sitar*.
- b. Ability to read with comprehension: Learners must develop the habit of reading in a non-linear manner using various syntactic, semantic, and graphophonemic cues. They must be able to construct meaning by drawing inferences and relating the text with their previous knowledge. They must also develop the confidence of reading the

## REFLECTIVE TEACHING

text with a critical eye, and posing questions while reading. The ultimate test of reading ability is a critical appreciation of an unseen text that is at least one stage above the cognitive level of the reader.

- c. Effortless expression: Learners should be able to employ their communicative skills in a variety of situations. Their repertoire must have a range of styles to choose from. They must be able to engage in a discussion in a logical, analytical, and creative manner. All this will inevitably involve all kinds of listening, speaking, Reading, and Writing (LSRW) at the same time.
- d. Coherent writing: Writing is not a mechanical skill. It involves a rich control on grammar, vocabulary, content, punctuation, as well as ability to organise thoughts coherently, often using a variety of cohesive devices such as linkers and lexical repetitions through synonyms, etc. Learners should develop confidence to express their thoughts effortlessly and in an organised manner. They must be encouraged and trained to choose their own topic, organise their ideas, and write with a sense of audience. This is possible only if their writings are seen as a process and not as a product. They should be able to use writing for a variety of purposes and in a variety of situations ranging from informal to very formal.
- e. Control over different registers: Language is never used in a uniform fashion. It has innumerable varieties, shades, and colours which surface in different domains and in different situations. These variations, known as registers, should form a part of a student's repertoire. Besides the register of school subjects, a student must be able to understand and use variety of languages being used in other domains such as music, sports, films, gardening, construction work, cookery, etc.
- f. Scientific study of language: In a language class, teaching approaches adopted and tasks undertaken must be such that they lead a child to go through the whole scientific process of collecting data, observing

data, and classifying it according to its similarities and differences, making hypotheses, etc. Thus, linguistic tools can and must play a significant role in developing a child's cognitive abilities. This would be much better than teaching normative rules of grammar. This approach is particularly effective in multilingual classrooms.

- g. Creativity: In a language classroom, students should get ample space to develop their imagination and creativity. Classroom ethos and teacher-student relationship build confidence in the latter to use their creativity in text transaction and activities, uninhibitedly.
- h. Sensitivity: Language classrooms can be an excellent reference point for familiarising students with our rich culture, heritage and aspects of contemporary life. Language classrooms and texts have a lot of scope to make students sensitive towards surroundings, people and the nation (NCERT, 2013, p. 177).

### REFLECTIVE ENTRY

Since English is the second language, teachers have to interact with the students to develop listening and speaking skills. This is so because in some of the schools, children come from diverse socio-economic background, and their parents in most cases, did not even have access to school. Hence, it is assumed that some children do not listen to English sounds at home. The role of teachers is, therefore, to use the language as much as it is possible so that children may not be deprived of the pleasure of learning this language which, at times, might feel like an alien one.

With the assumption that children must be given ample exposure to the English language which may, in turn, make them accustomed to using the same, student-teachers enrolled in various teacher education programmes are supposed to be given comprehensive orientation not only in skill building, but also in perfecting English teaching pedagogy for school purposes. (Refer to case study in Box 6.1).

**Box 6.1: A Case Study on Listening and Speaking Skills**

Regardless of the fact that student-teachers are oriented towards the importance of developing the first two skills of learning English, that is, listening and speaking, they are often found struggling when it comes to implementing the same in real classrooms. In one such case, Dileep, one of the D.El.Ed. (Diploma in Elementary Education) student-teachers, after teaching the poem, 'The School Boy', a chapter in the NCERT textbook, 'Honeydew', for Class VIII, started discussing in the classroom as to how a school can be made an interesting and enjoyable place. However, in the course of interacting with his students, he would often mix the code or switch over to some other code. He was not able to strike a balance while dealing with the performing and struggling students. On one hand, the bright students were curiously interested in responding to his queries in English, on the other, those, who found it difficult to participate, were looking at him with blank eyes. The moot question, in this regard, is whether he should continue to interact with them in English or mix the code, or switch over to some other code, in the hope that once the latter are exposed to the English language, they would automatically start participating in the class.

It was observed that Dileep's efforts to engage all students in the class was tremendous. However, he seemed to be caught in two minds which was perhaps the only barrier that could dampen confidence among the struggling students to communicate in English. What he needed was to diagnose reasons why they were not able to use even a simple sentence. Later, he started reflecting over the pros and cons of his teaching, to soon realise that either of the following two strategies could be made use of:

- whether these students need to be given some remedial classes so that they may overcome 'skipped gradient'?
- whether the whole class should be divided into groups with each of them to be represented by its leader who is a bright student and can motivate members of one's group to start participating in the class?

Dileep decided to use the first strategy, and found that with his best efforts, he was able to help students bridge the gap that had arisen out of their least exposure to the language, yet they could not be brought to the desired level. He, therefore, decided to divide the class into different

groups and found that the group leaders, to their best abilities, were engaged in motivating their members. Although there was some improvement in participation of the students, Dileep was yet to find an answer as to how all of them must enthusiastically participate. He reflected over this issue again and again, and felt that since the students were from different socio-cultural backgrounds, all of them might not necessarily be vocal.

Hence, he decided that in order to help students do away with their inhibitions, he must open them up. This led him to get into a methodological debate as to whether he should first select and grade sentences to the levels of students which might be used in the class, or start using text in the target language to provide them with more exposure and opportunities to participate. He also realised that 'code mixing' and 'code switching' must be avoided unless it was necessary. In addition, more and more sessions must be devoted on developing vocabulary by using brainstorming technique. It was also observed that while familiarising students with different English words, the strategy used by Dileep in describing them in a given context really worked. However, he had to reflect over the issue of using words in a given context again and again. For this, he thought that he would first introduce the words and then create such situations where these could be used with more accuracy and appropriateness. In order that students might respond with eagerness and zest, Dileep preferred to ask the following queries:

- At what time do you wake up in the morning?
- Do you take bath daily before coming to school?
- What do you do after coming back from school?
- Who takes care of your studies at home?
- Do you watch T.V. at home?
- Do you go to the park in the evening?
- Do you have any friends in your neighbourhood?

These simple questions were found to be easily understood and answered by all students. Most of them, however, responded in one or two words instead of full sentences. Dileep helped them answer in full sentences; first by complimenting them on responding correctly, and then completing the sentence with proper reinforcement. He also organised pronunciation drills in the classroom, as and when necessary.

**DISCUSSION**

Going by the above case, it is observed that reflection as a strategy, proved to be a useful resource in improving classroom practices. Dileep's first interface with the problems that the students faced, made him reflect and proactively engage himself to find out a plausible solution. Looking at the problems that students were faced with, he would keep applying his mind and introducing one activity after another. In the process, he learnt that in a language classroom, skills, particularly listening and speaking, can be developed by first providing them exposure to the language and opening them up to respond in the target language without taking recourse to initial mistakes that they would commit.

The case study addressed only listening and speaking skills in the context of teaching a poem, which could be replicated to find solutions to problems of language teaching in other types of lessons as well.

**SELF-ASSESSMENT EXERCISE**

- Why do you think that reflection is a pre-requisite to taking appropriate action?
- How can action lead to reflection for further improving the classroom teaching-learning process?
- What is the role of the learners' diverse cultural and linguistic backgrounds for developing reflection skills in a language classroom?

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## Chapter 7

# Reflective Teaching in Environmental Studies

### INTRODUCTION

One important human response to the wonder and awe of nature from the earliest times, has been to observe the living and non-living environment carefully. Humans have explored nature and discovered meaningful patterns and relations between its components, and further tried to create and use new tools to interact with it. Human endeavour has led to modern environmental science involving several interconnected steps: observation, hypotheses, deducing consequences, verification of principles and laws governing the natural world.

Environmental study is essential to understand and find solutions for environmental problems being faced by us today. Hence, we should understand the nature of environmental studies. A few decades ago, curriculum area of environment studies was non-existent in our early school education. Today, it is a part of the school curriculum, and one cannot deny its potential to solve problems related to adjustment with nature.

### ENVIRONMENTAL STUDIES IN SCHOOL FRAMEWORKS

The National Curriculum Committee (1975), in “The Curriculum for the Ten-year School: A Framework”, suggested that a single subject ‘Environmental

Studies' (EVS) be taught at the primary stage, while the *National Curriculum Framework* (2000) recommended Environmental Studies to be taught as an integrated course for the primary stage (Classes III-V), instead of two distinct parts devoted to Science and Social Sciences. Contemporary research on how children learn to make sense of the world around, and how pedagogy in primary school can enable them to develop scientific abilities has further supported the integrated structure, to be in consonance with the understanding that social and environmental concerns need to be woven into children's understanding at the school itself. NCF-2005 also called for continuation, and reiterated further strengthening of integrated approach to Environmental Studies during primary years of schooling.

### **WHAT IS ENVIRONMENTAL STUDIES?**

This can be considered as an approach to learning about the environment in its totality without being burdened by any disciplinary considerations. It includes understanding a network of interactive linkages between human beings and their natural as well as socio-cultural environment. It aims at providing an awareness and appreciation of the natural and human-made environment; knowledge of natural systems and ecological concepts; understanding of the whole range of current environmental issues and the ability to use investigative, critical thinking, and problem-solving skills towards resolution of environmental issues, keeping in view the goals to explore environmental resources as a means to sustainable development.

### **INTEGRATING PRIMARY SCHOOL 'SUBJECTS' FOR FORGING A NEW UNDERSTANDING**

What do we understand by general science and social sciences? When thinking of these school 'subjects', we clearly have in mind some body of knowledge and also, some typical ways of acquiring that knowledge that we associate with each of them. These subjects have evolved through their own respective complicated history, and are today quite different from the way sciences or social

sciences are practiced in the real world as specialised disciplines such as physics, zoology, chemistry, molecular biology, history, sociology, geography, economics, political science, etc. So, what happens when groups of specialists sit down to discuss what must be taught at the primary level? They naturally tend to think of 'topics' that have traditionally served as the basis of their own different disciplines. Thus, biologists (if we can use that term to somehow bring together botanists and zoologists) would naturally propose a study of plants, animals, or human body, whereas physicists would think of sound, light, force, and work, while chemists would propose studying forms of matter, properties of substances, etc. Add to this, different disciplines under the rubric of Social Sciences and we soon end up with a confounding platter of topics, which are not necessarily 'integratable', and are neither close to the way a child relates them to the world around.

Most primary school curricula, working on an integrated approach, therefore, does not proceed with lists of 'topics' from different 'subjects', but instead proposes 'themes' that allow for a connected and inter-related understanding to develop. This requires moving beyond traditional boundaries of disciplines and looking at priorities in a shared way. Several themes have to be discussed to see what possibilities each of them offers, to bring together insights from different disciplines, in an interconnected manner, that is basically and essentially child-centered at this stage. For each theme, a web of possible connections should be drawn up in terms of concepts and skills, to explore how that may be developed over the primary years. Specialists from several disciplines of science, social sciences, pedagogy, gender studies, child development, curriculum studies, etc., shall have to discuss possibilities of the proposed themes, point out the gaps, and debate on the priorities as per individual needs of the children of respective groups. It is clear that there is no single format that can offer a uniquely satisfactory elaboration of ideas for primary school. The present NCERT syllabus (NCERT, 2006), too, makes no such claim.

Curriculum must identify key themes and sub-themes along with their possible connections. Facilitator must begin with key questions rather than key concepts, because this would trigger a child's thinking in new directions and provide scaffolding to learning process. In the EVS syllabus developed for Classes III to V, as a follow-up of NCF-2005, themes were spelt out to bring together insights from different disciplines especially social sciences, sciences, and environmental studies; and a web of possible connections of various concepts and skills within, as well as across different stages, was drawn up within a child-centered perspective to provide a common interface of issues in these areas of study.

Teachers teaching a particular discipline think of the particular body of knowledge in isolation and eventually, end up transacting it in a restricted manner to their students. In the process, they ignore students to develop interconnections existing among various subjects, themes, and concepts. Different disciplines deal with various environment related concepts and concerns. Environmental studies cannot be divided into watertight compartments of different disciplines, as EVS is not a subject but an approach to learn about the environment, understanding inter-linkages and complex ways in which every single phenomenon can be understood from different perspectives, often rooted in different disciplines.

Environmental issues and concerns appear to be quite simple, but actually they are very complex, requiring an understanding through knowledge of the basic disciplines. It is all the more important that these issues may be understood through an integrated approach. The prime objective of learning EVS is to let the children acquaint themselves with the immediate surroundings. Children look at their environment in a holistic way rather than a compartmentalised manner, as their understanding is developed in a holistic and integrated form. Therefore, themes and concepts chosen in the syllabus must essentially be connected to develop interrelated learning. To understand the essential

and common concerns, it is required to move beyond watertight compartments of traditional boundaries.

At the primary level, Environmental studies taught in Classes III to V as per the NCERT syllabus and textbooks, gives a suggestive matrix of themes and sub-themes. It is up to teachers to translate this into teaching-learning materials and classroom activities, to shape an enabling learning environment for each child, wherever located. In these earlier years, children do learn about their environment, though not as a separate subject. In Classes I to II, the two subjects of Language and Mathematics incorporate some themes for the development of concepts and skills in areas broadly related to EVS.

### **NEED FOR A PARADIGM SHIFT IN THE TEACHING-LEARNING OF ENVIRONMENTAL STUDIES**

Since learning Environmental studies primarily occurs outside the walls of classrooms, one can say that EVS forms a bridge between the school environment and the environment outside school. An effort must be made to relate the child's local knowledge to school knowledge. Children should be encouraged to tap into resources such as home, neighbourhood, newspapers, media, and other books, rather than rely only on textbooks and teachers. Their access to multiple resources, including their interaction with peers, elders, and community, makes learning effective. An adult's support is crucial to the children's thinking and learning. In order to achieve all these and promote positive environmental actions towards sustainable development, a new paradigm has emerged during debates on curricular reform preferred by the National Focus Group on Habitat and Learning (NCERT, 2006) that proposed desired changes such as:

- learning rather than teaching;
- building capacity for critical thinking and problem-solving;
- locating specificity in the context of global vision;
- using multi-disciplinary approach;

## REFLECTIVE TEACHING

- participatory learning with involvement of peers and other community members;
- lifelong and continuous learning;
- sensitivity to diversity, equity, and gender;
- knowledge generation; and
- empowerment rather than indoctrination.

Teachers must ensure that observation activities or discussions related to various topics are conducted to help create meaningful learning. In fact, any activity may indicate that the children's need to conduct specific observations, as young children's senses are sharp and can detect small differences between fairly similar objects. The purpose of conducting 'observation' activities in EVS is usually not to collect random similarities or differences, but to seek information from the object to extend children's ideas and understanding. For instance, look specifically at the shapes of leaves, the edges, patterns of lines, etc., to know more about them. Thus, specific purposes will need to be spelt out when activities are designed. Similarly, young children ask many questions, which help in their development.

EVS classrooms will need to provide opportunities to children to be able to progressively ask higher order questions that require different levels of reasoning and investigation, by planned activities and exercises to get them to phrase their questions, to answer, discuss and investigate them. These are basic to the learning process in EVS, and yet, most classrooms are not designed to ensure this. How then can we expect all children to learn? What then does it mean to specify any outcome at this point?

## **OBJECTIVES OF TEACHING-LEARNING ENVIRONMENTAL STUDIES**

Children should be engaged joyfully in exploring the world around them and harmonising with it, throughout the primary stage, subject to no formal periodic tests, no awarding of grades or marks, and no detention.

The objectives of EVS teaching-learning for the primary stage of schooling are expected to:

- train children to locate and comprehend relationships between natural, social, and cultural environment;
- develop an understanding based on observation and illustration, drawn from lived experiences, and physical, biological, social, and cultural aspects of life, rather than abstraction of any kind;
- create cognitive capacity and resourcefulness to make the child curious about social phenomenon, starting with the family and moving onto wider spaces;
- nurture curiosity and creativity of the child, particularly in relation to the natural environment (including artifacts and people);
- develop an awareness about environmental issues;
- engage the child in exploratory and hands-on activities to acquire basic cognitive and psychomotor skills through observation, classification, inference, etc.;
- emphasise on design and fabrication, estimation and measurement as a prelude to the development of technological and quantitative skills at later stages; and
- be able to critically address gender concerns and issues of marginalisation and oppression with values of equality and justice, as well as respect for human dignity and rights.

### REFLECTIVE ENTRY

#### **BOX 7.1: CASE STUDY**

Shweta, Class III teacher, teaches about plants and their parts to children. She starts teaching from the textbook; but the class does not take any interest in this process. So, she decides to change her strategy to teach the lesson in a question-answer format. She asks children, “Do you want to

visit the nearby park”? All children say, “Yes madam; when shall we go to the park”? The teacher tells the children, “we can do it right now,” telling them to leave their school bags in the classroom and make a queue. She takes them to the park in front of the school and asks them to keep their copy and pencil handy for noting down their observations about plants and other things around them. The children spread themselves all over the park to observe and take notes while the teacher observes their activities to guide and facilitate them. The children collected information about the plants from the gardener also. After an hour or so, the teacher asks the children to pack up and go back to the class. Children seemed happy, discussing what they had observed.

Back in the classroom, the teacher asks, “Now, tell me, one by one, what did you observe in the park?”

Rani said, “There was a green sheet all over the park, except the pathway”.

Ishan added, “the green grass.”

Piyush added, “there were many plants, some tall enough upto my shoulder, some very little, some lying on the ground, some with flowers of different colours, some trees were also there, taller than our school building”.

Teacher intervened and asked, “Can you name some of the plants which you saw today”?

All children shouted at once, “Yes madam; we asked the name of each plant from the gardener whose name was ‘Ali’. The gardener also told us the smaller plants are called bushes and plants lying on the ground or climbing walls are creepers. Ali.

“Good, what about their names?” the teacher asked.

Seema placed all leaves and flowers on the table, which the children had collected from the park to facilitate students to identify each leaf like that of *jamun*, *peepal*, *neem*, mango, etc., and each flower like rose, marigold, periwinkle, sunflower, etc.

Teacher then asked: “How did you come to know the names of the flowers?”

All children replied, “Many of these plants grow around our homes while some names were told to us by the gardener”.

Teacher: “Anything else that you observed there?”

Rehana added, “Madam; some grains were spread on a clean piece of land for birds to eat. There was also a wide mouthful pot of water for birds to quench their thirst.”

The teacher then asked children to open the textbook ‘Looking Around’ (NCERT, 2014) Chapter-2 ‘The Plant Fairy’ and read the lesson on plants. Full of joy and surprise, all children spoke with one voice, “Madam! today, we saw many things in the park which are mentioned in the textbook. Whatever is written here was seen and learnt by us during our visit to the park.”

## DISCUSSION

The teacher initially started teaching through the traditional method. She observed that children were not interested in it (reflection-in-action). She changed her teaching plan and took them to the park for a real field experience. She planned the field visit thoughtfully and implemented it effectively.

The teacher took a good decision according to the nature of the topic. The children observed plants, trees, leaves, flowers, bushes, creepers, soil, birds, etc., minutely and discussed with one another; and also collected information from the gardener and the teacher.

In the park, the children made individual and group observations, with boys and girls together, enjoying equal opportunity to participate and learn.

The children visited the park, a community resource, with community participation of the gardener in the teaching-learning process during the visit. The teacher also did comprehensive and continuous evaluation (observation of children’s activities) in the park as well as in the classroom. She asked questions for assessing children’s knowledge and understanding of plants, trees, flowers, herbs, leaves, bushes, creepers, seeds, soil, birds, etc., and their role and importance in terms of sustainable development of school and the community in one go.

## REFLECTIVE TEACHING

She gave opportunity to children for asking queries related to plants. Therefore, children enjoyed the teaching-learning process. After interaction with the children, the teacher linked their real experience with EVS Chapter 2: 'The Plant Fairy' and gave them instruction, "You will read this chapter at home and also collect information about plants in your neighbourhood as well as from your elders."

### SELF-ASSESSMENT EXERCISE

- What is the reason behind the teacher changing her teaching-learning method?
- What precautions must be taken by the teacher during field visit?
- Why did students enjoy learning in the park more instead of the classroom teaching?
- How is the community involved in the teaching-learning process?
- What is the relevance of report writing? Write a note on the park visit.
- How do you assess learners in a park or during a field visit?

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## Chapter 8

# **Reflective Teaching in Social Sciences**

### **INTRODUCTION**

Social sciences play a significant role in laying the foundation of an analytical and creative mindset; enhancing the child's ability to critically reflect on different social issues, as well as sense of belongingness and human values, aspirations, and endeavours to create a kind of creative co-existence between individual good and collective good. Social sciences carry the responsibility to create and widen popular base for human values, namely; freedom, trust, mutual respect, respect for diversity, etc. Thus, teaching social science subjects, basically, aims at promoting the child's ability to think independently and deal with social forces that threaten human values and the making of a human being. Teachers have a great role to play in augmenting these human possibilities and potentials.

The possibilities of including new dimensions and concerns are immense, especially in view of the students' own life experiences. Social sciences open up the possibilities to engage with contemporary issues and problems from multiple perceptions. In doing so, political, economic, social, and cultural issues at the local level, are interwoven with global realities.

## REFLECTIVE TEACHING

A careful selection and organisation of available material into a meaningful curriculum, is thus, necessary to enable students, to develop a critical understanding not only of society but also of human nature per se. Drawing content from different disciplines, provides scope, to reflect upon various dimensions that impact the lives of people, on the one hand, and on environmental resources and development, on the other.

In terms of the methods of study, it is often presumed that only natural and physical phenomena lend themselves to scientific inquiry; and that knowledge areas, pertaining to human sciences cannot be, by their very nature, “scientific”. The truth, however, is that social sciences lend themselves to scientific inquiry, just as much as natural and physical sciences do.

### **AIMS OF TEACHING SOCIAL SCIENCES**

These aims could be to:

- acquaint students with their geographical, social, and cultural environment;
- develop a sense of social competence, moral values, and emotional qualities in students;
- develop democratic citizenship qualities, social commitment, and a sense of belongingness among students;
- develop the spirit of patriotism, national feeling, and international understanding among students;
- help students participate in social, political and economical instituts and
- develop abilities, to critically engage students, to solve contemporary social issues and challenges.

### **SPECIFIC OBJECTIVES OF TEACHING SOCIAL SCIENCES**

These enable learners to:

- develop an understanding about the Earth as the habitat of humankind and other forms of life;

## REFLECTIVE TEACHING IN SOCIAL SCIENCES

- appreciate values such as justice, liberty, equality, and fraternity, enshrined in the Indian Constitution which lay the foundation for building a socialist, secular, and democratic society;
- appreciate India's past, with reference to the contemporary developments, in other parts of the world and to study one's own region, state, and country in the global context;
- understand the society in which they live, as structured, managed, governed, transformed, and redirected in various ways;
- understand the functioning and dynamics of social and political institutions and processes of the country;
- learn to respect differences of opinion, lifestyle, and cultural practices;
- grow up as active, responsible, and reflective members of the society; and
- undertake activities that may help them develop social and life skills, and make them understand that these skills are important for social interaction.

In the classroom, content, language, and images should be comprehensible, gender-sensitive, and critical of social hierarchies and inequalities of all kinds.

At the upper primary stage, subject areas of social sciences—drawing their content from history, geography, political science and economics are introduced. So, students should be introduced simultaneously to contemporary issues and problems. Emphasis needs to be given to issues like poverty, illiteracy, child and bonded labour, class, caste, gender, and environment. Geography and economics together help in developing a proper perspective, related to issues concerning the environment, resources, and development at different levels, from local to global. Similarly, history should be taught emphasising the concepts of plurality. Children should be introduced to the formation and functioning

of governments at the local, state, and central levels; and the democratic processes of participation.

### **APPROACHES TO TEACHING: PEDAGOGY AND RESOURCES**

It is necessary to revitalise social sciences teaching to help learners acquire knowledge and skills in an interactive environment. It is also important that the process of learning should promote a spirit of inquiry and creativity both among children and teachers.

Teachers play a significant role in transacting the curriculum and helping students construct concepts. Therefore, teaching must be taken as an opportunity by teachers and students alike to learn together, thus, developing a democratic culture, within institutions. In order to make the process of learning participatory, there is a need to shift from mere imparting of information to involvement in debates, discussion, drama, crafts, etc. This approach to learning will keep both the learners and teachers, alive to social realities.

Concepts must be clarified to the students through the 'lived' experiences of individuals and communities. For example, the concept of social equality can be understood better, through citing the lived experiences of communities, that make up the social and cultural milieu of the child. It has been observed that, at times, cultural, social, and class differences give rise to bias and prejudices, in the classroom contexts. Approaches to teaching, therefore, need to be sensitive and accommodating. Teachers must discuss different dimensions of the social reality in the class, and work towards increasing self-awareness and acceptance, both among themselves as well as among the learners (NCERT, 2006).

The provision of supplementary material in the classroom, increases the autonomy of the teacher, and also provides a level of confidence in planning activities and projects. Effective teaching of social sciences is also linked to efficient functioning of

teachers, who are trained to use resources that ICT and library provide towards the creation of challenging projects and activities.

### REFLECTIVE ENTRY

#### Box 8.1

In Class VI, a teacher plans to teach a topic through an activity. A day before the activity, they tell students, “Read Chapter 5: *Panchayati Raj* of Social and Political Life-I (Class VI, NCERT, 2012) at home; and tomorrow we will discuss about it.”

Next day, the teacher starts their session in the class through a student-centered activity, telling the students that today we will elect a monitor and three assistant monitors.

They ask the students to propose two names for the position of a monitor out of the 36 students in their class. Students discuss and propose two names, Suhani and Tushar, one of whom will become the monitor of the class.

After this, they divide the whole class into three groups namely A, B, and C with 12 students in each group. They then ask the students to propose any two names from each group for the position of assistant monitors. The students discuss and propose two names for group A — Varsha and Rohit, for group B — Gaurav and Anjali, and for group C — Amisha and Naivedya.

They write all the eight names on the blackboard proposed by the students for becoming the monitor and assistant monitors. Subsequently, they distribute blank slips and asks the students to choose and write any one name, for the positions.

They continue this process and calls each student one by one; the students then drop slips with names, written on them in the box placed on the table. Every student uses the right to choose and give an opinion through specific selection procedure of monitor and assistant monitors.

After completing the selection procedure, the teacher instructs one of the students to take out the slips one

by one from the box and read the names written. The teacher tallies marks on the blackboard in front of respective names of candidates for the position of monitor and assistant monitors; and they add all the tallies marks of all candidates. In this process, out of 36 students, 21 students give their opinion in favour of Suhani and 15 students give their opinion in favour of Tushar. The teacher explains to students that, as per their opinion, Suhani is elected as monitor because she got more votes than Tushar. In the election of assistant monitors, from each group of 12 students; in group A — 10 students gave their opinion in favour of Rohit; two students in favour of Varsha; from group B — seven students in favour of Anjali; five students in favour of Gaurav; from group C — four students in favour of Amisha and eight students in favour of Naivedya. The teacher declared that as per the students' opinion poll Rohit from group—A, Anjali from group—B and Naivedya from group—C stand elected as assistant monitors.

After the election procedure, the teacher assessed the children's understanding with the help of the following questions and answers:

Teacher: Who elected the monitor in our class?

*Yogita:* All the children of the class elected the monitor.

Teacher: Who elected the assistant monitor in our class?

*Shivam:* All children of respective groups elected assistant monitors.

Teacher: Can you explain the election procedure for the monitor and the three assistant monitors?

Few children explain the election procedure in their own words.

Now, the teacher links the activity with the topic of *Panchayati Raj* of Social and Political Life-I (Class VI) and discusses it further with the students.

Teacher: There is one village named Hardas. All the people of the village (who are 18-year old or more) elect a *Sarpanch*. The village is divided in wards as per its population and the villagers elect members from the respective wards. They correlate election of *Sarpanch* and *Panchs* to the activity performed in the class, where the children

elected a monitor and three assistant monitors. They shows the slides of a village map and its division in various wards.

They discusses about the *Gram Sabha*, a meeting of all the adults who live in the area covered by the Panchayat.

Anyone living in the area, who is an adult, that is, 18-year old or more, is a member of *Gram Sabha*. *Gram Sabha* members also elect representatives (*Sarpanch* and *Panchs*) to the *Gram Panchayat*. Together *Sarpanch* and *Panchs* form a *Gram Panchayat*.

The teacher then explains that in the procedure of election in the class, all the students played the role of *Gram Sabha* and elected monitor and assistant monitors, similar to the procedure for election of *Sarpanch* and *Panchs*.

## DISCUSSION

In this activity, the teacher gave an opportunity to the students to make their opinion for the election of monitor and assistant monitors, that is, They gave a democratic environment in the classroom to the students. They also maintained discipline in the classroom and observed the students' activity. Therefore, the students enjoyed and got fully involved in the teaching-learning process. The students participated as individuals and in groups. The teacher was gender-sensitive and gave equal opportunity to boys and girls. They used ICT resources in teaching and learning.

They did a comprehensive and continuous evaluation in the classroom, posing questions to students for assessing their knowledge and understanding related to the election procedure of class monitor and three assistant monitors.

After interaction with the students, They linked their real life experiences with Chapter 5: Panchayati Raj of Social and Political Life-I (Class VI), following the election procedure of monitor and assistant monitors in class with the election procedure of *Sarpanch* and *Panchs* in the village. They also explained *Gram Sabha* and *Gram Panchayat*.

**SELF-ASSESSMENT EXERCISE**

- Why did you elect a particular student and what were the parameters of your election? (Ask each student and list out common ones).
- Were the criteria of election of the monitor and the village *Sarpanch* similar? Explain the similarities.
- How did you elect the final candidate? Do you think it is a fair method for elections?

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## Chapter 9

# Reflective Teaching in Science

### INTRODUCTION

An important trait of human beings is to wonder, observe, and interact with their surroundings. They also look for meaningful patterns and relationships by making and using new tools, to build conceptual models to understand the world. This human endeavour has led to the development of science, which took thousands of years to crystallise. Science plays a significant role in the lives of all human beings. According to Albert Einstein, “Science is a refinement of everyday thinking, a belief that becomes evident when one studies the work of scientists in their attempt to construct ideas that explain how nature works.”

A science teacher has to continuously reflect on how to sustain and foster ‘natural curiosity and wonder’ in students and facilitate their understanding of the world, scientifically.

Science is a dynamic, expanding body of knowledge, having an ever-expanding horizon. Science can arguably be understood to have at least three aspects—

“(a) body of knowledge; (b) process or method; and (c) a way of constructing knowledge about the natural world (i.e., nature of science) that distinguishes it from other disciplines or ways of knowing” (Lederman, 2006).”

Science has certain characteristics which distinguish it from other spheres of human endeavour. These characteristics define the nature of science (Pedagogy of Science, 2013, p. 2). It is important to highlight the nature of science, aims of learning it and the need of reflection in the teaching-learning of science in a reflective teaching-learning situation.

### **NATURE OF SCIENCE**

Science, is a particular way of looking at and knowing about the natural and physical world. It relies on observations, investigations, and experiments. Scientists strive to make sense of their observations by constructing explanations based on valid evidences. Scepticism is a significant feature of science, supported by reproducibility of observations. A new theory is accepted only after getting identical results on repeated experiments and tests. Science relies on reason, critical thinking and valid evidences, collected from the physical world, examined and interpreted logically, for contextual authenticity. An idea in science is open to critical assessment by scientific community, peer reviews, and through tests on different lines of evidence, before accepting it as a scientific knowledge. If the idea and its explanations, are consistent and proven scientifically, then it is accepted as a scientific principle; and if refuted, it is rejected after systematic experimentation and verification.

Giving logic and evidences is essential, but not sufficient in science. Science requires imagination and creativity too. Scientists think of novel ways to approach a problem in their quest to understand the world and develop new ideas. A theory in science does not explain only the phenomena already observed, but also the observations that were not considered in constructing the theory, that is, scientific theories have predictability. For example, Newton's theory of gravitation could predict the behaviour of objects on the moon, much before any spacecraft landed on it.

Though scientific knowledge is tentative in nature, yet it is durable. There is a possibility to find

incompleteness or shortcomings in existing ideas and theories; and in the light of new ideas, inventions, experiments and advancement in technology, these are then open to change. Because of frequent rigorous examination and re-examination, scientific ideas and theories are durable. Many scientific ideas accepted at one time were found to be inaccurate when new ideas emerged. For example, the geocentric theory of the universe was abandoned after the heliocentric theory developed.

### **Limitation of Science**

Science does not claim to provide answers to all questions. Its domain is related to natural phenomena. It does not make moral or aesthetic judgement. Science can explain how our eyes send information to the brain about colours of a painting, but does not say, whether the painting is beautiful or dreadful. It has not been asserted scientifically whether a rose is more beautiful or a marigold. Neither does it go further to tell us how to use scientific knowledge for the welfare of humankind.

### **Aims of Science Education**

One of the important aims of the teaching-learning of science is to develop scientific attitude. Teachers need to engage students in an on-going inquiry in the process of teaching-learning of science, to develop a scientific attitude. Every possible opportunity should be given to students to ask and raise questions, plan investigations, record and analyse data, construct and defend explanations based on reliable evidences, connect their everyday life experiences with the underlying scientific concepts, reflect in multiple contexts of learning, and apply their understanding to real world problems.

Position Paper on Teaching of Science (NCERT, 2006), identified the following aims of science education:

- know the facts and principles of science and its applications;
- understand the methods and processes that lead to generation and validation of scientific knowledge

## REFLECTIVE TEACHING

and acquisition of skills to undertake scientific inquiry;

- develop a historical and developmental perspective of science to enable the students to view science as a continuing social enterprise;
- relate science education to environment (natural environment, artefacts and people), local as well as global, and appreciate the issues at the interface of science, technology and society;
- construct requisite theoretical knowledge and develop practical technological skills to enter the world of work;
- nurture natural curiosity, aesthetic sense, and creativity in science and technology;
- imbibe the values of honesty, integrity, cooperation, concern for life, and preservation of environment; and
- cultivate scientific temper objectivity, critical thinking, and freedom from fear and prejudice.

It is important for science teachers to see connections among the various aspects of the aims of learning science with classroom practices to realise them. It may take a long and sustained effort, on the part of the teachers to help achieve these aims.

### **WHY REFLECTIVE TEACHING IN SCIENCE?**

Learning is not just acquiring information. It is much more than that. Students must be supported to think explicitly about their own learning and reflect on how their thinking changes in the context of scientific concepts. For this, it is important for the teacher to keep track of how the students are understanding and reflecting on the meaning of a scientific concept.

The process of continuous reflection helps teachers in enriching their own understanding about teaching and learning of science. They recall their experiences, relook, evaluate, and reconsider them for further action to enrich the teaching-learning process. They think about the basis of their decision about educational

matter and ponder how teaching-learning can be enriched. Elaborating a constructivist view of reflective teaching that emphasises on engaging learners with phenomena, instead of explaining things to them at the onset. Duckworth (1987) said,

“the essential element of having the students do the explaining is not withholding of all the teacher’s own thoughts. It is rather, that the teacher not consider themselves the final arbiter of what the learner should think, nor the creator of what the learner does think.”

Reflective science teachers facilitate learners to experience learning through active involvement and participation. They construct meaning by relating their existing ideas with scientific concepts being taken up in the class.

For effective learning of science, it is important for teachers to manage the space and time available, to discuss ideas with students, plan activities, critically observe, analyse the observations, and reflect on teaching-learning experiences. Science teachers have to create such a learning environment in the class where reflection on teaching-learning becomes an inherent process; students become curious and ask questions, identify problems, propose answers and solutions, conduct investigations and test the answers and the solutions proposed.

### **IMPORTANCE OF NATURE OF SCIENCE FOR A REFLECTIVE SCIENCE TEACHER**

It maybe wonderful to believe how understanding the nature of science helps a teacher in teaching science, reflectively. Emphasising explicitly on the key concepts about the nature of science, within the context of a topic, facilitates the students to appreciate how science works; and applying their understanding facilitates the teachers’ design various strategies, to deal with students’ alternative frameworks and construct scientifically consistent knowledge, about the natural and physical world. A science teacher needs to design teaching-learning experiences in a manner that befits the nature of science as an inherent part of teaching and learning.

## REFLECTIVE TEACHING

Five values (Driver et al., 1996), that can help a science teacher understand the Nature of Science and its importance:

- Utilitarian value : Understanding the nature of science is necessary to make sense of science and manage the technological objects and processes in everyday life;
- Democratic value : Understanding the nature of science is necessary for informed decision-making on socio-scientific issues;
- Cultural value : Understanding the nature of science is necessary to appreciate the value of science as part of contemporary culture;
- Moral value : Understanding the nature of science helps develop an understanding of the norms of the scientific community that embody moral commitments that are of general value to society; and
- Science learning (value) : Understanding the nature of science facilitates the learning of subject matter of science.

Teaching these characteristic features as isolated tenets is not likely to enrich the understanding of Science, unless these are discussed with students in a coherent fashion and in the context of specific science concepts.

### REFLECTIVE ENTRY

#### Box 9.1

##### BACKGROUND OF THE ISSUE — CASE STUDY OF A REFLECTIVE WRITING OF A TEACHER

Today I focussed on the topic, electromagnet, in Class VII (NCERT, 2012) and discussed how the number of turns in the coil affects its magnetism. In the previous class, I had demonstrated magnetic effect of electric current by placing a compass needle near a current carrying wire. I had also demonstrated the working of an electromagnet and explained the various factors that affect magnetism of an electromagnet. Students had silently observed it. They neither asked a question, nor made any comment on the activity.

I felt that they were not interested in knowing about the various aspects of electromagnets and the magnetic effect of electric current. Perhaps, I could not provide them a learning environment that could generate their curiosity.

**(A) Identifying Probable Reasons**

Though I understand that knowing is an active process and learners construct knowledge by relating it with their previous experiences, yet I had never tried to apply this understanding to consciously design such a teaching-learning environment. I had learnt in my professional course that merely performing activities does not lead to learning scientific concepts. Opportunity for thinking critically, relating the students' ideas with the activity being performed and discussing various aspects of the activity are vital for learning. However, being sceptical about 'how can I do it with a class of thirty five students', I felt, I must give it a try to apply my understanding in the classroom, as I wanted my students to be curious and actively participate in the learning process'.

**(B) Identifying Learning Needs**

I thought of changing my teaching-learning strategies in the next class on the basis of the students' learning needs. I planned a learning design on electromagnet focussing on what the students learn rather than what I teach. It was based on the six elements of constructivist classroom that is "situation, groupings, bridge, questions, exhibit, and reflection" (Gagnon and Collay, 2001). I started to develop the learning design posing the following questions to myself to create an active teaching-learning environment.

*What do my students need to do to understand and appreciate the relation between the number of turns in the coil, and strength of the electromagnet?*

- They need to make and design electromagnets, observe and explain how the number of turns in the coil affects the strength of an electromagnet to have conceptual understanding of an electromagnet.
- They also need to be encouraged to ask some questions related to the factors affecting the strength of an electromagnet.

**(i) Identifying Learning Opportunities (Situations)**

*What range of learning situations can I create that may cater to the learning needs and curiosity of the students with diverse interests?*

- Students maybe suggested to bring nails or screws or different materials (of cylindrical shape) such as wood, plastic, steel, etc., for the core of an electromagnet having

different length and thickness from their home or surroundings. I shall also make arrangement for few iron nails having equal thickness and length.

- Students may perform an activity of making an electromagnet using an iron material (nail and screw) as core, double cotton coated (DCC) wire, and a battery. They can be encouraged to design the activity themselves in consultation with their peer group.
- Students may observe the effect of the number of turns of the coil on strength of an electromagnet.
- If allowed an open discussion and active participation, students can be facilitated to observe how the strength of an electromagnet depends on the nature of the material of the core and length of the core over which the coil is wrapped.
- Students may measure the strength of an electromagnet by making observations (qualitatively) on how many pins get stuck to it.
- Video clippings of making an electromagnet and its uses can also be arranged. I observed Shahida and Mihir to be quite interested in computer related work. I can give them an assignment to make a Power Point Presentation (PPT) on electromagnets. Gurmeet and Asley want to learn how to make PPT, I will suggest them to join Shahida and Mihir. They may also prepare video clips of the activities.

### (ii) Planning for Learning Resources (Grouping)

How can I facilitate grouping of students in my class?

- For me, materials are not only learning resources in the classroom; teachers and learners are also learning resources. I have a total of thirty five students in the class. I can arrange for five sets of materials required for making electromagnets.
- I thought, five groups, having seven students each, will serve the purpose. While making groups, I need to pay equal attention to students with different learning needs, abilities and styles, boys and girls and one of my students having low vision, to ensure that all groups are heterogeneous. In addition to facilitation of groups formation, I shall facilitate them to stay focussed on their learning goals.

How will I arrange materials to facilitate each group of students in having a collective learning experiences?

- I will facilitate four groups to make electromagnets having a different number of turns in the coil and using iron nails of the same length and thickness. The fifth group will use a similar iron nail as the core, make number of turns equal to any of the above groups, but confine the wrapping over the smaller length of the nail. In addition, I shall try to generate curiosity among the students about using a wooden pencil as the core of an electromagnet. Thickness of the wire will be the same for all groups and cells of 1.5 Volt will be used.
- I must discuss with students what other factors related to electromagnet can be studied. I need to welcome all ideas without being judgemental so that students can share them without being hesitant.

(iii and iv) Working on Learners' Pre-existing Knowledge (Bridge and Questions)

How will I bridge the gap between the students' pre-existing knowledge and the knowledge they might construct by teaching-learning experiences in the class?

How will I create a learning situations such that the students are stimulated to ask questions and share their ideas? What questions on different learning situations can generate discussion and facilitate their active involvement?

I need to plan how to capture the students' attention towards the activity and generate discussion in the class so that they can link classroom experiences with their pre-existing experiences. In anticipation, I need to prepare a list of exemplar questions to explore the students' pre-existing ideas and their learning gaps in making meaning of learning situations and sharing ideas in the class.

I will encourage them to put forward their questions. I will engage them in learning situations in such a way that they will be tempted to ask various questions and will try to do some hands-on activities in search of their own questions. Teaching-learning situations will be adapted according to the assessed gap in their understanding.

Some Exemplar Questions that may Emerge in Discussions:

- What do you think will happen to the pins by bringing the nail near after closing the circuit?

- What do you observe when the nail is brought near the pins after closing the circuit?
- Why do electromagnets attract iron pins towards it?
- Why do pins fall down when electric current is switched off?
- Do you observe that pins are mostly attracted towards the ends of the nail?
- In your opinion, what might be the reason for pins being attracted towards the ends of the nail?
- Do some pins still cling to the nail after switching off the current?
- What might be the reason for your observation?
- Does the coil still attract the pins when the iron nail is taken out?
- Do you think the coil behaves as a magnet when electric current flows through it? Explain.
- Can you produce some other evidence for explaining magnetic effect of electric current in this coil?
- Why do you think, it is named as 'electromagnet'?
- Is there any similarity between these electromagnets and the bar magnet you had observed earlier? Describe.
- Which part of experimental arrangement is an electromagnet — the coil, iron nail, or something else?
- What will happen if the iron nail is replaced by a plastic or wooden core of the electromagnet? Will it attract any pin, more pins, or fewer pins?
- How can we observe the magnetic effect of electric current flowing in the coil wrapped over a wooden pencil?
- Do you think using iron core increases on the strength of the electromagnet? Explain.
- What difference in the strength of the electromagnet do you observe when the coil of a larger number of turns is wrapped over the nail?
- Do you observe any difference in the strength of the coil when the same number of turns is wrapped over the smaller length of the nail?
- What are the uses of electromagnet in day-to-day life?
- Have you seen an electromagnet inside some toys?

**(v) Identifying Observable Learning Evidences (Exhibit)**

How can students exhibit their learning?

Students are expected to make electromagnets with different number of turns of wire wrapped over and explain the relationship between their strength and the number of turns.

**(vi) Giving meta-cognitive Prompts to Learners (Reflection)**

How can I facilitate them to reflect on their engagement in the teaching-learning experiences, specifically on what they wanted to know and what did they learn?

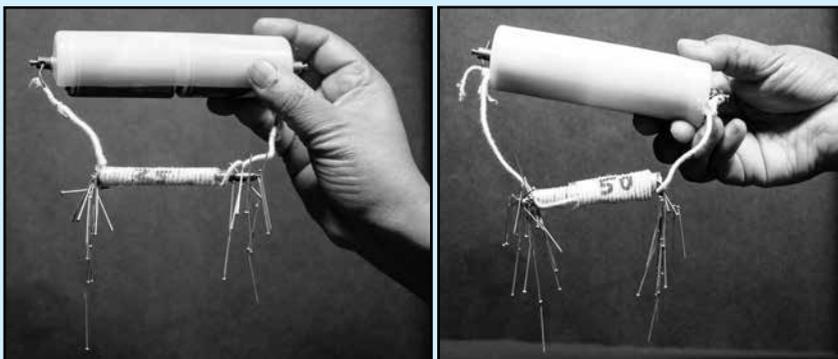
If possible, the same day, otherwise the next day, I will encourage the students to reflect on the following issues:

- In their opinion, what concepts and skills they have developed?
- What did they learn while explaining the situations and observing the exhibit of others?
- What did they like most about the learning of this concept?

I will note down some of their reflections. This will help me have some ideas about the learning style of different students. I assume that many of their reflections could be helpful to me for designing teaching-learning experiences for other concepts in future.

**(C) Exhibits of the Students' Work**

Evidences of learning were observed when they could make electromagnets on their own and describe how the strength of the electromagnets depend on the number of turns in the coils [Figure 9.1 (a),(b),(c),(d)] explains if the number of turns in the coil were more, it attracted more pins.



(a)

(b)

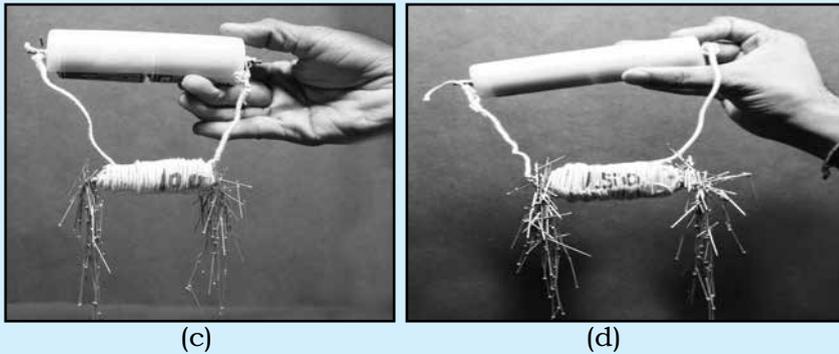


Fig. 9.1 (a),(b),(c),(d): Electromagnets with 25, 50, 100, and 150 number of turns in the coil. Larger number of turns in the coil increased the strength of the electromagnet.

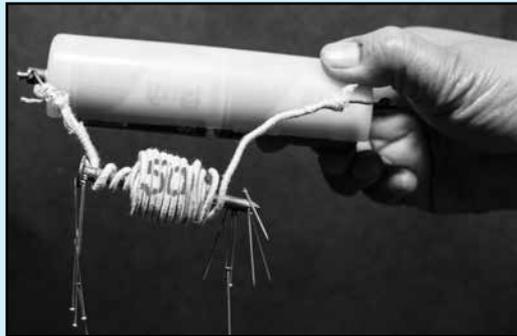


Fig. 9.2: If the same number of turns in the wire (say 50) were wrapped over the smaller length of a similar nail, the strength of the electromagnet was less.

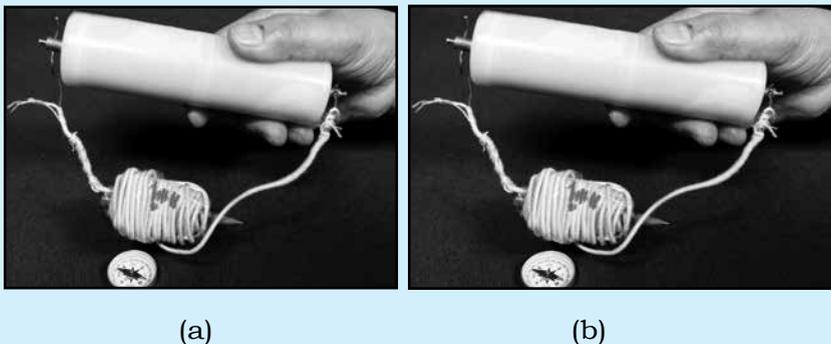


Fig. 9.3 (a),(b): Electromagnet with wooden pencil as its core was very weak. Magnetic effect of electric current flowing in the coil could be detected by observing deflection in the magnetic compass.

One of the groups of students justified that wood and plastic are non-magnetic materials, so the electromagnets using them as core, were weaker in strength. An electromagnet with a wooden pencil as its core, could show deflection in a magnetic compass. [Figure 9.3 (a),(b)]

#### (D) Self-Assessment and Feedback

How did the developed learning design work for me?

Developing and using the learning design, gave me immediate ideas to create learning situations as per the learning needs of students to help students, too, to understand the concept better.

I facilitated students to work in groups and share their observations. To my surprise, I did not need to ask so many questions. They discussed various aspects of the electromagnet among themselves: what could make it stronger; how could they do that, many of their discussion questions were from the list of anticipated questions. Sometimes, in between, I mediated their learning, suggesting them to talk about anything and ask any question regarding their activities and observations. This encouraged them to share their ideas which helped me understand them better and thus, facilitate their learning. I suggested the students to take pictures and draw diagrams of the activities they performed and write descriptions also. Students asked many questions that were left for further investigations. Some of them asked, 'what if we used iron screws (circular shape) instead of a nail' 'what if we use thicker nail'; 'what if we wrap the wire over a plastic bottle'; and 'what if we keep on increasing the number of turns in the coil'?

Some students were supporting the student with low vision in making the electromagnet and explaining it.

I observed that there was no fixed sequence of steps in the above teaching-learning situations. Some students first predicted and then, verified their predictions while some other students changed the factors affecting the strength of electromagnet and thereafter, constructed explanations on their own. I facilitated them to evaluate alternative explanations. I had to extend more help to a few students.

I realised that science involves asking questions about surroundings and doing scientific investigations. However, since video clippings could not be prepared, I suggested my students to take it up as a project.

(E) Integrating Assessment with Learning

Throughout the teaching-learning process, I tried to adapt to situations, based on assessment of students' learning needs, interests and styles. I provided them with opportunities to discuss and share their ideas about the electromagnet. This helped me assess the students' pre-existing ideas and their understanding of the concepts and skills.

**DISCUSSION**

The reflective entry made above, highlights some significant observations about reflective teaching. Obviously, reflective teaching requires out-of-the-box thinking, critical judgement, recognising and accepting fallacies in one's own thinking, resulting into deliberate action and careful planning on the part of a teacher. Teacher in the aforesaid entry reflected on their own teaching-learning practices and came to the conclusion that in order to generate interest in their students, their teaching strategies need to be modified. They made necessary changes and keenly observed effects of those changes on them students, and on the overall classroom environment. They tried to engage their students in activities and deliberations in the class. We may notice many opportunities in such deliberations as to:

- make prediction about the observed phenomenon;
- ask questions, design and conduct investigations to find answers of their own questions through scientific investigations;
- analyse the observations made;
- construct explanations that seemed scientifically consistent;
- justify, defend, and communicate their findings and explanations to their peer groups and the teacher;
- draw conclusion on their own by thinking, logically and critically, based on the evidences produced by them.

Many of the learners' questions might have remained unanswered. Some might have been deliberate so that

students could further investigate. However, the teacher could get new insights on how to create learning situations as per learning needs of the learners. They could get ideas on what more can be done in the future, like video recording of activities and power point presentations.

In the process of facilitating students with experiences to design and carry out activities, indulge in discussion, defend their observations and explanations, and draw conclusion on their own, the teacher got opportunities to get familiarised with their pre-existing ideas. Some students volunteered themselves to help others in the group. It also gave them wider opportunities for integrating assessment with learning. Students could assess their own work and that of others too. Thus, students' meta-cognition could get its due attention in the classroom process. At the same time, the teacher could assess success of the developed learning design and their performance as a facilitator of learning and co-constructor of knowledge. Metacognitive processes are also, therefore, part of this exercise for teachers.

Experiences of the teacher mentioned above point to the need of arranging materials and apparatuses in the class, so that students can carry out some hands-on activities and construct their own knowledge. They understood that creating a situation conducive to scientific inquiry helps student to understand the concept better. It also highlights that when the students are given opportunities to actively construct their own knowledge, the role of teacher is only to facilitate rather than to 'give' knowledge. They may not be required to explain much in the class, as students themselves reach conclusions by trying out new things. When students work like a community of learners, they learn to respect the ideas shared by others. Teacher may variably extend help to those who require more assistance.

The reflective entry points to the need for continuous reflection and applying new strategies in teaching-learning situations. It reinstates that reflection is a continuous process and teachers must continue to reflect on their classes.

### SELF-ASSESSMENT EXERCISE

- What are your ideas about the approach adopted by the teacher in the above illustration? Given the same situation, what would be your strategy for motivating students to actively participate in the teaching-learning process?
- What does engaging students in scientific inquiry mean to you?
- How can you support your students in designing their own activities? Discuss with some examples.
- Discuss the role of writing about the performed activities for developing communication skills in science?
- How can you facilitate students to record their observations or note down what did they predict; what did they do; what did they observe; and what did they learn in the class?
- Explain how does active involvement of students in the designing activities ultimately make the teacher's work easier, as students understand better?
- Give your suggestions for the further enriching the teaching-learning experiences discussed in the above case.

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## Chapter 10

# Reflective Teaching in Mathematics

### INTRODUCTION

Having understood that reflective practice is one of the most important aspects of effective teaching, and once the teachers engage themselves in the active process of teaching, they must consistently and regularly reflect upon what is happening and what has happened in the classroom. Reflection is a form of feedback used to help teachers improve and enhance the way they learn about teaching. Reflective practice is a way to continually challenge current behaviour, and ensure that one's teaching technique is constantly being developed and enhanced. Teaching profession requires commitment and continuous enhancement of knowledge and skills among its practitioners.

### ROLE OF REFLECTIVE TEACHING VIS-A-VIS THE NATURE OF MATHEMATICS

The role of reflective teaching in Mathematics is significant enough to be elaborated. The nature of mathematics makes the subject distinct from other subjects. Some key features of mathematics include: it follows certain logic; its functions can be symbolically represented; it studies structures; and aims at abstractions as specified below.

**NATURE OF MATHEMATICS**

- Mathematics is logical: It is accepted as a branch of logic. All concepts of mathematics, that is, arithmetic, algebra, etc., and their analysis can be defined in terms of the concepts of logic. All theorems of mathematics can be deduced from these definitions by the principles of logic. The proof of mathematical statements consists of a series of logical arguments, applied to certain accepted rules, definitions, and assumptions.
- Mathematics is symbolic: Let us take two statements. “Three hundred when multiplied by twenty gives six thousand” or, “When the sum of any two natural numbers  $x$  and  $y$  is squared, it gives the sum of squares of  $x$  and  $y$  added with twice the product of the two numbers.” But, when we express it using mathematical symbols, they become  $300 \times 20 = 6000$  and  $(x + y)^2 = x^2 + y^2 + 2xy$ .

We can see for ourselves how the use of symbols makes mathematical expressions brief and clear, provided you understand the notations. Symbols like those for numerals, four basic operations (i.e., +, -,  $\times$ , and  $\div$ ) or figures representing line, angle, triangle, quadrilateral, circles, and the like are so familiar to everybody, not only to be easily understood but also as widely used in daily life.

Expressing complicated and abstract ideas, the core concern of mathematics, in brief, symbolic forms using common notations makes them comparatively easier to understand and communicate to others. The system of notations adds power to mathematics and allows to easily visualise whether a mathematical statement is correct and valid or not.

- Mathematics is study of structures: The word structure means “arrangement, composition, configuration, form, order, or system.” Whether the mathematical concepts have certain arrangements? Have we observed any configuration in mathematical concepts? Is there any relationship between

concepts in mathematics? If we observe the nature of mathematics, we will see that mathematics is the study of certain structures (arrangements in the general sets). During the elementary stage, a child goes through the concepts of natural numbers, whole numbers, integers, fractional numbers, rational numbers, and real numbers.

The nature of mathematics has to be kept in mind while teaching mathematics to children. Teaching pedagogy emanates from interface between nature of mathematics and the aims of teaching mathematics.

### **Aims of Teaching Mathematics**

Mathematics introduces children to concepts, skills, and thinking strategies that are essential in everyday life and support learning. It helps children make sense of the numbers, patterns, and shapes they see in the world around; offers ways of handling data in an increasingly digital world; and makes a crucial contribution to their development. Children can use mathematics to solve everyday problems. As their confidence grows, they look for patterns, use logical reasoning, suggest solutions, and try out different approaches to problem-solving. Mathematics offers children a powerful way of communicating. They learn to explore and explain their ideas using symbols, diagrams, and spoken and written language. They start to discover how mathematics has developed over time and contributed to the economy, society and culture. Studying mathematics stimulates curiosity, fosters creativity, and equips children with skills they need in life beyond school.

Children can see and observe mathematics everywhere even before the commencement of their schooling, for example, they are familiar with various objects in the surrounding like animals, fruits, shapes, flowers, etc. They may know any number concepts like 2 cows, 3 bananas, etc. When children come to school, they are already familiar with mathematics and are using it in their own ways. In school, they come across a systematic treatment of mathematics, which at times is in conflict with their internalised processes. It is important for

teachers to understand these conflicts and differences for effective teaching-learning.

The aim of teaching mathematics is to sensitise learners so that it not only requires them to reflect on their own knowledge of mathematical content but also to connect to themselves and to their experiences. Learners need to integrate the concept of mathematics with their experiences through play and games leading to joyful learning. Use of activity-based methods shall make teaching of mathematics interesting and lively. “Developing children’s abilities for mathematisation is the main goal of mathematics education (NCF 2005, p. 42).”

Generally speaking, there are two kinds of aims in Mathematics for school education: one broader, and the other, narrower. The term “mathematisation” refers to the application of concepts, procedures, and methods developed in mathematics to objects of other disciplines or at least of other fields of knowledge. One is said to have acquired the ability to mathematise when one is able to demonstrate orderly and systematic ways of expression and behaviour with mathematical precision in all one’s activities. Mathematics education from the earliest level must aim at such higher aims, besides mastering the usually practiced computations and constructions.

Developing the ability of mathematisation, which is regarded as constituting the higher aims of mathematics, includes developing abilities such as problem-solving, use of heuristics, estimation and approximation, optimisation, use of patterns, visualisation, representation, reasoning and proof, making connections, mathematical communication including developing aesthetic feeling. Such a higher aim in mathematics “is to develop the child’s resources to think and reason mathematically, to pursue assumptions to their logical conclusion and to handle abstraction. It includes a way of doing things, and the ability and the attitude to formulate and solve problems” (NCF 2005, p. 42).

Teaching mathematics thus, seeks to facilitate learners to:

- analyse the factors that affect the process of acquisition of mathematical knowledge;
- develop useful capabilities pertaining to numbers (numerical ability);
- pursue assumption to their logical conclusion;
- allow the child to articulate reasons behind doing a particular exercise;
- nurture mathematical thinking and systematic reasoning; and
- observe relationships to find connections.

“Mathematics education relies very heavily on the preparation that the teacher has, in their own understanding of mathematics, and in their bag of pedagogic techniques” (National Focus Group Position Paper on Teaching of Mathematics, (NCERT, 2006). Every teacher needs to develop an understanding of mathematics afresh from the point of view that takes into account the processes in which learning takes place in the children’s mind. Teachers need to be aware of the ways in which the students think so that they can design and adapt their teaching approaches to deal with alternative conceptions of mathematical knowledge of young learners.

Teachers can always make some needed adaptations to the objectives of their mathematics teaching in order to match the ability of their students. If the main objective of mathematics teaching is to develop mathematical thinking, then teaching methods must not be based on drilling concepts and rote memorisation, as is practised in many schools today. For example, many teachers straightaway ask students to memorise the formula and solve corresponding problem mechanically. This will not help develop their mathematical ability. To overcome this challenge, teachers should adopt reflection-in-action and reflection-on-action as a way of looking at, connecting with, and thinking about their teaching.

Effective mathematics teaching involves the process of incorporating various types of knowledge such as knowledge of school mathematics, knowledge about the students' development and their ways of learning, as well as knowledge of the school culture and its impact on learning. Teachers are required to plan their courses of action, and reflect on their activities and their experiences as a continuous self-evaluation process in an effort to enhance the teaching profession.

Representation in multiple ways is an important element which is required to help children move towards abstract thinking in mathematics; and involves helping them develop their representational abilities. Children should be given opportunities to make their own representations of mathematical problems, processes and procedures before they are introduced to conventional symbols. It is clear that if children are to become able and confident in solving mathematics problems, they must be able to represent mathematics to themselves and to others in a language, and in mathematical symbols. Many mathematics educators now believe that it is important that children express their mathematical thinking in a language, through talk, before they begin to present it on paper, and before they use mathematical symbols.

Developing alternative strategies is also an important aspect. When children can form presentations, they can also develop ways to calculate and solve mathematic problems other than the prescribed ways given in the textbook. Children can evolve their own method of calculation, stems from observations of totally non-schooled children performing calculations of various types required in their daily life, which are different from those given in the textbooks.

Developing new strategies may not always be possible for children. But, whenever they come up with any new one, they need to be reinforced. Searching for alternate strategy needs to be a regular feature in the classroom transaction. After discussion of any operation or procedure for solution of a problem, children maybe

encouraged to think of an alternative strategy from the one discussed in the class, either individually or in groups. We need to recognise the ability of children to build alternative strategies and encourage it as much as possible.

Problem-solving and problem-posing are essential components in mathematics. Solving mathematic problems and the process of problem-solving, though different, have a lot of similarity in understanding the problem, suggesting and trying out different possible procedures of solution and solving the problem. Problem-solving abilities can be developed when we encourage children in solving problems independently or in groups, without providing any direct support. Besides promoting problem-solving abilities in children, they should be encouraged to pose problems. Posing relevant problems indicates the level of understanding of concepts, processes and procedures of mathematics. Teachers should encourage such practices in the classroom as much and as frequently as possible.

## REFLECTIVE ENTRY

### Box 10.1

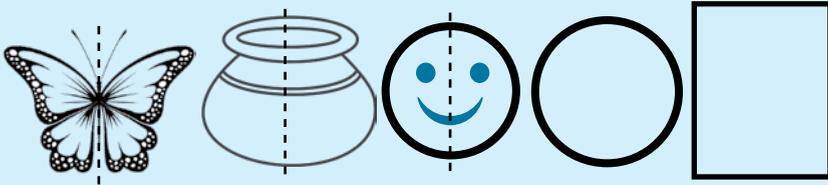
#### SYMMETRICAL FIGURES AND LINES OF SYMMETRY

Khushi teaches mathematics (NCERT, 2014) to class VI. To introduce symmetrical figures and lines of symmetry to students of her class, she holds a discussion with the children about their surroundings. She begins her class, asking students whether they like drawing designs. Students responded in a chorus that they do enjoy drawing designs. She takes the discussion further, asking them to identify designs from their surroundings. One of the students, named Sonu, respond that he has seen design at his house floors, leaves, trees and in our body, too. Reena adds that in his own classroom, doors' and windows' designs can be spotted. This gives Khushi a fairly good idea that the students are able to identify the designs, and she can take the discussion further to another level. She poses another question asking them why these designs look so beautiful? Sonia is quick to respond that designs look good because, in a design,

one set is the exact photocopy of the other. She states that in the case of doors, the left and right doors match exactly in design and size. She reinforces her observation, saying, “She is right. These things look beautiful because of symmetry. There are so many things which have symmetry.” She opens up the discussion, asking, if the students know any other thing or object which has symmetry? Javed respond that he has seen symmetry in shaving blades, our body parts that is, legs, face, etc.

To clarify symmetry better to other students, She asks Javed to clarify why a shaving blade is a symmetrical figure? Javed was able to identify that a shaving blade looks the same from middle line or the left and right, or upper and lower halves match exactly.

To help the students understand through pictorials, she shows them the following pictures and asks if the shapes they see here are symmetrical? Why do they think that these figures are symmetrical?



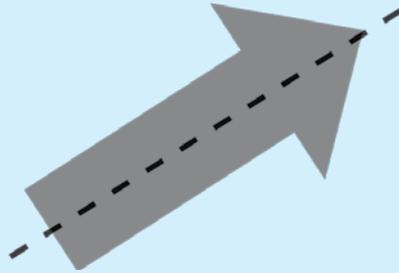
She asks the students to trace some objects and try to find a middle line from where the left and right halves match exactly or the upper and lower halves match exactly, or the diagonal halves match exactly. Then, she explains the idea of symmetry once again so that all students are able to understand it clearly and if they have any doubts, those doubts can be addressed. She encourages all the students to discuss in groups and respect one another's opinion. She observes the discussion and creates a learning environment which allows the students to explore more.

To encourage them further, she asks the students to look for examples of symmetrical shapes in their environment, and to identify the lines of symmetry. Students come up with the following examples—

- Plants (e.g., flowers, seedpods, fruit)
- Logos
- Buildings and building materials

For reinforcing the concept better, Khushi uses Power Point Presentation for showing two parts of objects separately and overlapping them through flipping.

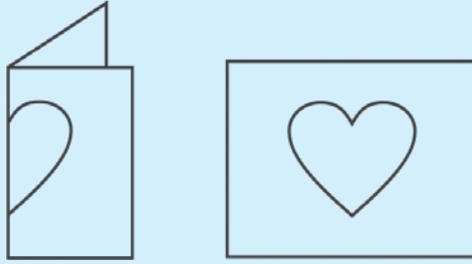
During the course of these exercises, Khushi found that some of the students were getting confused in recognising the lines of symmetry when they are not vertical or horizontal. For example, when she showed them the arrow presented below (which has a line of symmetry), but since the orientation of symmetry is not vertical or horizontal, some students were not able to identify it. This was an important point of reflection for her. She wanted that all her students should be able to master the concept of symmetry.



She decided to change her strategy of teaching and made students do a group-task. She gave them examples, such as butterflies, human faces, doors, windows, leaves, blade, modern art, etc., and asked them to identify which figures are symmetrical. The students listed the ones that were symmetrical. They then checked each other's list and verify whether each one had listed the correct object or not.

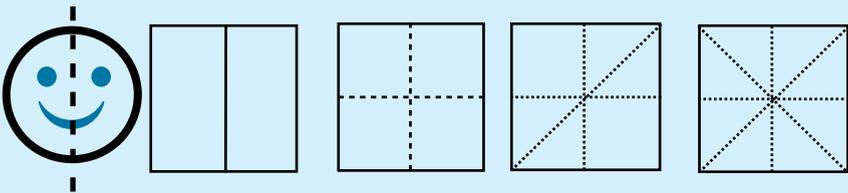
In this exercise, one of the students stated, "If we fold these pictures along with the dotted line, both parts superimpose." This was a good lead for Khushi and she elaborated this for the benefit of rest of the students. She explained, when we fold a sheet of paper in half and cut-out a shape that includes part of the fold; then the fold line divides the shape into two congruent halves, and the fold line is called an axis of symmetry of the shape.

She then asked students to cut-out some symmetrical shapes.



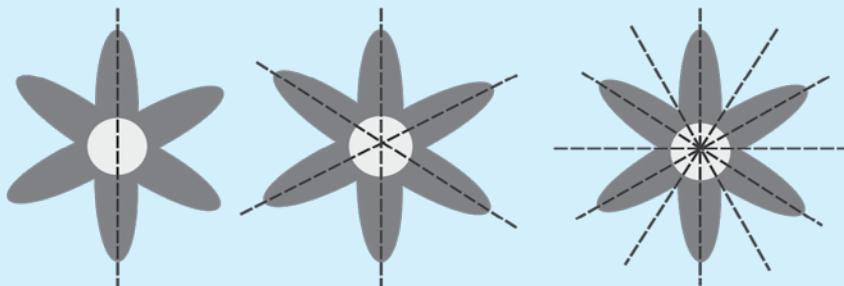
Students were excited to see that they could fold a picture in half, such that, both halves matched exactly and is said to have line symmetry. They themselves observed and shared that the two halves are mirror images of each other, that is, if we place a mirror on the fold then the image of one side of the picture will fall exactly on the other side of the picture; when it happens, the fold, which is the mirror line, is a line of symmetry (or an axis of symmetry) for the picture.

Khushi gave the students a challenge, wherein, they had to verify whether there was only one way to fold. She gives them a practical task to find out this. She asks them to draw some pictures and try more than one way of folding. Each of the students keenly took on the task of folding. One of the students named Sunita, discovered that a smiling face can be folded in one way only. Rabia added that butterfly and pot also can be folded only in one way. Rohan shared that a square figure can be folded in more than one way, to make two equal halves.



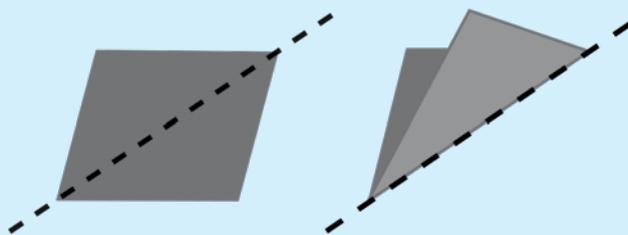
This brought the teacher, to the point that a square has four lines of symmetry. She left the students to find out some other shapes that have four lines of symmetry. This exercise helped her, to understand that some students may think that a shape can only have one line of symmetry or may only identify some of the lines that are present. For example, some students maybe able to see just the vertical line of symmetry in the flower

shape below (as in the first diagram), whereas others will see three lines shown in the second diagram. In fact, there are six lines of symmetry, as seen in the third picture.



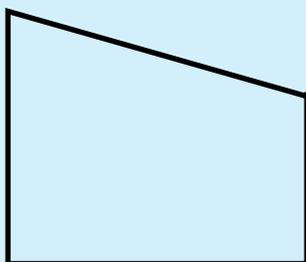
She then decides to use more concrete material on the next day in her class, to help the students understand the concept of symmetry better. The next day she brought flowers, tiles, and other objects, freely available in the surroundings. She told students that after drawing the objects, they can draw dotted lines (maybe through the paper folding), each way which makes exact two halves. She asked them to check whether, while folding them along the dotted line, one half of the drawing would fit exactly over the other half. Students then counted the number of dotted lines.

To her surprise, she found that the students had started thinking that all lines which divide a shape into two equal 'halves' are lines of symmetry. For example, in the shape on the left, (below) the dashed line seems to divide a parallelogram into two identical triangles.



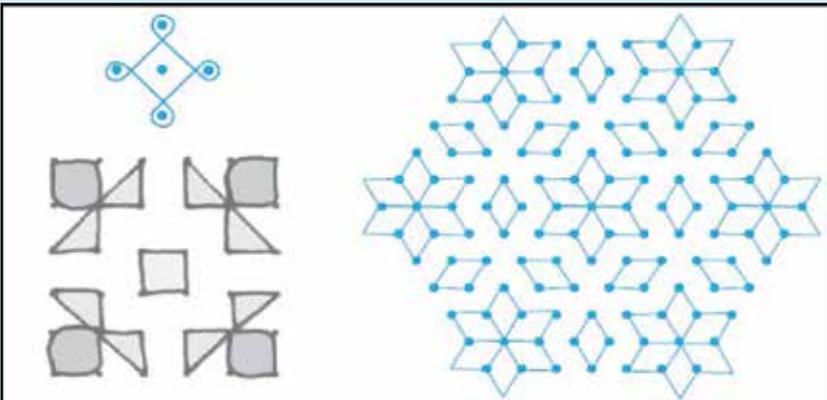
However, if the parallelogram is folded in half along this line, the two halves do not match exactly, as seen in the second picture. This means that the line is not a line of symmetry. Equivalently, if you put a mirror on the line

and look in the mirror from the bottom right, you will see the shape shown in the third figure. Since this is not the same as the original, this also means that the line is not a line of symmetry. So to clarify this point better, she showed the students the figure of a parallelogram and asked them, “Does the figure given below have line of symmetry? How many such lines are there? If there’s any, can you tell, why? If not, can you tell, ‘why not’? How many lines of symmetry are there in a parallelogram?”



Thereafter, students were able to understand the concept of symmetry better. She further encouraged them to use thread as a line of symmetry. She left students to explore more on this and gave them the following questions to ponder over at home —

- Do square and rectangle have an equal number of lines of symmetry?
- Do you see any object in the classroom which is symmetrical?
- Do you see any object at home which is symmetrical?
- List a few objects you find in your classroom such as the blackboard, table, wall, textbook, etc. Which of them is symmetrical and which is not?
- Identify the lines of symmetry for those objects which are symmetrical?
- Name some three-dimensional objects which have lines of symmetry?
- Name some geometrical instruments, you found in your geometry box.
- Try and locate symmetric portions of these patterns along with the lines of symmetry by using thread, mirror, etc.



- Do you think symmetry helps in creating rangolies? Create some designs of a rangoli.

### DISCUSSION

The reflective entry presented above, highlights some significant observations about reflective teaching. It clearly brings forth the role of the students' involvement in classroom deliberations. The teacher, Khushi, planned her classes well in advance. She kept it in mind that before going to teach symmetry to Class VI, a teacher needs to plan one's strategies according to the strength of the class, background of the students, available material, and according to the activity designed like leaves, paper pieces, empty boxes, bricks, etc., to focus on teaching-learning process (pedagogy).

She was aware that the teaching-learning process should be learner-centered, based on the principles of constructivism. She worked as a facilitator to provide such context to learners, to help them construct their knowledge through discussions. As a teacher, she knew the background of learners; what resources would be available to them; hence, she took examples from day-to-day life such as blades, doors, faces, leaves, rangoli, etc. She used this knowledge to help them learn the new concepts better. Besides these points of reflection, she gave the opportunity for individual and group participation to all the learners. When she observed that all students were not picking up the

concept in individual tasks, she engaged them in group tasks. Through paper folding, they did activities on an individual bases and while making a list for items, they worked in groups. To create an environment conducive for learning, she gave each of the students a chance to share their experience and asked questions from the teacher as well as from peers. She gave them a learning environment to explore herself, while she just played the role of a facilitator.

### SELF-ASSESSMENT EXERCISE

- Students often make errors in computation like  $(2/3) + (4/5) = (6/8)$ . What may be a possible reason for this error? How will you help the students to rectify the error?
- What is the difference between a mistake and misconception? Give examples of both.
- Mathematics is related with everyday life; how will you 'introduce the topic interact' by connecting it with above statement.
- Ensure that all children participate in classroom activities. Discuss some of the obstacles you faced while ensuring participation of all children.

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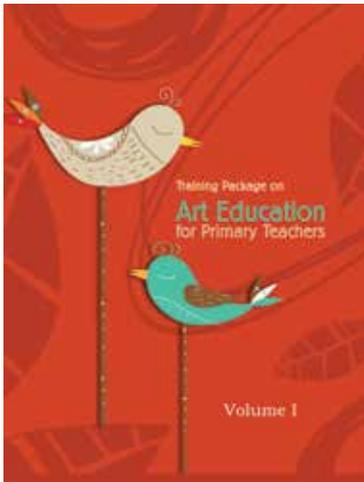
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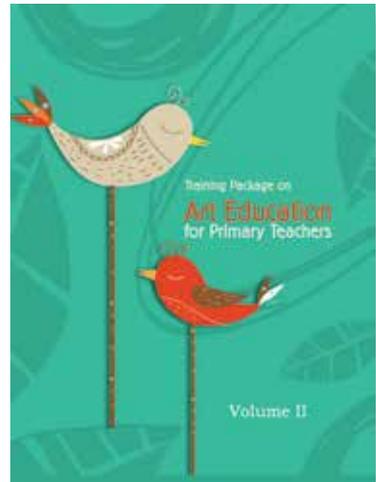


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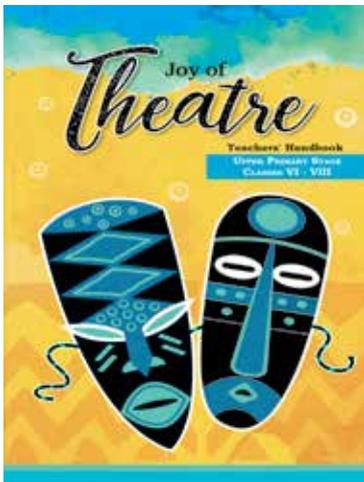


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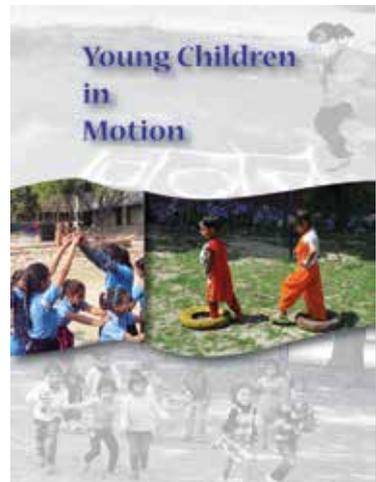


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