Understanding the introduction of Reflective Practice at two initial teacher education institutes in India

Thesis

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Understanding the introduction of

Reflective Practice

at two initial teacher education institutes in India

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Bachelor of Science (Hons), Master of Design,
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ABSTRACT

Following India’s declaration of the Right to Education (RTE) as law in 2010, primary school enrolments increased. However, low learning levels and attendance figures, especially among marginalised communities, showed that quality of learning is just as relevant as high enrolment. It became vital to have teachers who could make learning engaging and support pupils to construct their own knowledge in diverse circumstances.

The Government of India introduced a teacher education policy aimed at changing the dominant transmissive pedagogical practice to one that was constructivist, process-based and more student-centred, mediated by reflective practice in the National Curriculum Framework for Teacher Education (NCTE, 2009). Reflective practice is recognised as an important construct for teachers and is embedded in teacher education frameworks globally. This study explores the readiness of a system of initial teacher education to foster reflective practice skills at two District Institutes of Education and Training (DIETs) offering a two-year Diploma in Elementary Education (D.El.Ed.) programme. The data was generated from four student-teachers’ reflective practices, from lesson plans, class observations of practice teaching, supervision reviews, stimulated recall and more conventional qualitative interviews and conversations involving student-teachers, teacher-educators and experts. It was analysed using a tool developed from Ward and McCotter’s framework, adapted to the Indian situation. Processed and identified reflections were analysed with Vygotsky’s socio-cultural theory and the activity theory.

This study confirms that reflective practice is an essential part of deliberate human action emerging from a desire to improve practice. It has important implications for designing and implementing policies aimed at change in pedagogy and teacher thinking, a complex undertaking in teacher education. Principals, teacher-educators and student-teachers must be involved in policy planning, as it is they who are responsible for the intended transformation, and this thesis demonstrates how their perceptions, values and socio-cultural beliefs are fundamental to its achievement.
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A special thanks to the SCERT and the DIETs in India for giving access and to the experts, principals, teacher-educators, and student-teachers for their time and participation that made this research possible.

I dedicate this work to my late parents Kumud and Raghunath Sahai, who dreamt for us, and cut back to educate us, so that we could aspire and achieve. And now I have come full circle to research on how to improve learning experiences.

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<tr>
<td>APPEP</td>
<td>Andhra Pradesh Primary Education Project</td>
</tr>
<tr>
<td>ASER</td>
<td>Annual Status of Education Report, Pratham</td>
</tr>
<tr>
<td>AS</td>
<td>Activity System</td>
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<tr>
<td>AT</td>
<td>Activity Theory</td>
</tr>
<tr>
<td>B.El.Ed.</td>
<td>Bachelor in Elementary Education</td>
</tr>
<tr>
<td>CrTrR</td>
<td>Critical Transformative Reflective level</td>
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<tr>
<td>D.El.Ed.</td>
<td>Diploma in Elementary Education</td>
</tr>
<tr>
<td>DIET</td>
<td>District Institute for Education and Training</td>
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<td>DPEP</td>
<td>District Primary Education Project</td>
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<tr>
<td>DR</td>
<td>Dialogical Reflective level</td>
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<td>HOD</td>
<td>Head of Department</td>
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<td>LP</td>
<td>Lesson plan</td>
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<td>NCERT</td>
<td>National Council for Education, Research and Training</td>
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<tr>
<td>NCF</td>
<td>National Curriculum Framework (NCERT, 2005)</td>
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<tr>
<td>NCFTE</td>
<td>National Curriculum Framework for Teacher Education (NCTE, 2009)</td>
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<td>NCTE</td>
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<td>RR</td>
<td>Routine Reflective level</td>
</tr>
<tr>
<td>RPTv1</td>
<td>Reflective Practice Tool version 1</td>
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<tr>
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<td>Reflective Practice Tool version 2</td>
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<tr>
<td>SCERT</td>
<td>State Council of Educational Research and Training</td>
</tr>
<tr>
<td>SEP</td>
<td>School Experience Programme</td>
</tr>
<tr>
<td>TE</td>
<td>Teacher-educator</td>
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<tr>
<td>TEP</td>
<td>Teacher education programme</td>
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<tr>
<td>TLM</td>
<td>Teaching-learning material</td>
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<td>Tools</td>
<td>Tools and signs</td>
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<td>TR</td>
<td>Technical Reflective level</td>
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<td>UNESCO</td>
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<td>Universal Elementary Education</td>
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1 THE PROBLEM, CONTEXT AND RESEARCH QUESTIONS

1.1. INTRODUCTION

India’s resolve to provide free, compulsory, universal elementary education (UEE) for all children aged 6–14 years is stated in Article 45 of the Constitution (1950). However, it was only in 2010 that this provision became law, under the Right of Children to Free and Compulsory Education Act (India) (RTE Act, 2009). Increasing enrolment has been found ‘to have little impact on the teaching-learning environment and learner-achievement’ (Batra, 2013:15) and falls short of providing engaging, meaningful education to all children, with many dropping out of primary school. The 100% enrolment in Class 1 (World Bank, 2015), reduced to 57% in Class 3 and 45% in Class 5 (UNICEF-India, 2019). The children who dropped out were from the poorest, most socially and economically disadvantaged groups. These included the Adivasis (tribal groups), Dalits (the untouchable castes) and Muslims (a religious minority). Overall, it has been found that more girls drop out than boys (Arvind, 2010). In addition to low attendance, learning levels were found to be low, too. For instance, in Classes 2 and 3, only about 27% of children achieved minimum proficiency levels in mathematics and reading (ASER, 2018).

This issue of high drop-out and low learning levels is not unique to India. Across the world 200 million children leave school each year without meeting expected learning outcomes (UNICEF, 2013), something the United Nations has termed a ‘Global Learning Crisis’ (United Nations, 2022). However, reasons for this ‘crises’ vary between contexts. Studies in India show that many children drop out of school due to traditionally deep-seated socio-cultural issues which negatively impact teaching and learning in Indian schools. These include a lack of equity, gender disparity, caste discrimination and deep social, spatial and language diversity, a disconnect between the home and school, and a lack of accountability (Majumdar and Mooij, 2011; Arvind, 2010; NCTE, 2009; NCERT, 2005; Dyer et al, 2004). These problems manifest in classrooms as lack of comprehension, disinterest, boredom, and inability to cope with both schoolwork and homework. The educational experience for many children continues to be filled with fear, trauma and anxiety (Arvind, 2010; Batra, 2005; Drèze and Kingdon, 1999). Batra (2017) expressed this concern evocatively:

The battle for the hearts, mind and future of India’s children is being lost each day in the classrooms of millions of schools in the country. If we are not able to change the reality of

---

1 The Right to Education Act recognises the entry age of Class 1 to be six years or more.
Enrolling children and filling school places initiates the process of education, but it is the quality of what is learnt and how it is learnt that is most important. There is, therefore, a great need for appropriately educated teachers, who can deal with the diversity they encounter in their classrooms (NCTE, 2009).

To enable student-teachers to develop the ability to deal with the complex situations in classrooms, and to improve learning, at the beginning of this century the Government of India looked for ways to create spaces in the teacher education programmes for introspection, discussion, critical engagement and action. After wide public consultations, a new policy was articulated in the National Curriculum Framework (NCF) (NCERT, 2005) for schools. Since the quality of teacher education influences the quality of teachers, the NCF was followed up by the creation of the National Curriculum Framework for Teacher Education (Batra, 2005; NCERT, 2005; NCTE, 2009; MHRD, 2015). Both policy texts recommended a pedagogical change in teaching from a teacher-led, behaviourist pedagogy to a critical, constructivist pedagogy. For this change to take place, the National Curriculum Framework for Teacher Education (NCTE, 2009) declared reflective practice as ‘the central aim of teacher education’ (2009:19) to help student-teachers to adapt their pedagogical knowledge and change practice, ‘to meet the needs of diverse contexts through critical reflection’ (NCTE, 2009:19). This drew attention to the importance of having teachers who could make learning engaging and meaningful and could facilitate pupils to construct their own knowledge in diverse circumstances.

Reflection is ‘the deliberate thinking about action with a view to its improvement’ (Hatton and Smith, 1995:40). In teaching and teacher education, reflection is both complex and situated in practice (Dewey, 1933; Loughran, 2002; Finlay, 2009; Ramchand, 2013; Raghavan, 2016). Reflective practice is reported to be among the more researched themes to effect change in teacher education globally, yet very little research is done by Indian researchers situated in Indian contexts, which is why this research explores this topic. It explores how reflective practice is introduced and developed through a policy-driven initial teacher education programme (ITEP). It evaluates the quality of student-teachers’ reflections through a longitudinal, qualitative study. By applying Vygotsky’s socio-cultural theory (Vygotsky’s SCT), activity theory (AT), and by adapting Ward and McCotter’s (2004) reflective rubric framework to the local situation, this research focuses on answering the overarching research question:
How is reflection fostered, practised and perceived to support the professional development of student-teachers in two initial teacher education institutes in India?

The focus of this research is reflective practice in initial teacher education in India. This research includes historical, cultural and social aspects of reflective practice. Reflective practice sits at the confluence of human learning, teacher education, policy adoption and development (Figure 1). This ties into several teacher education challenges.

Figure 1 The research area: Reflective practice developed from a confluence of teacher education areas shown with key teacher education challenges in India (Source: Researcher)

1.1.1. Chapter structure

The rest of this chapter is set out as follows. Section 1.2 provides the background for my interest in reflective practice. Section 1.3 describes the policy chronology which led to the perceived need for reflective practice in initial teacher education in India. Section 1.4 briefly introduces some initial teacher education challenges which hinder improvement in the quality of teaching and learning in India. This section also describes pedagogic change adopted by the Government of India through a process-based teacher education curriculum in which reflective practice is embedded. Section 1.5 establishes the lack of knowledge about the perceptions, adoption and implementation of reflective practice in initial teacher
education as a construct which helps to improve student-teacher practices in India. Section 1.6 concludes the chapter with an overview of the chapters in the thesis.

1.2. MY INTEREST IN REFLECTIVE PRACTICE

My interest in reflective practice started from my own experience. My beliefs, thinking, subject knowledge and motivations led me to be interested in reflection in teacher education as a method to enhance learning in classrooms. As a student I specialised in communication design with the ambition of designing engaging, rich, visual teaching-learning material for education. The experience of design education was reflective, creative, experiential, constructivist and user-oriented with project-based learning by doing.

After a decade as a professional designer, I capped the next decade of work developing teams to create rich, web-based, teaching and learning material covering the entire school general science curriculum for Malaysian government schools. It was an enriching, reflective experience incorporating Malaysian values and culture, in Bhasa.

Over the next decade I bridged my professional design learning with higher education academics. I developed, taught and headed an Indian BA (Hons) design programme with a British university. The students who joined the programme were a diverse group from different parts of India. The change from an exam-facing schooling to an experiential, portfolio-based design graduation meant that the design teachers needed to be prepared to transform student thinking and learning about themselves and their work.

Reflective practice was introduced to the faculty in earnest through the Postgraduate Certificate of Higher Education (PGCHE). The programme changed the conversation in the corridors, with teachers openly sharing their dilemmas in classrooms and discussing improvements in their own practice with colleagues. I learned a more guided way to develop myself and other teachers. Reflective practice is a complex construct and instituting it was hard work, but it was an essential, critical way to bring about internal change and improvement through intellectual humility, honesty, criticality, and collaboration. Starting a new department had the advantage of developing systems anew with guidance from an experienced university. Self-reflection, feedback from students, student portfolios, industry interaction and expert inputs were essential to improve modules and teaching. The programme underwent renewal systemically and individually through annual cycles and four-year validations which included reworking the curricula. Providing a fulfilling and professionally successful student and industry experience was
necessary for both the survival and the growth of the private institute. Students were taught and transformed to become more reflective and creative, learning to follow a design process.

During this time, I also completed my MA (Education) through a distance learning programme from a university in the UK. Through my education and professional experiences, I learned the importance of pedagogy to achieve transformation by fostering reflection in both teachers and learners.

Exposure to national educational policy documents, in India, through my Masters, made me realise that constructivism and participative, experiential learning had already been adopted in the changed national frameworks for school and teacher education. Improving classroom processes and making them more inclusive, liberal, aiming at achieving social justice, had been identified as a national need in accordance with constitutional principles since Independence. My professional and academic experience made me want to research the education of student-teachers for government primary schools.

I am from a highly populated and impoverished village in western Uttar Pradesh, in India. I was an avid reader, reading by lamp light, getting spectacles at the age of ten years. By accident of birth, I have been privileged to gain the best education and extensive work experience over decades, across continents and subjects. I wanted to strengthen my expertise and work on a serious issue, close to home and heart. I embarked upon this research, seeking out this PhD opportunity offered by the Open University, UK, at the age of 54. During the PhD I wanted to bridge a disciplinary divide between design, school education and teacher education with a focus on reflective practice. This would fulfil a lifelong ambition to contribute, in whatever little way I could, towards understanding educational change, especially in government school classrooms in India.

1.3. KEY DEVELOPMENTS AND POLICY CHANGES LEADING TO REFLECTIVE PRACTICE IN INDIAN TEACHER EDUCATION

With the promise of universal elementary education (UEE), further bolstered by the RTE Act (2009), it was important for initial teacher education institutes (ITEI) in India to develop teachers who could engage young pupils to learn meaningfully. For this transformation to take place, reflective practice has been made an essential part of the National Curriculum Framework for Teacher Education (NCTE, 2009). I wanted to understand how and why the Government of India identified reflective practice as key in teacher education (NCTE, 2009). The answer emerged from understanding the teacher education challenges that accrued
historically in independent India. What follows is a chronological account of educational policy development in India, which led to the adoption of constructivism and, with it, reflective practice in the initial teacher education curriculum.

The first Prime Minister of independent India, Jawaharlal Nehru, declared that ‘the entire basis of education must be revolutionized’ (in the First Conference of Education Ministers, 1948). Post-Independence, though there were several indigenously inspired systems of education, for example systems developed by Vivekanand (1941), Tagore (1921, 1929), Phule (1855; 1869), Aurobindo (1956) and Gandhi (in Fagg, 2002), there was a lack of resources and time to set up new facilities and freshly educate teacher-educators and teachers for new educational systems. Importantly, after a violent, bloody and divisive partition, a national education system was seen as an essential way to contribute to the unity of the country. Also, there was an intense need to raise literacy levels from 16.67% (Census, 1951 in Gopalaswami, 1955) and to develop a workforce. The parliament adopted the existing colonial system with the aim of developing a national system of education, with the resolve to adapt it to the Indian situation gradually. As a result, Nehru’s hope to revolutionise education was not realised.

The first University Education Commission (1949 in MHRD, 1962) started the second phase of policy development, post-Independence. The curriculum had a ‘strong western academic orientation’ (Sarangpani, 2014) and was very costly. The colonial system proved to be unaffordable for the 94% of Indians who lived below the poverty line because it required a high level of infrastructure development, professionally trained teachers and complete involvement from pupils for over ten years in school. The government did not have the resources to provide them with free schooling (Naik, 1974). As a result, this policy could not be universally applied (Naik, 1974). The elites, who took over the colonially inspired national system, continued to follow the same norms. Vernacular languages, traditional knowledge and ways were not included. The education system continued to be exclusionary and divided between the elites and masses (Arvind, 2010; Kumar, 2005). Teacher education continued to be characterised by teacher centredness, textbook based learning and whole-class teaching. Lesson planning continued following ways close to Herbart (1776–1841), a German educator who proposed steps for educational instruction. The steps observed at the DIET started with preparation in which the pupils were questioned to establish what they already knew until a ‘problem question’ came up which the pupils were not able to answer. This ‘problem question’ established the main topic of the class. This was followed by a process of ‘association’ in which similar concepts were
compared to bring in the new concepts and definitions. The topic was then ‘generalised’ from the concrete experience and perceptions. The content was ‘presented’ using TLMs and learning strategies. The class moved to ‘recapitulation’ including through assigned homework. Simulated examples of ‘good teaching’ and microteaching were demonstrated by the senior peers. In the 1950s, international US development agency USAID supported many experts to train under Bloom, an American educator (Sarangpani, 2014). Bloom et al (1956) categorised educational goals into six sequential categories starting with knowledge, comprehension, application, analysis, synthesis, and evaluation. The last four categories were also presented as skills and abilities. They required understanding of knowledge as a pre-requisite.

Various education commissions and five-year plans repeatedly called for improvements in teacher education. The nature of the changes suggested over the years led to changes in classrooms. Overall, the commissions recommended the following:

- Enable trainees to acquire an ability for self-learning and independent thinking, along with moral education and inculcation of a sense of social responsibility (NCERT, 1970).
- Closer relations between education and the life of the people, reconstructing the education system, to improve its quality at all stages (MHRD, 1968).
- Stronger links between teacher education and theory and practice. Existing teacher education institutes were identified to be upgraded to District Institutes of Education and Training (DIETs; MHRD, 1992).
- An internship model of teacher education, based on real field experience in schools over a few weeks: immersive internships consisting of practice teaching, observation, critiquing, development of tests, and greater scope for self-study and discussion (MHRD, 1990).

The need for reflective practice was implicit in the suggestions made, although these documents rarely used the terms reflection or reflective practice.

In the 1960s, education policy developed and improved the national system of education and compulsory schooling. It linked national development with science teaching. Voluntary agencies, working in this space, emphasised learning by doing, thinking and reasoning,
rejecting the dominance of the textbook. They popularised science learning through practically oriented science fairs and workshops that reached into rural areas.²

In the 1970s interest in primary education built up. In 1976 education which was the responsibility of individual states became a responsibility shared between each state and the centre. The central government developed the National Policy of Education (MHRD, 1992) in which it revived the resolve made in 1950, in the Constitution, to universalise elementary education. Due to a series of political changes in the centre, the policy was revisited and strengthened in 1992. Internationally, parallel to these internal changes in India, the Jomtien Conference (1990), of which India was a signatory, adopted the policy of Education for All. The emphasis of this policy on greater equity and educational quality led to a focus on classroom processes on the ground, and in turn the pressure to achieve universal education increased (MHRD, 1990). In 1992 the National Council for Teacher Education (NCTE) was proposed to plan, coordinate, regulate and maintain norms and standards of teacher education in India (MHRD, 1992).

To promote the National Literacy Mission (1988), the Government of India opened itself to accept international grants, loans and support from global institutions and agencies. It sponsored large-scale initiatives to improve access, quality and universal primary education. Some examples are Operation Blackboard (1987–2000) mentioned in the National Policy of Education (MHRD, 1992); the District Primary Education Project 1994–2003 (DPEP; Sharma, 2009; Kumar and Saxena, 2001; Pandey, 2000), which covered almost 60% of primary schools in the country, involving 50% of villages in 214 districts in 15 states (Clarke, 2003; Sharma, 2009); the Andhra Pradesh Primary Education Project 1984–96 (APPEP; Ravi & Rao, 1994); and Shiksha Karmi 1987–1990 (Methi & Jain, 1994).

While none of these projects achieved their ambitious goals, two of them, the APPEP and the DPEP, influenced change in teacher thinking, teaching strategies and classroom pedagogical practices (Ravi and Rao, 1994). As a result, access and inclusion in schools came to be linked to pupils’ experience of infrastructure, curriculum, pedagogy and recruitment

² This influenced the development of the Hoshangabad Science Teaching Programme (HSTP) initiated by university teachers in Madhya Pradesh. The development ran in parallel to the Nuffield Science project in UK where university scientists worked in rural middle schools developing a science curriculum that emphasised learning by doing and rational thinking. They rejected textbook learning. Realisations from HSTP were ‘mainstreamed’ into the Indian National Curriculum Framework developed much later in 2005. These efforts extended from science to social science and to the primary school curricula in the 1980s and the early part of the 1990s.
of teachers. The initiatives enabled ‘inclusion and spread of child-centred ideas’ (Sarangpani, 2014:4). The new pedagogy brought into primary classrooms concepts of joyful and activity-based learning through narration, storytelling, peer discussions, drama, dialogue, songs and more, anything that would make learning enjoyable (Ravi and Rao, 1994; Clarke, 2003).

DPEP enabled revision of primary school textbooks and in-service training of teachers for ‘joyful’ pedagogies, and it resulted in teachers becoming more open to a changed stance regarding marginalised communities and gender issues. The projects made pupils’ local languages more accepted in the curriculum. Both the traditional and the changed pedagogies can be observed in DIET classrooms today.

By 2005 there were 10,37,813 primary schools in 581 districts in the country. More than 93% of children aged 6–14 were enrolled in school, with 86% located in rural areas. Yet, of these, an alarming 49% dropped out of school before they reached Grade 8 (Sharma, 2009). Recommendations from the commissions for improvement had either not worked or they had not been implemented on the ground. In response to the data gathered around exclusion, a strong and urgent need was felt for a paradigm change in schools. Connected to this, wide-ranging development and changes in teacher education were initiated. The Government of India officially adopted reflective practice in key school and teacher education policy documents (Batra, 2005; NCERT, 2005; NCTE, 2009; MHRD, 2012a). This was envisaged as a strategy for professional teacher development to improve student-teachers’ ability to teach in more meaningful ways and address the initial teacher education challenges that negatively impact on teaching and learning in Indian classrooms (NCTE, 2009).

1.4. CHALLENGES RELATED TO INITIAL TEACHER EDUCATION

The quality of school education is influenced by the quality of teachers who are, in turn, affected by the quality of teacher education. There are many challenges that impact learning in teacher education.

1.4.1. Developing an adequate infrastructure to train primary school teachers

The preliminary challenge has been to develop an adequate infrastructure to train primary school teachers. When proposing universal elementary education, the Education Commission (1986) translated the need for more educated teachers into a proposal for a huge district-based education delivery infrastructure ‘to strengthen elementary education.
and support [...] decentralisation [...] at the district level' (1986:32). This led the central government to establish DIETs:

... with the capability to organise pre-services and in-service courses for elementary school teachers and for the personnel working in non-formal and adult education. As DIETs get established, sub-standard institutions will be phased out. (NPE, 1986:32)

DIETs were expected to provide quality teacher training, improve pedagogy, make classroom learning engaging through the curriculum, create child-friendly books, and develop innovative teaching and learning materials. They would also be responsible for planning and managing district primary, adult and non-formal education, and for conducting research (NPE, 1986).

A total of 623 DIETs were sanctioned in 34 states and union territories in India. These were established gradually. The first DIETs were established during the Andhra Pradesh Primary Education Project. The Human Resources Department (HRD) targeted the establishment of 23 new DIETs and trained an estimated 140,000 teachers (1989–96) in 23 districts. During the District Primary Education Project (1994–2003) over 52 new DIETs were set up and several more DIET teacher-educators were trained. Of the total 623 DIETs sanctioned, 592 DIETs are currently functional, awarding a two-year Diploma in Elementary Education (D.El.Ed.) programme to professionally develop primary school teachers, and training about 65,404 teachers annually (MHRD, 2018). The DIETs now play a key role in training teachers who are employed in government schools which is where 80% of children are enrolled (MHRD, 2012a). Many of the children dropping out in Classes 3, 4 and 5 and achieving minimum levels of proficiency in mathematics and reading, as mentioned earlier, would be from these same government schools (UNICEF-India, 2019; ASER, 2018).

With the enormous stretch in resources, several DIETs struggle to perform their roles according to the original vision (Azim Premji Foundation, 2010) due to a lack of funds (personal communication, Siddiqui, 2017; Raina, 2016), infrastructure (Raina, 2016), weak recruitment policies, a paucity of appropriately educated and experienced teacher-educators and principals (Dyer, 2005), a tangled web of pedagogic legacies, and an accretion of policy changes, leading to weak development of student-teachers (Batra, 2011).

1.4.2. Need to increase appropriately trained teacher-educators and student-teachers

The lack of educated teacher-educators remains a longstanding teacher education challenge for DIETs. It was observed to be a problem by the Education Commission 1964–66
The preparation of teacher-educators has remained a weak link in ensuring the quality of pre-service teacher education, and therefore, the issue of the profile of a teacher-educator should receive due attention, transcending the existing thinking on the subject. (MHRD, 2012a:17)

Fourteen states in India require an additional annual capacity of about 19,000 teacher-educators in total (MHRD, 2012a). This highlights the severe paucity of teacher-educators who can ‘maintain the balance, challenge, critique and attempt to change the very system to which they are subject’ (Gillespie and Fairbairn, 2020:134). These are contradictory demands calling for teacher-educators with higher order thinking, academic rigour and critical inquiry (Gillespie and Fairbairn, 2020:134): in short, reflective practitioners (Srinivasan, 2016).

These teacher-educators, in turn, need to educate large number of student-teachers who are responsive, motivated, empathetic and overcome situational divides. They need to have knowledge of how to apply learner-centred, constructivist pedagogy to teach their diverse pupils ‘how to learn’ and ‘critically think’, with an aim of changing the status quo (Singh, 2013). The training of such student-teachers is very important to ensure meaningful and relevant education (Bandhyopadhyay, Umbati and Zeitlyn, 2011).

It also creates the need to upgrade existing teachers. India is estimated to employ close to 6.5 million teachers at the elementary level (Class 1 - 8). Of these government schools employ more than 4 million (66%) (Chudgar, 2013). In comparison, close to just 3 million teachers work at the elementary and middle school level in the US (U.S. Bureau of Labor Statistics, 2011). Before the RTE act was implemented, about 500,000 positions lay vacant for teachers. Implementation of the Act requires another 500,000 teachers (Chudgar, 2013).

For all this to become a reality, the government of India is challenged to formulate and implement policies to bring about change in both tiers of teacher education: for the education of teacher-educators and student-teachers.

1.4.3. Problems in policy formulation and implementation in India

In order to build an egalitarian, just and democratic social order and achieve education for all, the Constitution envisaged elementary education as ‘a public good’ by providing free schooling to all children up to 14 years of age.
Post-Independence, national education policies followed slowly changing educational aims. The government pursued both material and symbolic policies. Material policies specify explicit outcomes, are allocated funding and other resources, and have a plan for implementation with estimated timelines. Operation Blackboard is an example of a material policy, though it lacked implementation considerations (Dyer, 2000). Such policies usually have effective evaluation mechanisms to ensure the achievement of their goals. On the other hand, symbolic policies, such as those articulated in the NCFTE (NCTE, 2009) for pedagogical change towards constructivism, learner-centredness and reflection, are more diffuse, usually without allocated funding or definite timelines. Though both types of policy have been weak on implementation, in India symbolic policies are believed to be more complex and difficult to implement. Key symbolic policy recommendations about teacher education have been made by various commissions, post-Independence, and adopted in Indian teacher education institutes but little research has been done to follow up on the results and learn from the resulting symbolic policy implementations.

Several policy changes have been implemented in India across teacher education institutes and at the DIETs. The National Policy of Education (1986–1992) recommended that teacher education be more strongly linked with theory and practice. The Acharya Ramamurti Committee (MHRD, 1990) recommended a shift in teacher education to increase workplace learning through internships, for a few weeks, to gain real field experience through practice teaching, observation, critiquing, development of tests, self-study and discussion at partnered schools. Teacher-educators at the teacher education institutes (TEIs) and schools work together to guide student-teachers. The third teacher education approach was where student-teachers started teaching directly and then returned to studying theory.

When similar changes have been implemented in the teacher education systems of the West\(^3\) much research has been carried out. The theory-to-practice approach has been dominant in the West for many decades. Studies have shown a failure to effectively influence the practice of teachers (Cochran-Smith and Zeichner, 2005). Research has shown that teachers find it difficult to enact a theoretical understanding in practice (Darling-Hammond and Snyder, 2000). During a lesson, many things happen simultaneously and there is continuous pressure on the student-teacher to act (Eraut, 1995). In the approach

\(^3\) In this thesis ‘Western’ and ‘West’ have been used to refer to countries with Anglican and European socio-cultural roots and politics such as the UK, European countries, Canada, USA, Australia and New Zealand (though the latter two countries are located geographically in the ‘East’).
where work-based learning was gained through internships at partner schools, it was assumed that once teachers had the right insights and beliefs about teaching and learning they would be able to change their behaviour in the required direction (Korthagen, 2017:389). Again, in the West where the second approach to teacher education was studied, it was found that connecting practical issues to theory was also difficult (Korthagen, 2017). In addition, practical teaching in the school context tended to strengthen the socialising influence of the school, leading many student-teachers to stick with the traditional way of teaching practiced at the school and to propagate the status quo (Cherubini, 2009). In Indian teacher education there is little understanding or research, comparative and otherwise, about the theory-to-practice approach, work-based learning, or the practice-to-learning theory approach. These are all symbolic policies trying to ensure a change in teacher behaviour to make learning more engaging and meaningful for pupils.

During teaching a teacher’s mode of behaviour is the result of a complex mix of cognition, emotion and motivation. These remain partly implicit and not reflected upon (Van Veen and Sleegers, 2006). Teaching is a profession in which feelings and motivation play an essential role, but policy pronouncements concerned with change do not take them into consideration (Hargreaves, 1998). To promote change through teachers, during their learning, their ‘thinking, feeling, wanting’ must be considered (Korthagen, 2017:391). As a result, ‘the focus ... on how practice can be better linked to theory’ has now changed to include study of ‘how teachers learn’. Korthagen found that teacher reflection on a (multi-) dimensional plane and at multiple levels was important ‘to promote meaningful learning in teachers’ (2017:388).

Another problem in policy implementation in teacher education is that policies in India are most often formulated from the top by educated officials and academic elites (Dyer, 1999; Mangla, 2018). This causes implementation to be centrally planned and coordinated, and essentially visualised in hierarchical organisations. The people who frame the policy are not the ones who implement it. Implementation is usually the responsibility of institutional administrators, principals, teachers, other educators, parents and pupils – the ‘street bureaucrats’ (Portnoi, 2019:43). This results in implementation gaps. Despite this, the top-down approach continues to be applied (Portnoi, 2019).

Globally, ideas for educational reforms are often borrowed, adopted, or translated from best practices in more successful countries. For example, countries mainly from the Global
North, such as the UK, Europe, USA, Canada and Finland, have influenced curriculum development and discourse in India (SCERT, 2014; Chennat, 2014). It takes resources, time, and much effort to develop something afresh. Borrowed concepts from other countries need planning, resources, reflection and positive implementation to fit the local circumstances and be effective. They also need to be backed with the appropriate training, and motivation. Motivation is found to be particularly important to strengthen and fortify strategies that will help to break-down, and finally, erase legacy beliefs and make implementation successful. Problems emerge when contextual issues are overlooked or not considered fully. The formulators of policies, on most occasions, pay little attention to the process and to the people involved in translating and implementing the reforms. Studies show that nations, institutions and educators tend to reshape and adapt policy and related programmes based on their local vernacular perceptions, local contexts, interests and resources (Portnoi, 2019; Mukhopadhyay and Sriprakash, 2011).

Reforms, introduced through new policies and methodologies, are often found to be strongly constrained by multiple language issues and legacies of the past leading to many teacher education challenges around the use of language. Some issues are described briefly in the following section.

1.4.4. Complex language issues

India is linguistically prolific but only a few of the many languages are used and taught in classrooms. There are 122 languages and 234 mother tongues spoken by more than 10,000 speakers (Census Tables, 2011). There is evidence of patterns of ‘linguistic and cultural borrowing and learning’ (Menon, Viswanatha and Sahi, 2014:46), a history of exchange and growth. Communities have been innovative in modifying and owning adaptations of words learned from each other. Of 122 major languages, about 41 are taught at school as first, second and third languages. Of these, 18 languages are offered at the higher secondary level as media of instruction (ibid).

To unite Indians across language divides, the government developed a national three-language policy through the Official Language Act of 1963. This was applied in the educational context (NCERT, 1970), and intensely contested since its creation. This Act has

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4 The term ‘Global North’ refers to economically developed countries such as the UK, Europe, USA, Canada, Australia and Switzerland. The ‘Global South’ refers to developing countries such as India, China, Africa, Latin America and Mexico, among others. These are terms that are more open and value-free alternatives to terms like ‘first-world’ and ‘third-world’ countries, or ‘developed’ and ‘developing’ countries.
not been practically implemented uniformly across states. The imposition of Hindi was and still is strongly viewed as ‘hegemony of the North and the introduction of monoculture’ (Business Standard, 2019) by the southern states. English and official versions of regional languages have also become symbols of power and regional or national identity in the curriculum (Menon, Vishwanatha and Sahi, 2014). Language learning is not perceived as being neutral. Adopting Hindi for all Indians or Marathi for Maharashtrians, in the curriculum, carries strong political and identity overtones (ibid).

In addition, no language remains static. Language takes on different forms depending on the contexts of use. Globally, 70% of people speak two or three languages, making multilingualism a norm. Added to this, with the development of technology, options for increasing digital communication are manifold. Digital communication moves across caste, class, religion and national borders, offering multimodal, multidimensional understanding. These new forms of communication ‘challenge conventional language teaching methods and goals’ (Menon, Vishwanatha and Sahi, 2014:44). Teacher education institutes themselves are usually multilingual sites in India. Menon et al (2014) argue for the importance of a language policy especially for teacher education.

1.4.5. Untangling pedagogic legacy issues and contesting discourses in teachers’ work
It is a well-researched claim that teachers tend to resist change (Lortie, 1975; Ratnam, 2013). Past pedagogical legacies present symbolic teacher education challenges. It is essential to understand teachers' preconceptions about teaching and learning, the historical and cultural beginnings of teachers’ approaches to knowledge, ways of knowing, pedagogy and practices, and the contesting discourses in teachers’ work in India. It is important to understand how they perceive their role and position in society, and what helps or hinders their development (Sriprakash, 2009; Ratnam, 2015).

Teacher practices and classroom processes in schools carry a tangled pedagogical history of entrenched, traditional attitudes and practices. After gaining Independence, modernist, humanist and neo-liberal aims and aspirations were introduced, and this was often done before the policies introduced earlier had been firmly implemented (Arvind, 2010). This led to an accretion of policies and ideologies at teacher education institutes which confused practitioners, resulting in different teacher orientations and contradictory practices in school classroom (ibid.).

Of the many traditional beliefs, a few are briefly described and contextualised in the following text. A few of these are a tradition of reverence for the teacher, emphasis on
memorisation, deficit thinking about pupil capabilities, a work-to-marks orientation and use of textbooks.

There is a traditional veneration of the teacher that continues in the minds of student and also teachers. Traditionally, the guru or teacher in India has played a dominant role in controlling learning in classrooms. ‘The importance of the exemplary, inspiring and essential value imparting Indian teacher as an agent of personal transformation is part of the current mythos of teacher education’ (Batra, 2005:4347). Kakar (1991) followed the changes in the image of the guru over time. In Vedic times (pre-1000 BCE) the guru initiated and ran forest schools or gurukuls. The guru was an ‘orthodox’, traditional teacher respected for his empirical (experiential/practical) knowledge. During the Upanishadic period (1500–800 BCE) the teacher changed into a ‘mystic guru’, educating students into following the correct religious behaviour, rituals and duties. In the later Upanishadic period, between 800 and 500 BCE, the guru was venerated as a compassionate leader who encouraged critical thinking over conformance. Following the bhakti (devotional) tradition (700 BCE), poets like Kabir equated the guru to God or Parmatma, for showing the path to God. Tagore’s exemplary teacher continues to be evoked: ‘A teacher can never truly teach unless he is still learning himself (and leading by example and demonstration). A lamp can never light another lamp unless it continues to burn its own flame’. During colonial education, this underwent a huge change. The role became restricted to that of a ‘meek dictator’ (Kumar, 2005) or a powerless, didactic, behaviourist teacher, which also continues in today’s classrooms.

Vedic education followed a predominantly oral culture in which learners repeated sacred verses in groups, and memorisation and clear articulation were emphasised. Later, as scripts and Sanskrit grammar developed, memorisation continued. Education was confined to the upper castes, and teachers were mainly from Brahmin or upper castes, leading to discriminatory beliefs and attitudes that are still experienced in today’s classrooms (Sheshagiri, 2010). During colonial times memorisation was linked to behaviourist principles and the examination system. This is still prevalent in India today. Many teachers continue to be from the higher castes and large numbers are known to be prejudiced, even repressive, with deficit thinking about pupils from lower castes, minorities and less privileged backgrounds (Ramachandran, 2009).

To change the environment pedagogically, such ingrained traditions, beliefs and practices need to be understood by policy makers, street bureaucrats and the teachers themselves.
In India today there are two dominant discourses which offer competing conceptualisations of teachers’ work and have been variably applied to the development of teacher education policies. Sarangpani, Jain and Mukhopadhyay (2018) describe them as the ‘teaching-as-a-profession’ approach and the ‘managerial approach’. The first favours ‘the centrality of pedagogy and teacher identity in which the occupation is seen as requiring specialized knowledge – theoretical and practical’ (Sarangpani, Jain and Mukhopadhyay, 2018:6). The aims associated with this approach support the vision set out in India’s Constitution for ‘a sovereign, socialist, secular, democratic republic’ (1949, 1976). The creators of the Constitution recognised the stratified and inegalitarian nature of India’s polity and committed to democracy and social justice. Education is envisioned as catalysing this transformation (Arvind, 2010). To retain children in school and ensure successful integration and development is a primary aim and challenge in teacher education.

The managerial approach favours a framework of ‘accountability, and efficiency in which ... teaching is seen as involving mainly low level of skills and techniques’ (Sarangpani, Jain and Mukhopadhyay, 2018:6). Recognising the need to create workers for the knowledge economy in the early 1990s, a neo-liberal discourse gained ground during the liberalisation of markets. This called for education to be delivered with greater efficiency, effectiveness and accountability (Batra, 2011).

The Right to Education Act (RTE Act, 2009) has dramatically increased ‘the demand for and expectations from teachers’ (Gillespie and Fairbairn, 2020:129), and the contrasting aims of these two approaches divide followers in the educational discourse (NCERT, 2005; NCTE, 2009; Batra, 2011), who argue for the application of either critical pedagogy or work-to-marks through more technically applied pedagogy. The style in which teacher education policies are implemented in their institutes depends on the identities and beliefs of the leaders and teachers responsible. In teacher education this has resulted in mixed practices being propagated.

Another set of contestations occurs where institutions have a long history of teacher education and where different pedagogies, supported by different policies, have been introduced at various times. For example, because of older policies, many initial teacher education institutes established during the 1960s have applied a competency-based model of teacher education with the application of behavioural objectives and pedagogy. With the NCFTE (NCTE, 2009), a new curriculum informed by a cognitive constructivist pedagogy of learning was introduced, there was confusion among the teacher-educators over how to teach. Without a well worked out implementation plan for teacher education institutes,
many are known to continue teaching new concepts in old ways, for example by teaching constructivism through lectures evaluated through the same question-and-answer tests. Constructivism, learner-centredness, activity-based teaching, knowledge construction and learning with meaning call for deep changes in thinking and doing on the part of the teachers. They cannot be implemented with cosmetic changes. For teachers to teach differently, they need to be taught differently, with a new curriculum. The large, diverse, increased pupil intake, mixed learnings and legacy beliefs, create confusion of pedagogical knowledge and practice, increasing the need to develop suitably educated teachers (NCTE, 2009).

1.4.6. Need for an appropriate teacher education curriculum

Post-Independence, there was huge lack of trained teachers, especially for girls (Mangal, 2020). Even now, 70 years later, though India spends a large proportion of its education budget on teachers’ salaries, teacher education has emerged in need of urgent reforms if the mandate of the RTE is to be fulfilled with quality teaching to retain all enrolled children and ensure learning with understanding. The quality of existing teacher training is a cause of great concern (Chudgar, 2013). Studies have found that teachers with regular pre-service and in-service training perform no better than untrained teachers (Kingdon & Sipahimalani-Rao, 2010).

Initial teacher education must sensitise teachers to build on varied pupil experience for the understanding of concepts by applying a pedagogy which is culturally sensitive (Sarangpani et al, 2018; Ratnam, 2015). This pedagogy needs to ‘create space for every student to produce meaning from his/her cultural and experiential location’ (Ratnam, 2015). However, in practice, these educational expectations are not normally met because traditional teaching practices are largely teacher-led and follow universalist theories of teaching for all students. Overall, reviews of the teacher education system recommend a more student-centred, process-driven and integrated curriculum with immersive school and community experiences through internships, development of teacher autonomy and research capabilities (NCTE, 2009).

Dr Kumar played a central role in leading the changes through the NCF (2005), asserted that critically reflective teachers are needed to check discriminatory cultural and pedagogic practices. This is expected to help retain children from oppressed backgrounds in school. He also observed that by bringing in reflective practice the NCF restores a human focus in educational policy.
The Government of India introduced constructivist pedagogy supported by reflective practice as an integral part of teaching in schools in the National Curriculum Framework (NCF, NCERT, 2005). Following this, recommendations for reflective practice were also developed into a curricular vision in the National Curriculum Framework for Teacher Education (NCTE, 2009) by the National Council for Teacher Education (NCTE). This in turn was developed further into a two-year pre-service Diploma for Elementary Education (D.El.Ed.) programme by the NCTE. As planned, all the states adopted a localised version of this framework to fit their circumstances through their State Council of Educational Research and Training organisations in every state.

Two experts were interviewed in this research. Dr Siddiqui was chairperson at the NCTE 2008–10 and a key leader in the development of the NCFTE (NCTE, 2009). The second expert, Dr Batra, was ‘entrusted with the task to improve the framework in the light of suggestions made by other members’ (NCTE, 2009: v). She was also the chairperson of the committee of experts from SCERT and DIETs that initially prepared the draft D.El.Ed. curriculum (SCERT, 2014).

Both Dr Siddiqui and Dr Batra emphasised the need to understand the socio-cultural context around the learner. In the view of Dr Siddiqui, reflection should be aimed at helping student-teachers to acquire ‘learning with understanding, relating to their own contexts … so … that they eventually become reflective learners’ (personal communication, Sidiqqui, 2017).

Dr Batra believed that reflective practice should be aimed at understanding pupils’ backgrounds and how this impacts their learning, rather than focusing on technical issues of how to teach maths. Reflection should be aimed at inclusion.

What is their context? … Keeping that in view, helping them acquire learning, … facilitating them, and continuously trying to understand who are they, how are they able to construct knowledge? … What are their difficulties? Helping them out, supporting them to construct their own learning (personal communication, Batra, 2015).

A second important characteristic of reflection is that it should be interwoven into the curriculum. Dr Batra talked about reflection being fostered through activities embedded in the D.El.Ed. syllabus, to understand pupil needs to develop the ability to construct with knowledge:

Our understanding of reflective practice or making reflective practitioners is ... integrated as an idea in the curriculum and in the practice of it. Students are put into learning situations which make them reflective, for example, practice through observation, journaling, group
work, ... theatre, etc. ... That is how reflective practice happens, not by talking about it or through action research alone (personal communication, Batra, 2015).

Dr Siddiqui has said that reflective practice is about framing and reframing the problem, and about teachers working at understanding their pupils’ needs so that their pupils are able to think independently and grow.

Reflective practice is about continuously revisiting and rethinking, continuously engaging themselves in understanding their students’ (pupils’) needs, difficulties, problems, so that they independently think, learn, and grow (personal communication, Siddiqui, 2017).

This Section 1.4 establishes the teacher education challenges that present difficult obstacles to the introduction of long-term change in the current teacher education system. The different challenges also point to the urgent need to develop teacher-educators and student-teachers to become reflective practitioners, in a changed teacher education environment. The challenges need to be overcome so that India can fulfil its constitutional aims: to ensure education for all India’s children in a relevant and meaningful way; to influence social change towards increasing employment; and to build a socially just, inclusive society which develops empowered citizens.

1.5. LACK OF KNOWLEDGE ABOUT LEARNING TO TEACH WITH REFLECTION IN INDIA

Reflective practice is reported to be among the more researched themes in teacher education studies over several decades globally with the aim of effecting change in practice (Hatton and Smith, 1995; Zeichner and Liston, 1996; Valli, 1997; Loughran, 2002; Marcos et al, 2009; Poom-Valickis and Mathews, 2013; Collin et al, 2013; Beauchamp, 2015; Lamb, 2017). Once these concepts are embedded in the curriculum, how do they get implemented in initial teacher education institutes? In India, the government emphasised reflective practice as part of a changed pedagogical policy with the aim of achieving higher learning levels in their pupils and preventing or reducing lack of retention in primary schools. This policy is articulated in the National Curriculum Framework (NCERT, 2005) and the National Curriculum Framework of Teacher Education (NCTE, 2009), as mentioned in the previous section. It was first introduced more than 20 years ago in a four-year initial teacher education programme called the B.El.Ed. Programme (Raina, 2016). Yet, when I began this study in 2014, I found very little research in the Indian context (Batra, 2009; Chennat, 2014; Sharma, 2010). An online search in 2014 for peer-reviewed, published research from the databases Education Research Complete, Academic Search Complete and JSTOR returned just five peer-reviewed articles in reflective practice and reflection in India. A further search in institutional libraries, theses and published conference literature in India
yielded just four papers on reflective practice from the International Teacher-Educator Conference, Hyderabad in 2014 (Boruah, 2014; Nath, 2014; Shankar, 2014; Vasudevan, 2014); one unpublished PhD thesis, ‘The Reflective Teacher’ (Singh, 2013). During my PhD research, discourse in reflective practice in India has increased (Raina, 2016; Raghavan, 2016, 2019; Pinter, Mathew and Smith, 2016). Raghavan’s book The Reflective Learner (2019) reports on how four teachers learned, through action research, the pedagogical value of their pupils’ mistakes. In the process of the action research, the ‘struggling’ pupils were transformed. They learned about themselves, the working of their own minds, their repetitive mistakes and how to resolve them in their own minds. Raghavan introduced usable rubrics, worksheets and activities designed to guide teachers and pupils to improvement.

Raghavan’s book The Reflective Teacher is an outcome of action research work voluntarily undertaken by teachers in a school in India. Teachers were facilitated by mentors to reflect on specific problems in their teaching practice. The teachers tried to overcome ‘learning’ difficulties in their practice, framed as action research projects, backed by Dewey’s and Schön’s work on reflective practice.

Mathew (2014) examined continued professional development (CPD) in teachers. She commented on the lack of provision for good teacher development especially at schools. Development pursued individually by teachers is rarely acknowledged or supported in India. Mathew examined the provision of teacher development in and outside India. She queried the kind of development meaningful to teachers, schools and commissions. She differentiated between teacher training (TT), teacher education (TE) and teacher development (TD). TT is a stand-alone learning event. During TE teachers learn to understand and locate theory in their practices. TD, according to Mathew, is initiated in the teacher’s own experience. It is a voluntary process, ongoing, bottom-up, when new information is sought and shared, reflected on, tried out, processed in terms of personal experience and finally owned by the teacher herself. TT and TD are dependent on the extent to which they are realised, based on education policies in institutional contexts. Mathew continued to examine CPD work in India and compared it to a few models of teacher development in use outside India, for example in Singapore.

A conference on ‘The Humane Reflective Teacher, A Qualitative Approach to Teacher Education’ was hosted by Benares Hindu University, Varanasi, in 2017. The proceedings of 27 articles by 34 authors had 8 empirical studies researching reflective perspectives in
teacher education, reflective practices, humanistic pedagogy and the preparation of reflective teachers. The reference listings showed only two references to Indian researchers related to empirical reflective practice in India. These were Chennat (2014) and Pandey (2016), showing the little research done on the subject in India.

This initial literature search indicated that there is much to be understood and unravelled around the important but knotty problem of the perceptions, introduction, implementation and fostering of reflective practice in initial teacher education programmes in India. The research would need to cover the following areas:

How is reflection fostered, introduced, implemented, and perceived in initial teacher education in India? How and when do practitioners reflect? How does reflection change their practice? The final research questions were developed from these initial ideas once the location and research design were settled. The final research questions are described in Chapter 3, Section 3.4.

Through an iterative process, I developed the structure of the thesis which is introduced in the next section with a brief outline of each chapter.

1.6. **CHAPTER 1 CONCLUSION**

To increase the engagement in learning and retention in primary schools, the Government of India identified the broad and urgent need for reflective practice in teacher education. My personal interest in reflective practice developed during my own professional experiences in teaching and teacher education. A preliminary literature search revealed lack of research in this area, leading to the research questions which established the need to understand the fostering and implementation of reflective practice in teacher education. The thesis structure is described in the following text.

Chapter 2 brings together different Indian and global perspectives, theories, frameworks and policies about knowing, learning and reflection as related to teacher education. It starts by providing the background which leads to the emphasis of reflective practice in initial teacher education in India. It reviews conceptualisations of reflection and establishes that reflection is complex, cultural and situated. Definitions of reflection, reflective typologies and theoretical frameworks have been reviewed to evolve a conceptual framework for the study. In exploring the situational, historical and cultural context of reflection as it is perceived and practised in India, this chapter ascertains the beginnings of reflection in ancient Indian education, revealing concepts and ways of living which continue to influence Indians today. This chapter explains the selection of Hatton and Smith’s (1985) definition
and Ward and McCotter’s reflective rubric framework (2004) because of their alignment to the national policy. To do this it follows the genealogy of reflective practice that starts from Habermas’s knowledge constitutive interests (1972) and van Manen’s reflective levels (1977), which are developed into a reflective typology by Hatton and Smith (1985) and converted to a reflective rubric framework by Ward and McCotter (2004). From a development of the individualised perception of learning and reflection, the review moved to determining a more socio-cultural and reflexive conception of reflection and reflective practice as proposed in Vygotgsky’s socio-cultural theory. This theory provides foundational principles which theoretically bring together the phenomena of learning, reflection and teacher education. Activity theory (AT), drawn from Vygotsky’s SCT, is reviewed. This review contributes to creating an understanding of the community interaction with the rules, artefacts and contradictions that exist within an academic institution, all of which influence the fostering of reflection.

Chapter 3 describes the reasons for choosing a qualitative, socio-cultural case study methodology for doing this research. In the first part of the chapter the rationale for the research design, data collection and ethical framework is communicated. Gaining access and consent in the field led to the adoption of a longitudinal, multi-case study with two institutions which followed the same initial teacher education programme. The finalisation of the research questions directed the path to the different frameworks applied in the research, as is described in the chapter. The chapter details the sources of data about reflection, the plan of how this will be collected and how reflections will be identified. Special attention is given in the research to ensure quality in the case study. This culminates part one of this chapter.

The second part of Chapter 3 acquaints the reader with how the research was carried out according to plan and data collected from different sources, its transcription, translation and identification of reflective units. This is followed by the development of a research tool to aid analysis of the reflective data by making student-teacher reflections visible on a rubric template. This chapter reports how the tool was developed in two phases, how thematic analysis on the processed data was carried out in three phases applying the three frameworks selected to enable the findings of the research questions. The chapter ends with describing how research was carried out ethically, including an account of the ethical dilemmas encountered.
Chapter 4 describes the research setting at the DIET: the activity system (AS) for reflective practice. This includes the descriptions of the environment, rules, communities of practice, division of labour and tools used for mediating student-teacher learning at each DIET.

Chapter 5 describes the findings to the first sub-research question of how reflective practice is fostered at two DIETs. Reflection is mediated with different artefacts such as lesson plans, supervisor reviews, interviews and stimulated interviews with the student-teachers, and focus group discussions with the teacher-educators and principals. This chapter also identifies contradictions from the activity system which influences the development of reflective practice at the DIETs.

Chapter 6 describes how the student-teachers reflect during their internships and how reflection changes their practices. The findings are visualised as thumbnails of the RPTv2 and individual diagrammatic representations of activity theory components. This chapter describes the findings to two of the sub-research questions about how and when student-teachers reflect and how reflection changes their practice during the two-year D.El.Ed. programme.

Chapter 7 answers the sub-research question about the perceptions about reflection among experts, and in grey literature. Grey literature, in this thesis, includes ‘information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing’ (ICGL, 2004). It was necessary to draw on grey literature and personal communication because this is where details of implementation could be obtained. It was also important to talk to people to understand their perceptions of reflection and reasons for practice as these related directly to the research questions as they developed.

Chapter 8 concludes the thesis by describing the close findings for each sub-research question. This is followed by highlighting issues or contradictions in the system that prevent the fostering of reflective practice among the student-teachers and how the policy is introduced, implemented and translated by the faculty and student-teachers at the DIETs. A description of the limitations, recommendations and possibilities for future research close the chapter.

To transform teachers, and to enable them to be more understanding of learners’ contexts and their unique potentials, there is a need to understand reflective practice and the teacher education situation. The following chapter reviews global and Indian literature to build an India-centred understanding of the research areas, which include reflection,
reflective practice and learning and policy implementation in initial teacher education.
Definitions of reflection and reflective practice, reflective typologies and theoretical
frameworks have been reviewed in the course of developing a conceptual framework for
analysis of the situation under study.
2. REVIEW OF LITERATURE AND FRAMEWORKS

2.1. INTRODUCTION

In my research it was important to establish a framework for how reflective practice is understood and enacted in the Indian DIET context. For this I needed to review literature to understand varying perceptions and framings of reflection and reflective practice. The influences that have shaped education, teacher education, reflection and reflective practice in India include those from indigenous traditional concepts and culture, learning and knowledge systems inherited from colonial rule, and both modern and grey literature from the Global South and the Global North.

2.1.1. Chapter structure

Section 2.2 of the chapter provides a closer look at the grey literature to better understand the policy as it is articulated in the NCFTE (NCTE, 2009). The literature review begins in Section 2.3 by exploring the traditional concepts of reflection which have been culturally practised for millennia in India. This provides the background to an understanding of how critical reflection and reflexivity have developed from indigenous philosophies and become a part of teacher education recommended in policy documents in India. Section 2.4 describes individual perceptions of reflection espoused by Dewey (1933), Schön (1983, 1987) and other researchers from the Global North whose work in reflection and reflective practice has influenced teacher education discourse and research in India (Ramachand, 2012; Mathew, 2014). Section 2.5 reviews the development of a social perspective of reflection through Vygotsky’s socio-cultural theory (SCT) and its principles of genetic development, mediation, everyday and scientific concepts, and language-related principles. It also reviews activity theory (AT) to better understand the interaction of people, resources and rules in a teacher education institute. It is crucial to understand how reflective thinking and action are evidenced in empirical research and how reflective practice can be made visible across different parameters. The methods by which this understanding is reached are clarified in Section 2.6, before the chapter closes with a conclusion in Section 2.7.

2.2. POLICY-DRIVEN REFLECTIVE PRACTICE THROUGH THE NCFTE

The Government of India has adopted reflective practice in key school and teacher education policy documents (NCERT, 2005; NCTE, 2009; MHRD, 2012a; MHRD, 2012b) as a strategy for professional teacher development. The National Curriculum Framework (NCF, NCERT, 2005) aimed at changing classroom pedagogy and teacher-led practice in schools to
make them more learner-centred by applying a constructivist classroom pedagogy. These changes are encapsulated in Table 1.

Table 1. Changes required in classroom pedagogy (Source: NCF, NCERT, 2005)

<table>
<thead>
<tr>
<th>Change from</th>
<th>Change to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher-centric stable designs</td>
<td>Learner-centric, flexible process</td>
</tr>
<tr>
<td>Teacher direction and decisions</td>
<td>Learner autonomy</td>
</tr>
<tr>
<td>Teacher guidance and monitoring</td>
<td>Facilitates, supports and encourages learning</td>
</tr>
<tr>
<td>Passive reception in learning</td>
<td>Active participation in learning</td>
</tr>
<tr>
<td>Learning within the four walls of a classroom</td>
<td>Learning in the wider social context</td>
</tr>
<tr>
<td>Knowledge is a ‘given’ and ‘fixed’</td>
<td>Knowledge as it evolves and is created</td>
</tr>
<tr>
<td>Disciplinary focus</td>
<td>Multidisciplinary, educational focus</td>
</tr>
<tr>
<td>Linear exposure (to knowledge)</td>
<td>Multiple and divergent exposure (to knowledge)</td>
</tr>
<tr>
<td>Appraisal, short and few</td>
<td>Multifarious and continuous appraisal</td>
</tr>
</tbody>
</table>

(N.B. Extracts from policy and regulatory documents have been presented verbatim)

The NCF (NCERT, 2005) recommended a change in policy which proposed major systemic reforms to create pedagogic spaces for reflection with the aim of making education more flexible and responsive, with a humanist focus. According to the NCF, reflection, on the part of the teacher, is key for pupils to learn with meaning and develop the ability to construct their own knowledge. The NCF encouraged teachers to set aside, in a disciplined way, ‘time for reflection and planning’ (NCERT, 2005:103) following a daily, weekly, and monthly review of teaching and learning in their classrooms. Evaluation methods were designed to enable the system to recognize the child’s construction of knowledge and allowed for diverse answers (NCERT, 2005).

The change in government continued to attribute top priority to reflective practice. Its annual report specified the following (MHRD 2015:49):

- Reflective teaching
- Inclusive education
- Constructivist environment
- Technology introduction
- Teaching for democracy.

This approach was adopted in India with the development of the National Curriculum for Teacher Education (NCTE, 2009). Acknowledging the existence of a dominant, banking

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5 ‘Banking’ education is a term developed by Freire. It describes education in which students receive and collect information by rote, or without meaning or connection to their real lives. Freire states, ‘Implicit in the banking
form of teacher-led, behaviouristic practice in pre-service teacher education programmes, the NCFTE (NCTE, 2009) recommended a more process-based, reflective, experiential, constructivist, and learner-centred teacher practice (Table 2). The ensuing revisions in teacher education programmes nationally considered the changes and emphasised reflection.

Table 2. Descriptions of dominant and proposed practice for teacher education in India (NCTE, 2009:52)

<table>
<thead>
<tr>
<th>Dominant Practice of Teacher Education</th>
<th>Proposed Process-Based Teacher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on psychological aspects of learners without adequate engagement with contexts. Engagement with generalised theories of children and learning.</td>
<td>Understanding the social, cultural and political contexts in which learners grow and develop. Engagement with learner in real life situations along with theoretical enquiry.</td>
</tr>
<tr>
<td>Theory as a 'given' to be applied in the classroom.</td>
<td>Conceptual knowledge generated, based on experience, observations and theoretical engagement.</td>
</tr>
<tr>
<td>Knowledge treated as external to the learner and something to be acquired.</td>
<td>Knowledge generated in the shared context of teaching, learning, personal and social experiences through critical enquiry.</td>
</tr>
<tr>
<td>Teacher-educators instruct and give structured assignments to be submitted by individual students. Training schedule packed by teacher-directed activities. Little opportunity for reflection and self-study.</td>
<td>Teacher-educators evoke responses from students to engage them with deeper discussions and reflection. Students encouraged to identify and articulate issues for self-study and critical enquiry. Students maintain reflective journals on their observations, reflection, including conflicts.</td>
</tr>
<tr>
<td>Short training schedule after education.</td>
<td>Sustained engagement of long duration professional education integrated with education in liberal sciences, arts and humanities.</td>
</tr>
<tr>
<td>Students work individually on assignments, in-house tests, fieldwork, and practice teaching.</td>
<td>Students encouraged to work in teams undertaking classroom and learners’ observations, interaction, and projects across diverse courses. Group presentations encouraged.</td>
</tr>
<tr>
<td>No ‘space’ to address students' assumptions about social realities, the learner, and the process of learning.</td>
<td>Learning ‘spaces’ provided to examine students' own position in society and their assumption as part of classroom discourse.</td>
</tr>
<tr>
<td>No ‘space’ to examine students' conceptions of subject-knowledge.</td>
<td>Structured ‘space’ provided to revisit examine and challenge (mis)conceptions of knowledge.</td>
</tr>
<tr>
<td>Practice teaching of isolated lessons planned in standardised formats with little or no reflection on the practice of teaching.</td>
<td>School Internship – students teach within flexible formats, larger frames of units of study, concept web-charts and maintain a reflective journal.</td>
</tr>
</tbody>
</table>

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concept is the assumption of a dichotomy between human beings and the world: a person is merely in the world, not with the world or with others; the individual is a spectator, not re-creator. In this view the person is not a conscious being ...; he or she is rather the possessor of a consciousness: an empty “mind” passively open to the reception of deposits of reality from the world outside’ (1970:247).
Reflective practice was considered by the NCFTE (NCTE, 2009) to be ‘the main pillar in teacher education’ (2009:19), essential to shift from a teacher-led, behaviourist pedagogy to a constructivist pedagogy. The principles outlined in the NCFTE (NCTE, 2009) were developed into a nationally shared guideline D.El.Ed. syllabus from which each state in India developed its localised version of the two-year D.El.Ed syllabus through its State Council of Education and Training (SCERT). This state D.El.Ed. syllabus was implemented at each DIET in the state.

The state D.El.Ed. syllabus (SCERT, 2014) acknowledges that it has considered European documents published in 2007, which gave the advice ‘to develop teachers as individuals who would be instrumental in the reconstruction of the society, to promote a culture of reflective practice and research among teachers’ (D.El.Ed. syllabus, 2015:11). The D.El.Ed. syllabus also acknowledged the influence of concepts of ‘caring teaching skills’ from the Teacher Education Accreditation Council (TEAC), Washington, USA. The NCFTE (NCTE, 2009) refers to the Brazilian educator Freire’s concept of ‘banking education’, showing how this concept was borrowed and influenced policy makers.

The policy-driven reflective practice described in the NCFTE (NCTE, 2009) envisions reflection being fostered through different activities. It has proposed teaching guidelines, conditions and strategies, which create learning spaces in the programme, for reflection.

Professional opportunities need to include reflection on their own experiences and assumptions as part of the course and classroom enquiry, critical observation, and reflective analysis of the practice of teaching. Availability, quality, appropriateness and sufficiency of feedback are necessary for learning to be reflective practitioners. (NCTE, 2009:54)

It emphasises the need for learners to be encouraged to engage with theoretical concepts and frameworks relating them to their own social realities and experiences so that knowledge from different disciplines is integrated (NCTE, 2009). This recommendation in the framework is intended to make the discourse in classrooms more reflective and analytical, and with increasing evidence, move it into practice, beyond anecdotal personal experiences.

For teachers to develop the ability to reflect on the technical aspects of their teaching, an inquiry-based practice is proposed in the NCFTE (NCTE, 2009), through analysis of textbooks and teaching aids as well as learning from pupils’ errors, catering to different learning styles and applying different strategies (NCTE, 2009). A dialogic approach to reflection is recommended through self-directed learning strategies such as more collaborative working
with peers, group discussions, and a more dialogical approach to teaching through integration with stories, art, music and craft, by developing an appreciation of different kinds of knowledge and points of views (NCTE, 2009). The model proposed by the NCTE involves student-teachers learning to reflect critically and developing capabilities to deal with uncertain situations in the classroom: ‘Pedagogical knowledge has to constantly undergo adaptation to meet the needs of diverse contexts through critical reflection by the teacher on his/her practices’ (NCTE, 2009:57).

The need to develop critical reflexivity is also emphasised. Teachers must ‘examine their own biases and beliefs and reflect on their own experiences as part of classroom discourse and enquiry’ (NCF, NCERT, 2005:110). A strong bid is made to bring student-teachers’ own experiences centre-stage, emphasising the need for self-knowledge through reflection and classroom enquiry.

Teacher education programmes, at all stages, should provide opportunities to all would-be teachers [student-teachers] for understanding the self and others, develop sensibilities, the ability for self-analysis and the capacity to reflect. … Opportunities to observe and engage with learners, learn to work collaboratively in groups, critically engage with content, develop professional capacities in pedagogy, observation, drama, craft, story-telling and reflective inquiry. (NCTE, 2009:54)

Aligned with this, the NCFTE describes reflexivity as follows:

Understand oneself and others, develop a capacity for self-analysis, and reflectively analyse one’s teaching, create opportunities to observe and engage with learners, reflect on one’s own experiences and assumptions, and gain appropriate feedback at the opportune moment. Develop positive attitudes, values, and perspectives. (NCTE, 2009:15)

Beyond the uncertain situations the student-teachers find themselves in, the NCFTE (NCTE, 2009) emphasises that they should become reflexive. It recommends they do this by reflecting on their own experiences, connecting their personal beliefs with complex socio-cultural realities and becoming more sensitive to diverse pupils and colleagues.

Policy articulation in the NCFTE (NCTE, 2009) advocates mixed theories of learning, reflection, and teacher education. It is expected that following the curriculum, student-teachers should be able to reflect on their own practice as well as to promote values of peace, democracy, equality, justice, liberty, fraternity, secularism, and a commitment towards social change. This connects with two root metaphors for learning. These are the ‘acquisition metaphor’ and the ‘participation metaphor’ suggested by Sfard (1998:5). Learning as acquisition focuses on self-learning and individual learning, whereas learning as
participation focuses on groups of people learning together, for instance, in a professional context (Goh, 2019).

The NCFTE (NCTE, 2009) proposed building stronger analytical and self-awareness skills so that teachers could understand their own socialisation, and in doing so gain a deeper understanding of diversity-related and exclusionary, discriminatory social issues in the classroom. The reflexivity, self-reflection and self-regulation emphasised by the NCFTE (NCTE, 2009) may have emerged from indigenous philosophies described in prehistoric texts in India such as the Vedas, the Upanishads and Buddhist scriptures. These concepts were revived during the struggle for Independence in the nineteenth and twentieth centuries by critical traditionalists including Vivekanand (1941), Tagore (1921, 1929), Aurobindo (1956), Gandhi (in Fagg, 2002) and Krishnamurti (1954) and found resonance in postcolonial India.

From the Global North emerged perceptions of individual learning and reflection such as those of Dewey (1933); van Manen (1977); Schön (1983, 1987); Hatton and Smith (1995); and Ward and McCotter (2004). From the Russian region, more socio-cultural conceptions of learning and reflection were developed by Vygotsky, during the periods 1925–34, and others. These were developed further, after translation into English, by scholars from the Global North such as Engeström (1987–2014). Critical pedagogy and methods described in the NCFTE (NCTE, 2009) were possibly influenced by Freire (1970) from Brazil, the critical traditionalists from India in the Global South and Habermas (1972) from Germany in the Global North.

In the following sections the concepts of reflection and reflective practice, which find mention or alignment with the policy documents, are reviewed to understand how they might influence initial teacher education through implementation of policy in India.

2.3. REFLECTIVE PRACTICE DEVELOPED AND PRACTISED OVER MILLENNIA IN INDIA

Reflective practice is an integral part of indigenous culture inherited from Vedic, Upanishadic and Buddhist education and treatises. Despite norms and values inspired by Western values in the formal school system in India, indigenous beliefs continue to be strongly prevalent today and deeply ingrained in Indians.

In India a vast majority of people are still educated through traditional forms of non-formal and informal education. It is indeed astonishing how small has been the impact of the formal system of education on the life of the masses, especially in rural areas. (Singh, M. 2013:88)
In India the importance of thinking reflexively, reflectively and with contemplation can be traced back to prehistoric oral education practices (before 1500 BCE). Educational aims drew on ‘principles of ethics, good behaviour, and values in life ... to attain the highest level of perfection as a human being’ (Ramachandran and Ramkumar, 2014: xxi, 3). Once oral languages developed scripts, the different Indian philosophies emerged in written form in the Vedas and other books (before 1000 BCE) and were developed further in the Upanishads (1000–550 BCE). The aims of education were to achieve personal, moral and spiritual fulfilment, while at the same time trying to improve economic, social, cultural and environmental good for all.

The Upanishads enunciate an abstract philosophy (700 BCE) through concepts of Brahman (God), atman (essence of self), dharma (personal basis of behaviour), karma (action), gyana (knowledge), bhakti (devotion), transmigration of life and moksha (ultimate realisation). Each person is perceived to be responsible for achieving self-actualisation and self-realisation based on their own actions and life in the community. This requires a high order of self-discipline, self-understanding, self-regulation and knowledge. The focus is on self-development according to personal educational goals, which work from the internal to the external. Reflexivity and the importance of adopting a humane orientation has found resonance culturally with Indian thought, giving rise to a more personally and reflexively oriented critical reflective practice.

Inquiry, agency, criticality, reflexivity and reflection were an integral part of the Upanishadic education tradition. Oral teaching and learning necessitated memorisation and perfect pronunciation. Good teachers innovated to make content interesting and engaging for students. Strategies employing metaphors, analogies, explanations and everyday examples were used. Skills in critical thinking and argumentation developed through the

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6 The meaning and relationships of Hindu concepts are further explained here. Brahman is inexpressible and all-pervading, the source of all existence, and cannot be experienced with human senses (Sheshagiri, 2010). The Atman, in each person, is the unchanging, immortal, essence of the self. Atman is not an autonomous unit but one with Brahman and so connected to all beings and so becomes a part of a large interconnected and interrelated network of reality. The Upanishadic goal for each person is to realise one’s essential self, to transcend individuality, limitation, suffering and death and become one with Brahman to achieve moksha. Moksha is believed to ensure liberation from the ongoing cycles of birth and death or transmigration. A person achieves perfection or moksha by following one of three chosen paths or dharma (a person’s moral duty). These are karma (action), bhakti (devotion), or gyana (knowledge) (Sen, 1961). Karma is dictated by conscious action, Gyan by a search for knowledge. Because it is much easier for some believers to love a personal God rather than an all-pervading abstract Brahman, the third way of gaining moksha is through bhakti or the path of devotion. The results of each path carry the atman into cycles of life and death. Dharma is dictated by unchanging duties which are followed according to the person’s age, caste, occupation and gender. Ethical values are universal for all individuals and society (Ramachandran and Ramkumar, 2014).
many opportunities offered for discussions, debates, and lengthy question-and-answer sessions. Three stages of contemplative action followed reading or listening of any text: hearing or shravana to understand the content; meditation and reflection or manana, which helped to internalise reflection of the content. This helped to synthesise and create new content, like new hymns and poetry. Manana was followed by a deeper meditation called niddhayasan or realisation. Mentoring strengthened the learning process, with the teacher understanding the weaknesses and strengths of the learner to better impact learning (Ramachandran and Ramkumar, 2014).

As a reaction to the discriminatory and rigid beliefs in Hindu-led education, Buddhism (550 BCE) followed a more humanist philosophy, and used vernacular languages like Pali and Prakrit, used by people, whatever their station in life. Buddhist beliefs have been known to influence reflective practice globally, in the Global North (Tremmel, 1993) and the South (Jawad, 2014). Buddhism lives on in India, and gains new believers, mainly from the scheduled castes because it offers a non-hierarchical, open social order (Omvedt, 2012).

In India, several critical traditionalists including Vivekanand, Tagore, Aurobindo, Gandhi and Krishnamurti reacted against the alien British education system and sought to renew Indian education through a return to Indian humanism learned from the Vedas, Upanishads and Buddhism.

This has increased the significance of reflexivity, self-regulation, personal growth and liberation in India through a personal, inner way of knowing, and has continued to gain support in education and teacher education (Krishnamurti, 1974; Cenker, 1976; Ferrer, 2018; Wellington and Austin, 1996). Reflexivity has been linked to critical reflection as it seeks to achieve social change and transformative action through self-knowledge: understanding oneself, one’s own impulses, motivations, values and beliefs, through self-deliberation (Fook, 2015; Cenker, 1976).

In the Global North, rather than interpreting individual learning based on personal beliefs, individual learning took on a more rational conceptualisation which was adopted by teacher education institutes globally. This is described in the following section.

2.4. **CONCEPTS RELATED TO INDIVIDUAL LEARNING AND REFLECTION**

A leading conception of learning is that it takes place in the mind of an individual as a rational, intellectual activity (Goh, 2019). Reflective practice was also primarily conceptualised, in the Global North, as an individual process in teacher education (Sparks-Langer and Colton, 1991; Lampert-Shepel, 2008; Collin & Karsenti, 2011; Goh, 2019:4). This
then carved a space for itself in Indian teacher education, too (Ramchand, 2013; Raghavan, 2016).

2.4.1. Individualised perspective of reflection conceived by Dewey and Schön

Dewey (1933) wrote critically about teachers who passively followed tradition and routines laid down by school authorities, propagating the status quo in society. Dewey proposed that it is important for teachers to acquire habits of reflection so that they engage in context-sensitive, intelligent action, making conscious decisions which are thoughtfully and systematically arrived at.

Reflective thinking, ... involves a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and an act of searching, hunting, inquiring, to developing material that will resolve the doubt, settle and dispose of the perplexity (Dewey, 1933:12).

In relation to individual reflection, questions, debated in literature, emerge from Dewey’s views of reflection: Is reflection cyclic? Does it have a duration in time? Is it about thinking or is about action, or both? Dewey believed reflection was cyclic. He proposed five phases in each reflective cycle: identifying the problem, understanding, possible solutions, hypothesis and reasoning, and testing. Many researchers (Pollard, 1997; McAteer, 2013) have supported this view. Others have challenged these characteristics. A meta-research study conducted by Marcos et al (2009), for example, found that most practitioners followed four steps: reflect on a concern, plan an action, teach and review the solution. In this research, a four-step unit of reflective action has been adopted (Figure 2).

Dewey (1933) and Schön (1983) argued against a Cartesian separation of mind and body in which thinking is separated from action and doing. For Dewey, the mind functioned with the body to produce intelligent actions, characterised by expectation, insight and thought. Schön emphasised the importance of solving complex and ambiguous problems through
constant framing and reframing, generating cyclicity, until there is improvement in practice (Loughran, 2002). For Schön (1983) reflection was intimately bound up with action and time. He used the terms ‘reflection-on-action’ and ‘reflection-in-action’.


These concepts of reflection-on-action (Schön, 1983) and ‘reflective deliberation’ (Dewey, 1933) can be observed to be at work when supervisors, peers and student-teachers review actions in class and when student-teachers evaluate past actions and make sense of them (Griffiths, 2000). Reflection-in-action can be conceived as central to practice. It is the immediate response practitioners must give to a unique or unplanned situation in class. Schön conceived reflection-on-action as a teacher’s deliberate, thoughtful reconstruction and analysis of a past event, to learn from an experience and improve practice. In teacher education these concepts are built into lesson plans and reflective journals which are generated by student-teachers and observed as intuitive or deliberative responses to problematic professional teacher education situations (Goh, 2019).

Both Dewey and Schön and the reflective movement were criticised for an overly individualistic, introspective conceptualisation of learning and reflection with little reference to the social dimension of reflection within practice settings (Kotzee, 2012; Zeichner and Liston, 1996; Eraut, 1995). Critiquing Schön, Eraut (1995) pointed out that he discussed reflective practice as a solitary process between a mentor and a student, though Schön was known to be interested in organisational behaviour.
Table 3. Relating time frames in reflection with the teaching cycle in teacher education programmes (Adapted from Ghaye, 2007 and expanded by the researcher)

<table>
<thead>
<tr>
<th>Description of reflection</th>
<th>Proposed by</th>
<th>Reflection during the teaching cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection-for-action</td>
<td>Grushka et al (2005)</td>
<td>Planning done for a particular purpose</td>
</tr>
</tbody>
</table>
Thinking on your feet, instantaneous improvisation |
| Reflection-in-action Reflection with a stop and think | Schön (1983) van Manen (1977) | While conducting a class (deliberative) 
Contemporaneous |
| Reflection-on-action | Schön (1983) | After class: discussion with a teacher or teacher-educator; mentoring, peer discussions, post-observation interview; reflective journals about the class conducted |
Stimulated recall interviews; interviews  
Planning for future action based on the analysis of previous action  
After class: fresh planning or planned changes resulting from the class/classes conducted. |
| Reflection (thinking + action) Embodied reflection | Schön (1983) re-conceptualised by Kinsella (2007) as embodied reflection, | Reflection while conducting a class |
| Reflection-on-learning, Reflection-on-practice | Black and Plowright (2010) | During stimulated recall interviews |
| Reflection as praxis | Freire (1970) | Reflection as a teaching strategy |
| Collective reflective practice | Vince and Reynolds (2004) | A group reflecting on a common concern focusing on an organisational intent rather than an individual intent |

Also, Schön did not recognise the need for critical or transformative reflection (Fook and Askeland, 2007), or for peer and self-reflection, both of which Carr and Kemmis (1986) found to be essential. However, Goh (2019) conceded that Schön did focus on how individual practitioners used reflective conversations as a form of internalised dialogue when they encountered unfamiliar problems at work. Schön’s individualised perspective of reflection is now an accepted component of teacher education programmes, both globally and in India. This is evident in the reflective journals and references to reflection-in-action and reflection-on-action in teacher education programmes and research literature in India.

Student-teachers are expected to improve practice when they reflect on different aspects of it. Research has shown that they reflect for the following purposes: to develop teaching
capability (Cruickshank and Applegate, 1981); to overcome traditional and ritualistic forms of teaching (Grimmett et al, 1990); to solve problems (Hatton and Smith, 1995); to become sensitive to pupil contexts and needs (Valli, 1997); to consider moral and ethical criteria of education (Gore and Zeichner, 1991); and to adjust teaching before, during and after the class (Greenwood, 1993; Schön, 1983). Reflection is also known to transform teachers, beyond just thinking about how well the class went, with the purpose of improving the class environment by thinking critically and sometimes radically about social issues (Westbrook et al, 2013).

However, reflective practice has been criticised for not improving practice (Beauchamp, 2015). One reason for this is that over time it has been adopted by many different disciplines and knowledge traditions. As a result, reflective practice is understood in multiple ways, sometimes in the same discipline. This has in turn resulted in the creation of several typologies and processes to explain reflective practice (Beauchamp, 2015, van Manen, 1977). The way reflection is understood and practised is also known to be influenced by cultural associations (Tremmel, 1993). These complexities make it difficult for teacher-educators to provide clarity to student-teachers and to help them develop into reflective practitioners. Teacher education programmes, in turn, have adopted different ways to conceptualise, model and develop reflective practice.

Reflection is fundamentally about the transformation of practice. Of the many interpretations of reflection, the definition that aligned with the aim of improving teacher practice described in the NCFTE (NCTE, 2009), was given by Hatton and Smith (1995). Reflection is ‘deliberate thinking about action with a view to its improvement’ (1995:40). This simple, operational definition of reflection is the one that has been adopted for this research. Reflective practice is manifest through a teacher’s actions and in discourse, through talking and writing about teaching practices (Collin et al, 2013). The inseparability of reflection from teacher action establishes that all teachers reflect.

2.4.2. Habermas’s ways of knowing linked with van Manen’s levels of reflection and teaching orientations

‘Good teaching’ means different things to different people (Zeichner and Liston, 1996). This is especially true in India due to its messy pedagogical history. There are deeply entrenched traditional attitudes and practices, layered over by colonial, modernist, humanist and neoliberal influences. The educational aims of each era and ideology describe ‘good teaching’ differently, leading teachers to follow different meaning schemes and reflect differently in their practices.
The NCFTE (NCTE, 2009) identified dominant teaching orientations present in classrooms. These often influence how subjects are taught and learned and emerge from different ways of approaching knowledge. Several ways of knowing have been theorised in literature (Habermas, 1972; Belenky et al, 1997). Habermas’s theory of knowledge-constitutive interests powerfully identifies different ways of knowing, with different knowledge types, methods of inquiry and ways of bringing about change in society that are particularly suited to the dialogical, critical-transformative teacher education the NCFTE (NCTE, 2009) seeks to pursue. Habermas’s theory provides the foundation of the typology of reflective practice applied in this research. Van Manen linked Habermas’s theory with ways of being practical and levels of reflection. These are described in greater detail in the following section because it is important to understand how they develop into teaching orientations to bring about learning and change in different ways.

Habermas focused on the nature of the different processes that underlie the generation of knowledge in learning, inquiry, analysis and reflection (Habermas, 1972; Carr and Kemmis, 1986). He proposed that individuals interact with their social context and are motivated to construct knowledge in three different ways: the analytical, the hermeneutic and the critical (Terry, 1997). These ways of knowing are aligned to different kinds of knowledge interests, levels of reflection, methods of inquiry, pedagogy and content areas in education, as shown in Table 4. This is contrary to Schön’s representation of the process of reflection as reflection-in-action and reflection-on-action. Van Manen (1977) and other researchers linked Habermas’s (1972) different knowledge or content types to ways of being reflective and practical using different teaching methods (Table 4). Different knowing and inquiry lead to different three teacher orientations in the classroom by leading to different ways of reflecting, planning, inquiring, learning, teaching, acting and reflecting again.
The first technical teaching orientation is based in Habermas’s first analytic knowledge constitutive area (Habermas, 1972). This is represented by a motive to understand and control the environment in which humans live through the methods of the empirical-analytical sciences, leading to an inquiry into facts, figures, causes and effects associated with the subject studied. For example, the natural sciences emphasise a logical-positivist methodology (Walker and Lovat, 2015; Moon, 1999).

In teaching and reflection, this orientation emphasises the application of proven and known knowledge, a single truth, supplied by empirical, positivist research as facts, theories, principles and ‘best practices’ to achieve efficient transmission of knowledge and utilise research-based instructional strategies to get there (van Manen, 1977; Zeichner and Liston, 1996; Nelson and Sadler, 2012). This orientation is characterised by a preoccupation with measurement of learning outcomes and achievement, and management of educational objectives. It does not ascribe importance to the quality of experience or the aim of education. Deliberations during reflection are made for better economy, efficiency, and effectiveness in meeting the goals set out.

The second knowledge perspective, according to Habermas, is the practical hermeneutic domain, which identifies human social interaction or ‘communicative action’. This knowledge perspective emanates from a historical or cultural context related to human behaviour, actions, and communication. It is founded on the mutual understanding of meanings and intentions rather than cause and effect, for example the social sciences, aesthetics, legal and ethnographic disciplines. This area cannot be explained scientifically. Hermeneutic disciplines are those where meanings are developed, or interpretations are arrived at, by understanding the reasons why people act, generate ideas and create events.

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<tbody>
<tr>
<td>Analytical</td>
<td>Empirical</td>
<td>Technical</td>
<td>Positivist</td>
<td>Behaviourist</td>
<td>Natural sciences</td>
</tr>
<tr>
<td>Hermeneutic</td>
<td>Historical/phenomenological</td>
<td>Dialogical</td>
<td>Interpretive</td>
<td>Humanist</td>
<td>Social sciences</td>
</tr>
<tr>
<td>Critical</td>
<td>Emancipatory/dialectical</td>
<td>Critical or Transformative</td>
<td>Critical</td>
<td>Critical or transformative</td>
<td>Social sciences</td>
</tr>
</tbody>
</table>

Table 4. Summary of Habermas’s ways of knowing related to knowledge interests, reflective levels, methods of inquiry, pedagogy and content areas in education (Source: Terry, 1997:271, 272 adapted by the researcher)
This second orientation, with its dialogic reflective level, is based in Habermas’s second knowledge constitutive area, the hermeneutic-phenomenological tradition. The practical aims of teaching and reflection in this domain are to understand educational expressions, actions and experiences (van Manen, 1977). Also referred to as the developmentalist, deliberative, dialectic or dialogical tradition (Zeichner and Liston, 1996), it emphasises validity, students’ thinking and understanding, their cultural and linguistic backgrounds, their interests, and their ownership of particular tasks and communication instead of just efficiency and effectiveness (van Manen, 1977; Zeichner and Liston, 1996).

In this teaching orientation, the curriculum is seen to provide educational experiences through group processes, practical deliberation, critical discussions and analysis of meanings, justifications of interpretation, positions and claims (van Manen, 1977). Reflection is interpretive or deliberative, aiming to understand both individual and social aspects of learning experiences (Nelson and Sadler, 2012). Personal teacher beliefs, experiences, values, and different viewpoints, research findings and other teachers’ opinions, are considered. Teachers back their choices with reasons (Minott, 2008).

The third of Habermas’s proposed knowledge-constitutive areas is an interest in being emancipated. This emancipatory domain identifies self-knowledge or self-reflection. It is to be critical and deliberative, to develop knowledge that emerges from knowing oneself, where the most certain, comprehensive and authentic human knowing takes place through deliberation (Minott, 2008). This third teaching orientation, with its critical-transformative reflective level, is based in the critical-dialectical or socio-reconstructionist tradition. This tradition emphasises political and cultural methodologies to promote practice which achieves emancipation. Critical reflection is known to develop competence to focus on, uncover and challenge existing ways in which power operates, and to trigger transformation of deeply held traditional or fundamental beliefs (Mezirow, 1990; Habermas, 1972; Freire, 1970). This is concerned with commitment to achieve personal and social issues of justice, equity, democracy, self-determination and community-related goals through meaningful educational aims (Zeichner and Liston, 1996; van Manen, 1977).

Thinking critically about experiences and their value, and about how society is organised, in order to examine and understand what is of worth (Nelson and Sadler, 2012), leads the way to reflection.

A fourth level of reflection, called the routine reflective level, was identified by Ward and McCotter (2004) as they studied their student-teachers’ reflections. In this the student-
teacher is disengaged and distanced from change. They may have no desire to improve their practice, because they feel limited by the situation, their own skills, their perceived lack of time or by lack of resources or help from others (Ward and McCotter, 2004). Dewey (1933) was critical about teachers who passively followed tradition and obeyed authority, taking for granted the status quo in society. This teaching orientation and reflective level speaks to the dominant teacher-led way of routine teaching in India that the NCFTE (NCTE, 2009) criticised as tabulated in Chapter 1 (Table 2). The NCFTE (NCTE, 2009) adopted reflective practice as one of the keyways to counter this routine orientation and to contribute to bringing about change in teaching in India.

2.4.3. Looking for a framework to make individual reflective practice visible

The reflective practice characteristics included in policy in India aligned with the four orientations described in Section 2.4.2. However, the orientations are not well understood in teacher education institutes, and there is a lack of research about reflective practice. So, to ensure the study was more theoretically robust it was necessary to identify a framework that would provide a basis for identifying reflections from the data, as well as providing a structured understanding of reflection and reflective practice, in alignment with Indian policy detailed in the NCFTE (NCTE, 2009).

I searched among socio-cultural frameworks, as these would consider the uniqueness of the social and cultural situations in Indian teacher education institutes and programmes. I found several reflective typologies that had been created by researchers for different contexts. These frameworks conceptualised reflection and reflective practice in a range of ways, building on diverse theories. I looked for typologies which were aligned with Habermas (1972), with van Manen (1977), and with Hatton and Smith (1985) because I found that their work related to the NCFTE (NCTE, 2009) conception of knowledge and reflection at different levels. I found several models, papers and concepts, for example Sparks-Langer and Colton (1991), Ross (1989), Hatton and Smith (1995), Valli (1997), and Jay and Johnson (2002). Hatton and Smith’s (1995) work on reflective practice had influenced Pee et al (2002), Ward and McCotter (2004), Mena-Marcos et al (2013), and Poom-Valickis and Mathews (2013).

Of the many theories, typologies and frameworks considered, I selected Ward and McCotter’s framework (WMF) (2004), for four reasons. First, their framework was genealogically related with the Habermasian (1972) view of knowledge and linked to van Manen’s reflective levels (1977). The reflective levels, in turn, related to different teaching
orientations and aims in education (Section 2.5.2). Based on these concepts, Hatton and Smith (1995) developed a reflective typology which Ward and McCotter (2004) applied in their research on student-teachers’ reflective practices, with a few changes.

The second reason was that while many aspects of the US and Indian context are very different, the similarity in terms of emphasis on coverage and test results is particularly significant for this study. This makes it difficult for teachers to teach reflectively and to cater to diverse student problems with the aim of making learning meaningful (Ward and McCotter, 2004; Batra, 2011).

The third reason for choosing Ward and McCotter’s framework was that it was built on developing reflection towards broader themes of social justice and critical education (Ward and McCotter, 2004) in alignment with the aims of the NCFTE (NCTE, 2009) (Table 5).

Table 5. The NCFTE (NCTE, 2009) models mapped onto the WMF (2004)

<table>
<thead>
<tr>
<th>NCFTE (NCTE, 2009)</th>
<th>Teaching orientations and levels of reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominant teacher-led TE model</td>
<td>Process-based, student-centred TE model</td>
</tr>
<tr>
<td>WMF (2004)</td>
<td>Routine reflective level</td>
</tr>
</tbody>
</table>

The NCFTE (NCTE, 2009) maintains that teachers need to be educated appropriately to overcome social deprivation through education and to achieve the ‘constitutional goals of social justice’ (NCTE, 2009:13).

Fourth, the dominant teacher education model described in the NCFTE (NCTE, 2009) met with WMF’s reflective levels, specifically its routine and technical reflective levels. WMF’s dialogical and critical reflective levels and teacher practices aligned with NCFTE’s proposed process-based teacher education model. Ward and McCotter (2004) developed this typology into a table with reflective levels and rubric descriptions for different teaching activities (Table 6), as described in the next section.

<table>
<thead>
<tr>
<th>WMF</th>
<th>Levels of Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Routine</td>
</tr>
<tr>
<td></td>
<td>Self-disengaged from change</td>
</tr>
<tr>
<td>Focus (What is the focus of concerns about practice?)</td>
<td>Focus is on self-centred concerns (how does this affect me?) or on issues that do not involve a personal stake. Primary concerns may include control of students, time, and workload, gaining recognition for personal success (including grades), avoiding blame for the future.</td>
</tr>
<tr>
<td>Inquiry (What is the process of inquiry?)</td>
<td>Questions about needed personal change are not asked or implied; Often not acknowledging problems or blaming problems on others or limited time and resources. Critical questions and analysis are limited to critique of others. Analysis tends to be definitive and generalised.</td>
</tr>
<tr>
<td>Change (How does inquiry change practice and perspective?)</td>
<td>Analysis of practice without personal response – as if analysis is done for its own sake or as if there is a distance between self and the situation.</td>
</tr>
</tbody>
</table>
2.4.4. Details of the Ward and McCotter’s rubric framework

To show the different levels of reflection in practice, Ward and McCotter described four levels of reflection: routine, technical, dialogical and transformative (Table 6). The routine reflective level described teaching actions focused on the teacher herself and personal gain, on getting the job done, with little reflection on practice, inquiry or change. This level shows near lack of reflection except to maintain the status quo. Teaching was done for personal gain rather than achieving pupil learning and growth. The three remaining levels corresponded to van Manen’s reflective levels of technical, dialogical and critical (called transformative in the WMF) and corresponding teaching orientations. In developing their rubric, Ward and McCotter considered any description of a specific teaching action to be reflective: ‘The fact that action had been described implied deliberate thinking about the action and desired improvement’ (Ward and McCotter, 2004:248). The need to reflect on a problem in practice requires the practitioner to focus on it (Dewey, 1933), to frame and reframe it (Schön, 1983; Loughran, 2002), to inquire into it methodically and finally to resolve it or achieve the desired change. An attempt to achieve incremental resolution, a step at a time, might lend the process cyclicity (Dewey, 1933; Pollard, 1997) or the problem might need to be viewed from different or multiple perspectives (Hatton and Smith, 1995; Loughran, 2002).

Following these principles about reflection, each level of reflection in the framework has been refined thematically into dimensions of focus, inquiry and change to fit different teaching orientations.

The dimension ‘focus’ questions the centre of concern about practice. This ranges from focus on self, on students, on the broader concerns of learning and teaching, making research situational, pointing to social improvement. Framing and reframing the problem led Ward and McCotter to add the dimension of ‘inquiry’ to consider questions which can be explicit or implied.

Inquiry into a problem leads to reflection. From reflection, insights for improvement emerge. Insights lead to dimensions of change, which again require reflection. Following the review of WMF, I looked more closely at conceptions of critical reflection and reflexivity for social transformation, both of which have been adopted by the NCFTE (NCTE, 2009).

2.4.5. Critical reflection and reflexivity for social transformation

The NCF (2005) and NCFTE (NCTE, 2009) are conceived with a critical reflective and reflexive perspective. Critical reflection is crucial for social transformation, such as
overcoming the inequity, oppression and dominance that are frequently encountered in primary schools in India. Critical reflexivity is important for identification of personal biases, self-regulation and personal transformation. Critical reflexivity is about consciously examining, identifying and accepting these biases, subjective understandings of reality, values and actions, and understanding how they impact self and others (Cunliffe, 2004).

According to Freire, a dominant educational discourse perceives a student to be a domesticated, passive, empty object in whom knowledge is deposited as in a bank, as an investment, with the expectation that it will ripen with sufficient interest to buy material privileges such as employment, status, career and influence. Students are considered as ‘objects’ lacking resources or agency of their own, and motivated, directed and controlled by society. Importantly, Freire claimed that education can only lead to liberation when students realise the difference and value of being a subject and not an object, and start to reflect critically on their own situation, i.e. on the economic, social and political aspects of their actual lives (Mies, 2014). According to Freire (1972) ‘Learning is a process where knowledge is presented to us, then shaped through understanding, discussion and reflection’ making reflection integral to learning.

Both Freire and Habermas focused on transformed consciousness. Freire proposed to achieve this primarily through critical reflection and reflexivity, and appropriate education. Habermas proposed to achieve transformation through self-awareness, communication and sharing in the public sphere (Torres and Morrow, 1998). This explains the importance accorded to critical reflection and reflexivity in policy (NCTE, 2009), making it an important level of reflection to nurture in student-teachers in their teacher education programme.

The concepts reviewed are from the literature about Indian traditions and philosophy, followed by theories about mainly individual conceptions of learning and reflection from Habermas, van Manen, Dewey, Schön, Hatton and Smith, Freire, Ward and McCotter. Application of Ward and McCotter’s framework made visible the reflections of the student-teachers and the changes in their practice over two years. However, the concepts and framework reviewed did not unravel the messiness around how reflection is fostered as perceived in teacher education at the DIETs. This led me back to another round of literature review, after data collection and fieldwork, to look for an overarching theoretical framework which brought together learning, teacher education processes and different forms of reflection. Vygotsky’s socio-cultural theory provided just such a framework.
Activity theory made it possible to understand what happened in the teacher education institutes, the DIETs. I discuss this next.

2.5. A SOCIAL PERSPECTIVE OF REFLECTION: VYGOTSKY’S SOCIO-CULTURAL THEORY AND ACTIVITY THEORY

Most prevalent education systems have been designed with little consideration for social and cultural diversity until confronted with it in classrooms. In teacher education in India ways of learning socially have been built into, for example, the D.El.Ed. syllabus (2014; 2015) but the same syllabus does not operationalise reflection as social reflection. Reflection is recorded and monitored primarily through individually maintained reflective journals and not through more socially or dialogical learning events.

Historically, social orientation to learning and reflection emerged in the 1930s, through Vygotsky, from the Russian-speaking world. This became available for study and discussion in English after its translation in the 1960s (Swain et al, 2011). Vygotsky worked through a period of social upheaval which brought different social and ethnic groups into the same educational focus, and these circumstances in turn are likely to have led to issues of literacy, as well as ethnic and cultural diversity, being experienced far more frequently for Vygotsky in his time than was the case in the West—the English-speaking countries from the Global North. Vygotsky re-oriented learning theory from an individualistic to a social perspective. In doing so, through his socio-cultural theory (Vygotsky’s SCT), he provided a powerful, meta-theorisation for learning, reflection and teacher education, because when the teacher is viewed as a learner, theories of learning can be viewed as viable for guiding professional learning (Manning and Payne, 1993:16). Key principles of Vygotsky’s SCT provide explanations for social and cultural influences in reflection (Sections 2.5.1-2.5.5). The key to this paradigm shift was the concept of mediation and psychological tools. Activity theory (Section 2.5.6) has also emerged from Vygotsky’s SCT. It explains the practical consequences of people, resources and rules working together socially, and applies these to institutes like the DIETs.

Vygotsky (1986) explained cognitive development as a socio-cultural historical process and held that the human mind is made up of lower and higher mental processes. ‘Any higher mental function was external and social before it was internal; it was once a social relationship between two people’ (Vygotsky, 1960:197, cited in Eun, 2008:136). This implies that thinking, learning and reflection, as part of higher mental processes, are not individual phenomena since they are only possible through socio-cultural interaction (Eun, 2000).
Lower mental functions are conceived to be routine, culture-free functions controlled by the environment, in which deliberated thinking is absent. An example is hunger. Higher mental activities are conceived to be subject to deliberation and self-regulation, such as learning, reflection, memory and calculation. The social origins of higher mental activities make them culture-specific, linguistic, and so are known to vary in societies and among individuals (Eun, 2000). Understanding an Indian view of socio-cultural perceptions in reflection is important in this study.

To understand the development of higher mental activity Vygotsky emphasised the role of the social environment, external activity, tools, self-regulation and reflection (Özdemir, 2011). The implication is that thinking, learning and reflection, as higher mental functions, are developed in the mind of an individual during socially constructed and culturally mediated human activity (Lampert-Shepel, 2008). There are no individual phenomena, since higher mental activities are possible only through socio-cultural interaction (Eun, 2008). Internalisation is key to higher mental activities. Teachers’ reflective actions are argued to be socially constructed, culturally mediated and dialogical in nature (Lampert-Shepel, 2008).

The core concepts of Vygotsky’s SCT align with the aims and philosophy expressed in the NCFTE (NCTE, 2009). Concepts in Vygotsky’s SCT provide explanations for meaningful learning, reflection, intention, self-regulation, development and improvement (van Huizen et al, 2005; Manning and Payne, 1993) aligning it with the NCFTE’s recommendations for improvement in teacher education. Like the NCFTE (NCTE, 2009) and WMF, Vygotsky’s SCT caters to criticality and transformation by establishing that humans are not products of history or social processes but can act as agents, choosing to shape their own thinking and action (Kandharaja, 2019). Explained through Vygotsky’s SCT, the teacher-led model for teacher education – the routine reflective level in WMF – is considered the least reflective and the lowest level in the framework. Student-teachers are believed to remain focused on themselves and their own needs, intent on controlling and managing pupils while promoting their own interests. They do not take responsibility for self-regulation to improve their practice. They perpetuate lower mental processes controlled by the environment (Manning and Payne, 1993). A key characteristic in Vygotsky’s SCT is reflexivity through teacher self-regulation, an awareness of one’s own mental processes, through the development of higher order thinking in both the cognitive and the affective domains (Vygotsky, 1978). As in the NCFTE (NCTE, 2009), Vygotsky regards reflexivity as important.
Seven key socio-cultural concepts from Vygotsky’s SCT helped to explain the research questions in this study. These concepts are listed in Table 7 and explained in turn in the corresponding sub-sections.

Table 7. Applying Vygotskian SCT principles and concepts for achieving teacher education goals of learning, reflection, and professional development

<table>
<thead>
<tr>
<th>Key Vygotskian SCT principles applied in the research related to...</th>
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</thead>
<tbody>
<tr>
<td>2.5.1 Mediation</td>
</tr>
<tr>
<td>2.5.2 Genetic development and internalisation</td>
</tr>
<tr>
<td>2.5.3 Language for communication, symbolic mediation and self-regulation</td>
</tr>
<tr>
<td>2.5.4 Languaging as inner speech, private speech, writing and collaborative dialogue</td>
</tr>
<tr>
<td>2.5.5 Everyday and scientific concepts</td>
</tr>
<tr>
<td>2.5.6 Translation, meaning and metaphors</td>
</tr>
<tr>
<td>2.5.7 Activity theory, contradictions and expansive learning</td>
</tr>
</tbody>
</table>

2.5.1. Mediation

As established in Section 1.1, reflection, in this research, is defined as ‘deliberate thinking about action with a view to its improvement’ (Hatton and Smith, 1995:40). In Vygotsky’s SCT, this makes it a complex higher mental process which continues to develop through a person’s lifetime (Bodrova, 1997).

Importantly, Vygotsky (1978) claimed that all forms of higher human mental and emotional functions are mediated by culturally constructed material and symbolic mediation, and internalised. He claimed that human learning takes place in the form of interactions among mediating signs, tools and individuals (Yamagata-Lynch and Haudenschild, 2009).

Tools mediate actions through material objects, and signs or symbols mediate actions through abstract, symbolic representations such as language, art, numbers and mathematical systems and music (Vygotsky, 1978). Both explicitly and implicitly, tools and signs can have rich educational potential. For example, as an explicit tool, a lesson plan introduced by a teacher, when used meaningfully, can facilitate and organise the learning activity, bringing about a change in the learner’s performance (Wertsch, 1991). As a sign, on the other hand, a lesson plan can be internally oriented to work implicitly, becoming a means of internal activity aimed at mastering oneself, bringing about a change, ultimately, in the student-teacher’s cognition.

Wertsch (1981:45) argued that ‘Mediated action can undergo a fundamental transformation with the introduction of new tools’. This suggests that the process of reflection, in this research, could be transformed, depending on whether teachers (student-teachers or teacher-educators) use different tools and signs, like templates for lesson
planning, evaluation and journal writing, or change the tools and signs in any way. A change in any tool would transform actions.

2.5.2. Internalisation and genetic development

Vygotsky proposed that a student-teacher can achieve personal change through internalisation and genetic development. This provides a path to unique growth. Individuals create tools and use them, like lesson plans, or they receive already created tools from a knowledgeable other, like a lesson plan template from a teacher-educator. Vygotsky pointed out that the tool itself changes the user:

> By being included in the process of behaviour, the psychological tool [or sign], alters the entire flow and structure of mental functions. It does this by determining the structure of the new instrumental act. (Vygotsky, 1981:137)

Vygotsky used the term ‘internalisation’ to describe the transition of knowledge from an external event, like external speech, to a meaningful internal construct (Manning and Payne, 1993). He explained this process of personal change by a process of internalisation as being due to the development of a higher mental process (for example, reflection), which ‘proceeds not in a circle, but in a spiral, passing through the same point at each new revolution while advancing to a higher level’ (Vygotsky, 1978:56). Vygotsky called this spiral enhancement of higher mental processes ‘genetic development’. Applying this to the classroom, a student-teacher can use a lesson plan template to plan each class. The experience of teaching in accordance with the lesson plan can change the student-teacher’s practice. The student-teacher, from this experience, might find the need to change the template she used. So, during mediation, the tool can change the user and can also be changed by the user. A spiral restructuring of knowledge means that development does not increase incrementally, but takes place in qualitative changes as the student-teacher’s earlier experience and knowledge interacts with the learning event, resulting in a unique development and growth for each student (Swain et al, 2011; Manning and Payne, 1993). This means that the relationship between the mediational tool and the user is made reciprocal, bidirectional and spiral, rather than circular.

Vygotsky also proposed a socio-historical explanation for genetic development (Manning and Payne, 1993). For example, when a student-teacher experiences a learning event in the present, this experience might cause her to recall unique experiences from her past and her previous knowledge. The interaction between the two causes a unique qualitative shift in the student-teacher’s development. This explains why the same learning experience
influences different student-teachers’ learning in different ways, as has been found in this research.

2.5.3. Language for communication, symbolic mediation, self-regulation

Vygotsky (1978) claimed that language is one of the most important of the symbolic systems that humans have developed. It mediates voluntary actions and higher mental processes. Language mediates thinking and action. Vygotsky distinguished between the social and the intellectual functions of language. The intellectual function is explained as one that completes thoughts (cognition and ideas) and transforms them into words, such as reflections written in a journal or shared orally, during which ‘a newer and deeper understanding of the complex phenomenon occurs, learning from past experiences and planning and organising for future ones’ (Swain et al, 2011:42). This can lead to becoming organised, planned and self-regulated.

Language provides a mechanism for both internalisation and externalisation, making it an important process to understand. Mediated by language, spontaneous action is transformed into a voluntary, organised action or reflective practice. Vygotsky explained how the use of language in a learner’s environment gets internalised and develops to become a tool for self-regulation and thinking (Swain et al, 2011:37). He demonstrated internalisation through his experiments with children. Initially children undergo ‘object regulation’, such as when a child reaches out for a ball, or any object encountered. Later, they learn names of objects and get ‘other regulated’. When asked to get a named object by another person, they get it. Still later, children ‘self-regulate’ their own behaviour through language by asking themselves to name the object, ‘Where is my favourite ball?’, and go looking for it. An individual’s development can be assessed by an increasing ability to use language to mediate thinking (Swain et al, 2011:38).

Reflections are expressed and made visible through language and actions. Clarity of thinking and fluency in language influences the representation of thought and action, and so reflection. This aspect is crucial in a teacher education situation that is bilingual, as most DIETs allow Hindi or English medium; and where any three of four state languages are taught as subjects, as in some DIETs which offer Hindi, English and Punjabi as subjects or Hindi, English and Urdu as subjects.

2.5.4. Languaging as inner speech, private speech, writing and collaborative dialogue

Languaging is a term that covers the private, intellectual and social use of spoken and written language to mediate the process of thinking and meaning making (Swain et al,
It is a mental tool used to structure and organise one’s thinking to solve a problem or regulate a mental activity. Reflection is a complex higher mental function which involves languaging.

In reflection, one uses private or inner speech, terms that explain intrapersonal communication that mediate thinking processes, or one writes reflections in a journal, using languaging. Socio-linguistic tools like lesson plan templates, reflective entry formats and evaluation templates used in teacher education use languaging. The student-teacher might ‘language’ with a peer by ‘bouncing ideas of each other’ and in so doing ‘create, negotiate and solve problems of practice’ through reflection. In this case, a friend can be a constraint or not a constraint depending on the ideas generated.

Figure 3. Four stages in language development (Vygotsky, 1978 proposed stages 1, 2 and 4. Stage 3 added by Flavell, 1966)

Social speech  2. Egocentric speech  3. Private speech  4. Inner speech

Vygotsky (1934, translated 1962) developed concepts of social speech, egocentric speech or internal dialogue and inner speech (Figure 3), composing words over time and writing (Everson, 1991). While ‘inner speech’ is pure meaning, or thoughts without speech, ‘private speech is abbreviated, agglutinated and fragmented’ (Swain et al, 2011:38). Private speech transforms thoughts into words, which once produced, spoken, or written, serve as artefacts and maybe representations of reflection, to reflect on, or share further afield. Opening this out, talking to others is also referred to as ‘a social or collaborative dialogue’ (Swain et al, 2011:34). Transforming thoughts into writing involves a quantum leap in mental processing. In other words, writing reflectively and critically about practice in a reflective journal is a quantum leap from thinking about it, or even talking about it to a peer or supervisor. The difference lies in the degree of deliberateness and abstraction. Vygotsky said,

The essential difference between oral and written speech reflects the difference between two types of activity, one which is spontaneous, involuntary, and non-conscious, while the other, written speech, is abstract, voluntary, and conscious. (Vygotsky, 1989:182, in Everson, 1991:8)

As Everson explains, the psychological functions on which writing is based develop much later than the inner speech, building on barely emerging immature processes: ‘Inner speech (pure meaning) or thoughts emerge raw, reflecting the intimate and immediate nature of these thoughts’ (Everson, 1991:10). These ‘barely emerging immature processes’ are what most students produce as initial pieces of writing. Teachers are likely to find fragmented
sentences, omitted words, unrelated detail and confused story structure or a highly
descriptive translation of reality. Vygotsky says of inner speech, ‘A single word is so
saturated with sense that many words would be required to explain it in written speech’
(Vygotsky, 1934:342). Also, inner speech works semantically, not phonetically: ‘student
writers have the whole picture in full view of their mind as they write. They “see” what they
want to say, but sometimes during the process of writing it down, the fragments of

As language is internalised, it provides the means to be free of the immediate present, to
reflect, to resolve difficult problems, to impede routine and impulsive behaviour, to plan, to
focus attention to master one’s own behaviour. Speaking and writing that is routine is not
considered languaging because here language is not being used to mediate thinking as a
cognitive tool (Swain et al, 2011). Changing thoughts to written words involves a process
that is both complex and emotional. More so when, during reflection, cultural and linguistic
borders need to be crossed, as at the DIETs studied.

‘Language is always socially situated, ... ideological, ... located in particular contexts,
steeped in histories, power relationships and identities’ (Menon et al, 2014:44). Languages
are difficult to learn mechanically, without being immersed in a cultural context. Growth of
language has historically followed creative borrowing, adaptation, assimilation and building
on words through social interaction (Menon et al, 2014).

In education and learning, language is never neutral. It serves either as an instrument of
oppression of human beings or as an instrument of human liberation (Freire, 1970). Since
reflection is a higher-level construct which is represented through language, this makes
reflection also inseparable from language, learning and acquisition.

2.5.5. Everyday concepts and scientific concepts

Concepts, like reflection in teacher education programmes, are dynamic and changing,
crossing cultural and linguistic borders. During the journey the meaning of concepts is likely
to undergo changes. Vygotsky wrote,

... a concept is not an isolated, ossified, and changeless formation, but an active part of the
intellectual process constantly engaged in serving communication, understanding, and
problem solving. (Vygotsky, 1986:98)

Vygotsky (1987) divided concepts into everyday concepts and scientific concepts. He
proposed that learners construct working explanations of the different phenomena they
experience through spontaneous or everyday concepts which are ‘intuitive, unsystematic,
and situated ... [also] empirical, and practical’ (Vygotsky, 1987:145). Scientific concepts, on the other hand, are usually introduced formally in a programme, systematically, hierarchically, subject to conscious manipulation. However, for Vygotsky both everyday and scientific concepts are essential (Table 8).

Table 8. Important characteristics of everyday and scientific concepts (Source: Temina-Kingsolver, 2022)

<table>
<thead>
<tr>
<th>Everyday concepts</th>
<th>Scientific concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are not introduced in a systematic manner or explicitly connected to other concepts</td>
<td>Are presented as a system of interrelated ideas</td>
</tr>
<tr>
<td>Originate from everyday life experiences, sometimes as metaphors</td>
<td>Originate as disciplinary instruction</td>
</tr>
<tr>
<td>Develop from bottom to top; from experience to generalisations and abstractions</td>
<td>Develop from top to bottom, from verbal explanation to concrete everyday phenomena</td>
</tr>
<tr>
<td>Provide the basis for the development of scientific concepts</td>
<td>Cover the most essential aspects of an area of knowledge and extend the meaning of everyday knowledge</td>
</tr>
</tbody>
</table>

They work together, do not replace each other, are necessary for the development of the other and for a student’s cognitive development. Vygotsky believed they constantly influence each other and are parts of a single process. The use of language differs between the two kinds of concepts. Everyday concepts evolve from experience and words, both concrete and abstract. Scientific concepts are understood, applied and conveyed primarily through words, and so are abstract. When used to express scientific concepts, the words used take on unique and different meanings. They function differently. Scientific words are used as parts of a system of knowledge (Minick, 1996). They are not used to communicate everyday meanings alone. Learning becomes mediated by the words and symbols used, not by experience. Application and development of everyday and scientific concepts take on different complexities in a bilingual or multilingual context, such as at a DIET. Bilingual and multilingual learning is described through concepts of Vygotsky’s SCT in the following section.

2.5.6. Translation, multilingualism, meanings and metaphors

Bilingual student-teachers form everyday concepts in their first and other languages. It is often the case anywhere that bilingual users are not often conscious of the ‘how’ of the language used (Swain et al, 2011). This applies to student-teachers at the DIETs, who use different combinations of Hindi or Urdu with English for teaching and speaking. The Indian constitution recognises 22 major languages in the ‘8th Schedule’ of the Constitution. The
census (Census Tables, 2011) recognises 19,500 mother tongues. To be multilingual in India is the norm. Vygotsky wrote in his book *Thought and Speech*,

> The structure of speech does not simply mirror the structure of thought; that is why words cannot be put on by thought like a ready-made garment. Thought undergoes many changes as it turns into speech. It does not merely find expression in speech; it finds its reality and form. (Vygotsky, 1986:219)

Everyday concepts that are normally used in translations solve only ‘superficial problems in meanings’ (Swain et al, 2011:62). The translated everyday word does not carry the same meaning as is conveyed in the original language. For example, in this research, student-teachers often use ‘Beta’ when addressing their pupil. This literally means ‘son’ in Hindi but here it is applied to address both genders to express a more parental concern for the pupil’s learning. This is translated to ‘Child’ in English, which does not carry the same parental connect and concern. To be able to write confidently and accurately across languages and cultures, scientific concepts need to be developed carefully, especially when translated (Swain et al, 2011).

A complex expression of everyday and scientific thoughts is encountered in the use of metaphors. Metaphors enrich communication of both our spontaneous everyday conceptions and scientific theorising and play a central role in bringing meaning into our everyday realities. Sfard (1998) declared metaphors to be ‘the most primitive, most elusive, and yet amazingly informative objects of analysis’ (1998:4). They are special because, conveyed through language, they mediate between scientific and everyday conceptions. According to Sfard, looking at just the basic metaphors can lead to understanding the assumptions underlying what is theorised about learning and practice as students and teachers make metaphors a primary source of concepts, a conduit that can bridge old knowledge with new. Sfard (1998) adds that ‘metaphoric projection is a mechanism through which the given culture perpetuates and reproduces itself in a steadily growing system of concepts’. The meaning of a metaphor plays an important role in how the concept is perceived. Different metaphors lead to different ways of thinking about a concept and, as a result, may lead to different activities. Metaphors can be set in socio-cultural history, carrying old assumptions and deeply rooted beliefs which are tacit and inert. Above all, old foundational metaphors are known to perpetuate beliefs and values that might not have been critically evaluated.
Our conceptual systems are influenced by socio-cultural experiences and play a central role in bringing meaning into our everyday realities. To understand the unknown, comparing it with something known transmits meaning. Metaphors are able to do this through ‘juxtaposition of the familiar with the unfamiliar’ (MacCormac, 1990:9).

2.5.7. Activity theory, contradictions and expansive learning

Teacher learning is said to be heavily influenced by interactions between situational factors in an institution (Yamagata-Lynch and Haudenschild, 2009). In this study, to understand how reflection is perceived, fostered and implemented within the complex context of a teacher education programme in a DIET with its own history, it was important to consider the situational factors that affected the programme. These factors could be at the institutional and the individual or institutional norms, leadership, nature of the programme, teacher knowledge, skills and attitudes and available resources. AT offers a method to consider individuals and their environment as a holistic unit for research and analysis (Yamagata-Lynch and Haudenschild, 2009). Vygotsky (1978) described activity as a socially and culturally meaningful act that fulfils a psychological or social need or goal. He theorised that human learning activity takes place through the dynamic interaction of the individual or subject engaged in mediated action through tools, signs or other human being(s), socially constructed rules as practices and norms, community and division of labour motivated towards achieving a purpose or object (Swain et al, 2011; Yamagata-Lynch and Haudenschild, 2009). The subject could be motivated to participate by the goal of the activity. Vygotsky represented the structure of mediated action visually with a triangle, as shown in Figure 4.

Figure 4. Vygotsky’s triangle showing mediation
This way of representing mediated action avoided the creation of forced dichotomies (Yamagata-Lynch and Haudenschild, 2009) between individual-society, present-historical or cause-effect (Swain et al, 2011).

Figure 5. Activity theory depicted by Leontiev (1978, in Daniels, 2001:86)

Leontiev (1978) in Daniels (2001), based on Vygotsky’s concept of mediation shown in Figure 4, proposed a model of AT shown in Figure 5. Engeström (1987) critiqued and expanded this model to highlight the integral social and collaborative nature of the activity and locate it in a social context in Figure 6. This model represents a complex activity system in which all the elements shown are related to one another. The six components of the activity system are depicted at the nodes of intersection in a triangular figure, a heuristic depicting an activity system (Figure 6).

Figure 6. Engeström’s modelling of an activity system (Engeström, 1987)
These are subject, object, tools and signs, rules, community and division of labour. Central to activity theory is the idea that humans act collectively. They learn by doing and communicate through their actions. The activity system studied in this research for fostering reflective practice, across two DIETs is ‘Student-teachers learning to teach reflectively and constructively in the context of the DIETs’ (Figure 7).

Figure 7. Activity system of reflective practice at a DIET during the School Experience Programme (SEP) module for learning to teach reflectively with constructivist pedagogy.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Object</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rules</td>
<td>DIET community</td>
<td>Division of labour</td>
</tr>
<tr>
<td></td>
<td>(Student-teacher, General supervisor, Supervisor for reflective practice)</td>
<td></td>
</tr>
</tbody>
</table>

The subject is the individual student-teacher or group of individuals who interact with mediating tools and signs to achieve the object and fulfil the outcome of learning. In this research the student-teachers were the subjects. A single or collective subject cannot construct or conceptualise the object of an activity. The object is constructed when aspects of the personal experience of the subject interact with those of the community, and together they pursue the object. The object determines an activity system’s direction, but the goal is never reached as the object is never fully achieved (Engeström, 1999).

Engeström (2001) recognised that the participants of an activity system carry their beliefs and histories. Such was the case in this research: the subjects, the student-teachers, entered the DIET with their own histories and beliefs, and so with their own subjectivities.

In this research the student-teachers, the subjects, tried to achieve the object which is learning to teach reflectively with constructivist pedagogy. The understanding of what ‘good teaching’ is, or is not, influences how any individual student-teacher constructs the
object, at any time. A subject’s perceptions of an object are both facilitated and constrained by historical constructions of the object. So, how the object is constructed and embedded in the culture motivates or constrains the subject’s commitment to achieve the object. The creative potential of the activity is closely related to the participants’ capacities and their creativity in terms of redefining the object, as well as to the tools employed, the community and the nature of collaboration in the community, guided through rules and division of labour (Engeström, 1987).

Tools and signs, abbreviated in this study to ‘tools’, are used by the subject to construct and achieve an object, and with the object, pursue a desired outcome. Tools can be material, conceptual or human. They are developed and adapted over time. The needs, values and norms of the culture in which the activity is situated shape the development of the tools (Foot, 2014). For example, the culture of the DIET and the pedagogy used will influence the kind of teaching orientation developed, as well as the kinds of lesson templates created by the teacher-educators and applied by the student-teachers for planning classes. The lesson plans, and the rules and processes encoded in the D.El.Ed. syllabus, will shape the design of the practice class. The various ways in which generations of teacher-educators have taught persists over long periods of time.

Rules usually follow well-established patterns of verbal and non-verbal practices. In this research, these which have developed historically at each DIET and reflect professional and cultural norms. Rules can include the use of tools such as using templates for lesson planning, norms during classroom practice, supervisor reviews and writing in the reflective journal, all embedded in the D.El.Ed. syllabus. Some norms are mandated by the syllabus, while others, for example at any DIET, are decided by the head teacher-educators and community members responsible for the implementation of the SEP module.

The community of significant others is the group or organisation to which subjects belong and in which they share a common interest in the object. The DIET community is made up of the student-teachers, the principal and teacher-educators who facilitate the learning.

The last component in an activity system is the division of labour, which comprises the shared participation and responsibilities in the activity determined by the community and the rules. The community dictates which members engage in which types of action, in relation to the object, using which tools (Engeström, 1987). Each of these members shares in a D.El.Ed. programme-specified division of labour, such as taking on the responsibility for being general supervisor during the internship, or the supervisor to facilitate and monitor
lesson planning, to monitor reflective journals, or to assist with the teaching of different subjects during the SEP.

There is constant change, dynamism, and messiness in an activity system (Swain et al, 2011) because any change or lack of change in the core components – subject, goal, outcome of motive, tools and signs, rules, community, and the division of labour – results in change in the object. Subject and object constantly influence each other and so cannot be analysed separately. Activity systems constantly evolve due to challenges and problems encountered by the community. This results in collective learning and improvements in practice, offering a multifaceted analysis. Because of this, the analysis of an activity system is necessarily holistic, making it a complex activity (Foot, 2014). Applying a multifaceted analysis in this research will provide a holistic picture of how each student-teacher interacts with the activity system, at each DIET, when learning to teach reflectively. The picture will bring together how the different elements in the activity system – such as rules, community of practice, tools and signs, different beliefs and outcomes – either aid in fostering reflective practice or constrain it. This picture will make visible the problems and challenges in the system which prevent the fostering of reflective teaching. Once identified, contradictions can be tackled to achieve the desired outcome. But what are contradictions? These are described in the next section.

2.5.8. Contradictions

According to Engeström (1987), in all activity systems there are situations which prevent the ideal outcome from being achieved and inhibit the subject’s participation in the activity. Engeström called these situations contradictions. Contradictions emerge when the circumstances in an activity put the subject in a situation of tension and challenge. Analysing contradiction is crucial to understanding any human activity. Contradictions, in the representation of an activity system, take place within the nodes or elements of the system, for example tools and signs, or between nodes, or in relation to the interaction of rules and community of practice. Contradictions have the potential for expansive learning.

Activity theory (AT) is transformative. It networks between individuals and a community’s social activity, and it offers opportunities for changes when new tools are developed or old ones changed, to achieve the object, and finally to reach the outcome. AT works at and between multidimensional levels and can include levels that are horizontal or ‘spatial-social’, vertical or ‘temporal-historical’ (Engeström, 1987:11). To explain this, Engeström used the analogy of a kit of wrenches of successive sizes. The kit is used in a specific way for
a great variety of tasks. There is hierarchy in the kit but no order of use for a situation. Developing from the history of a practice, a new activity can emerge from a preceding activity by negotiating a contradiction. This negotiation can result in transformation of practice, or an expansive cycle, and is called Engeström’s theory of expansive learning.

When contradictions become pronounced, individual subjects begin to question, reflect, re-examine or reinvent their existing practices, looking for solutions that will cope with or remove the contradiction. In so doing, the object of the activity is transformed and advanced. As a result, the new practice becomes internalised, leading to a new normal or a new form of activity.

Individual and group negotiation of contradictions are recommended in this research to generate expansive new approaches to learning, to teach with reflection, so that knowledge about how to achieve the important and urgent outcomes of engaged, meaningful learning is achieved in primary classrooms. These learning actions are provoked by contradictions which show the path of developing the activity system to form expansive learning spirals towards improvement (Foot, 2014).

The aim of this research is to understand more about how student-teachers learn to teach reflectively, and, as a result, engage pupils to construct knowledge meaningfully, with the mediation of tools and signs such as reflective practice and constructivist pedagogy. But how can reflection be represented and made visible or evidenced? This is done in various ways in teacher education programmes and research, as described in the following section.

2.6. EVIDENCING REFLECTION IN TEACHER EDUCATION PROGRAMMES AND RESEARCH

Reflective practice is a difficult construct to understand in terms of theory, practice and methodology (Collin et al, 2013). Two key difficulties encountered in any research on reflective practice are:

a. deciding how reflective practice will be represented and evidenced to establish thinking and action as key characteristics of reflection (Collin et al, 2013) and

b. deciding how reflective practice of a participant can be made visible so that it allows comparison across different parameters such as types of reflection, time, participants, subjects, assignments, and institutions (Ward and McCotter, 2004).

These two difficulties need to be understood and resolved to answer the research questions. Meaning is constructed based on experience (Eisner, 1993). The quality of an experience depends on the way it is sensed, thought about, imagined, perceived and
understood. According to Eisner, experience is private, and all meaning is internal unless it is represented externally. Representing an experience depends on the process used to mediate it and to transform the contents of the mind into an external shareable form such that it can be comprehended, stored and edited by others. The sensory data from a learning event is converted into meanings through reflection on the experience. ‘A creative act of invention is needed to convert and represent a new experience’ (Eisner, 1993:7). The meaning that the representation takes on and communicates depends on both the form of representation and the audience. This can be learning from an action, for example, by adapting teaching practices to different teaching situations during a practicum; discussions through a critical review process; or by talking and writing about the teachings practised (Collin et al, 2013). Reflection is also made visible in softer outcomes of professional development such as improved classes; personal functioning; metacognition, when observing practice situations, building a theory; decisions; resolutions; solutions; unexpected outcomes like images; ideas as solutions to dilemmas; creative activities; emotion and even recognition that there is a need for further reflection (Moon, 1999). Reflective outcomes are articulated in different media, for example writing, speaking, painting, acting and presenting. Each of these is converted to meaning or a lack of meaning depending on the understanding of the receiver.

In teacher education programmes the experiences of reflection are modelled and mediated through assignments and especially designed learning events which foster reflection, for example, a practicum module ensures numerous opportunities for reflection through reflective practice-teaching, journaling, research and sharing (Yost, Senter, & Forlenza-Bailey, 2000; Nelson and Sadler, 2013). This is used for evidencing and evaluating reflective practice both methodologically and academically (Collin, Karsenti and Komis, 2013). Though classroom observation, interviews and focus-group discussions have been popularly used as methodological tools, and reflective journals, research reports, portfolios and discussion groups have been used for pedagogical purposes. Collin et al, (2013) found that the two sets of tools overlap.

Of the different forms of mediation and representation, many researchers have viewed written reflections through the following: reflective journals (Hatton and Smith, 1995; Valli, 1997; Jay and Johnson, 2002; Knapp, 2012; Lindroth, 2014; Mena-Marcos et al, 2013); classroom practice and reviews (Moore, 2003) written reflective assignments (Alger, 2006; Yost et al, 2000); interviews (Cavanagh and Prescott, 2010); stimulated recall interviews (Dempsey, 2010; Lyle, 2003), classroom-based research (Lambe, 2011); and beginning and
end study-group discussions (Poom-Valickis and Mathews, 2013). These are discussed in greater detail in Chapter 3.

2.7. CHAPTER 2 CONCLUSION

In this research, teaching perspectives and reflective levels developed from Habermas’s theory of knowledge-constitutive interests, van Manen’s ways of being practical and Vygotsky’s socio-cultural theory (SCT) have been adopted. Schön’s epistemology of reflective practice has been extended to include reflection before, in, on and after action and explained with teacher education concepts. Research studies found that pre-service teachers differed in their ability to analyse situations, to reframe beliefs and ideas, and to record, describe and reflect appropriately on their experiences (Maloney and Campbell-Evans, 2002).

Reflection in the literature is described as both thought and action. Hatton and Smith’s definition of reflection is adopted in this study. Reflection is ‘deliberate thinking about action with a view to its improvement’ (1995:40). The reflective act, in this study, is a meaning-making activity, an endeavour which is routinely/technically/dialogically/critically/reflexively and socially constructed in a teacher education context, individually (Ward and McCotter, 2004) and socially (Vygotsky, 1978). The reflective act is a culturally mediated activity developed through experiences which are initiated by individuals who are the subjects of the activity (Lampert-Shepel, 2008).

This chapter detailed two socio-cultural frameworks chosen as the basis to understand and analyse the data. Vygotsky’s (SCT) for higher mental processes was chosen because it gives a strong conceptual foregrounding to the teacher education programme studied. The activity theory (AT), a part of Vygotsky’s SCT, was selected to holistically analyse the complex activity of fostering reflection individually and institutionally. In Chapter 3 the Ward and McCotter’s Framework (WMF) will be applied to develop an Indianised tool for making visible and analysing student-teachers’ reflective practices emerging from internal mental functions. This tool will help to answer the reasons and instances of reflection in the teacher education programme.

The next chapter details how the research was structured, the data collection plan and the process of adaptation of the WMF for Indian conditions to assist in analysing and making sense of the data collected.
3. METHODOLOGY: THE RESEARCH DESIGN, DATA COLLECTION, PROCESSING, ANALYSIS AND ETHICS

3.1. INTRODUCTION
This chapter provides reasons for the choice of methodology and methods used to shape and scope the research design, and then describes the execution of the research. Set out in the chapter is a rigorous, ethical and context-appropriate approach for data collection and analysis that was planned and executed to answer the research questions.

3.1.1. Chapter structure
The first half of the chapter deals with the choice of methodology and the outline of the case study design for framing the research. The reasoning behind applying a qualitative, socio-cultural case study methodology is described in Section 3.2. The experience of gaining access to do research follows, with reasons for adopting a longitudinal, multi-case study research approach at two District Institutes of Education and Training (DIETs) which follow the same Diploma in Elementary Education (D.El.Ed.) programme. The process of gaining consent from the participants is described in Section 3.3. How the research questions were finalised, along with the frameworks applied in the research, are explained in Section 3.4. The different sources of data and the plan for their collection is described in Section 3.5. How reflections were identified is described in Section 3.6. Section 3.7 describes the transcription and translation of the data. Special attention was given to ensure quality in the case study. This is detailed in Section 3.7.

The next half of the chapter describes how the research was carried out. Section 3.8 details how two versions of a research tool were developed and how the collected data was processed and analysed, overcoming the challenge of making reflections visible in the research. Data processing and analysis was done in three phases is described in 3.9. During phase one, outlined in Section 3.9.1, the first version of the Reflective Practice Tool (RPTv1) was developed from Ward and McCotter’s Framework (WMF, 2004). Data collected during SEP1 was processed, analysed, and mapped on to RPTv1’s rubric descriptions. The RPTv1 tool was tried out, pointing to improvements needed, which led to the creation of the next version of the tool, RPTv2. Section 3.9.2 describes phase two of data processing, how the data collected during SEP2 was processed and analysed using RPTv2. The third phase of data processing, described in Section 3.9.3, involved a new round of thematic coding, this time in accordance with Vygotsky’s socio-cultural theory (Vygotsky’s SCT) and core tenets of activity theory (AT). This was both an inductive and deductive thematic process. The data
processed into reflections was mapped on the different themes set out in an activity theory heuristic to make visible the student-teachers’ perspectives of their learning to teach with reflection in the activity system at each DIET. The last section of the chapter, Section 3.10, reports on how the research was carried out ethically, describing the ethical dilemmas encountered in the research. Section 3.11 concludes the chapter.

3.2. CHOOSING A QUALITATIVE SOCIO-CULTURAL CASE STUDY METHODOLOGY
The objective of this research was to explore, explain and evaluate the development, application and perceptions of reflection in an Indian initial teacher education context. When I started this PhD in 2015, reflective practice had been introduced at all DIETs nationally only one year earlier, in 2014. To study the perceptions, fostering and application of reflection among the faculty and student-teachers, I needed to base my research on DIETs that had been functioning and graduating students for some time, under the same State Council of Educational Research and Training (SCERT), the nodal state institute. For my research, I decided to select DIETs that had been functioning for the last ten years with the same localised D.El.Ed. programme of the state. These DIETs would offer the best possible circumstances for fostering reflection and showing what was possible. In making this choice I averted the need to understand and research issues that would emerge from a deficit perspective.

In teacher education, reflection is developed in policy to provide student-teachers with a process that continually helps them to improve their teaching practice. The aims set out in practice are to learn how to teach constructively and reflectively so that pupils are engaged in learning and constructing knowledge meaningfully. This pointed in the research to the need for a participant-centred, interpretive research methodology.

In this research a qualitative study was planned to understand how reflection was fostered and implemented, the value it brought to participants’ teaching over two years of reflection and participants’ perceptions about reflection. As a researcher, it was important to develop close research-related relationships with participants and to gain an intimate understanding about the context.

A case study method was adopted to answer the research questions. The case study was designed to find how reflection was fostered in the naturalised socio-cultural context of initial teacher education institutes; how, when, and why the student-teachers reflected; and how the student-teachers’ reflection changed qualitatively in the programme.
The rationale for using case study as a research method arose from the need to explore multiple teacher perspectives and practices of reflection, including the social organisation of activities in their real-life context, as they were revealed through involvement in the natural setting (Patton, 2015; Yin, 2014). The research questions also focused on the social and institutional history, and on the way in which the student-teachers and teacher-educators co-constructed the meaning of reflection and reflective practice in the programme. To carry out the research it was important to gain access to the research sites. The experience of doing this is described in the next section.

3.3. GAINING ACCESS AND CONSENT

Gaining access to carry out the research proved to be difficult, precarious and time consuming. India is a vast country. I started by approaching different government initial teacher education programmes which had institutes located in four different states in India. I finally settled on a small state which had several initial teacher education institutes and programmes, and where I had a supportive infrastructure for living, with a cheap and reliable public transport system. As Kondowe and Booyens (2014:147) said, ‘it was vital to budget for both time and money’. In the field, I confronted ‘a much messier situation’ (Kondow and Booyens, 2014:146) than anticipated. I soon learned that getting official and real access can be complex both bureaucratically and in terms of managing relationships with crucial gate keepers.

I approached the District Institutes of Education and Training (DIETs), a group of initial pre-service teacher education institutes. From an expert I interviewed early in the research, I was introduced to Dr Pandey⁷ (anonymised). She introduced me to her principal who in turn, introduced me to another teacher-educator, Dr Bir, the Head of the Academics at the DIET where Dr Pandey worked. Both Dr Pandey and Dr Bir agreed to participate in the research. The principal helpfully directed me to apply for permission from their monitoring SCERT institute, and after three weeks of persistent follow up, I was able to meet the relevant SCERT official. She welcomed the PhD research. Reflective practice had been recently introduced in the D.El.Ed. programme nationally. From earlier experiences of attempting access to carry out research, I had learned that securing permission depends on several people within an institution: the principal, the head teacher, the faculty and the student-teachers. They had to be willing individually to participate and support the

⁷ All names of participants in the thesis are anonymised except the experts, Dr Siddiqui and Dr Batra who are the policy makers and have been quoted for their views on reflective practice.
research. I was not sure at which of the DIETs I would get access from all the relevant levels. So, I sought permission from the SCERT to research in five DIETs, although I was looking for only one DIET that would allow me to carry out a detailed qualitative study within the tight resources of a PhD. Securing the actual letter of permission was another long trek through typists and assistants. I finally received official permission from the SCERT two days before my return to the UK.

While waiting to hear from the SCERT, I had started to do the rounds at the five DIETs and had met the principals. I had also started to think about my case study and research strategy. The letter of permission from SCERT greatly helped in gaining access and consent from the principals of the DIETs, and I finally selected two DIETs to research where both the principles and the faculty were willing to participate in the study. The reasons for my choices follow later in this section. I sought to scope the case studies based on the external and internal contexts of the DIETs. The internal and external contexts of a case study are significant (Elger, 2010). The external context locates the case in the wider social environment. The teacher education policy is articulated in the NCFTE (NCTE, 2009). The SCERTs administer and monitor the DIETs in each district in the state. The NCFTE (NCTE, 2009) nationally provides the guidelines to the SCERTs to develop the state’s localised version of the D.El.Ed. programme.

The case study was built up in detail, but the contextualisation within the case study was done selectively during the internship or School Experience Programme (SEP) module, which provided a window to evidence reflective practice being nurtured and monitored and answered the research questions. It also ensured the best use of time and resources in the PhD research. Elger (2010:231) refers to this as the ‘internal context’. During the SEP module the situations relevant to the fostering of reflective practice were:

- the introduction to the teaching cycle and strategies through an orientation
- practice teaching which included preparation, implementation and observation
- the teacher-educators’ review of the student-teachers’ practice teaching
- student-teachers’ reflective entries in reflective journals
- interviews, which included stimulated recall interviews with the student-teachers and focus-group discussions with the teacher-educators.

I adopted a longitudinal, multi-case study research approach since the two-year D.El.Ed. programme offered an opportunity to collect data over two SEPs. This, I thought, was necessary to answer the research question about how reflective practice possibly changed
the practice of a select number of participant student-teachers from the cohort 2015–17 over two years. A longitudinal study would provide a longer duration to understand in greater depth the changes in reflection. The disadvantage was that it required a second round of data collection in the second year of the research. This was difficult to accommodate within the scope of a three-year PhD project. A decision was taken to stay with the advantage of a longitudinal case study by extending the project time if needed.

The research design was developed with two longitudinal case studies rather than one because of two practical circumstances. A PhD research project is limited in its resources, of time, people and money. Studying reflective practice through one case study allowed for an in-depth, detailed study within the resources of a PhD project. However, single case studies have been criticised as being limited in terms of extrapolation to other research studies and paucity of opportunity for comparative analysis (Yin, 2014). Even though it doubled the work in the field, I took up two case studies.

Multiple case studies are believed to improve the application of findings to new situations (Stake, 2006). I explored studying two DIETs which belonged to the same state and came under the same SCERT. The expectation was that some findings would be similar. The differences between DIETs in terms of neighbourhoods, principals, faculty and student-teachers were also expected to yield some differing results (Yin, 2014). The two DIETS selected were given anonymous names according to their size, as DIET-Badapur (Bada means large, in Hindi) and DIET-Chotapur (Chota means small). More details follow in the next section.

If I were to be refused access to one of the two DIETs for any reason midway through the project, I would at least have the second DIET to continue my PhD research. This built a degree of robustness into the research design, both methodologically and practically.

DIETs in two different districts in two different states were considered. Finally, two DIETs from a small city-state rather than an urban and rural DIET from a larger state in India were selected, for two reasons. The rural DIET was described as ‘weakly-functional’ by a teacher-educator who worked there and moving between the rural and urban DIETs was logistically impossible in the time and resources of the PhD project.

Strong similarities in the two DIETs chosen were that both had been in operation for more than ten years and managed to teach most of the subjects planned for in the D.El.Ed. syllabus with permanent, contracted and visiting teacher-educators. This was unlike many other DIETs in the country which faced a crippling lack of resources, especially in rural
areas, and which as a result were barely functional. It would be difficult to follow the fostering of reflection in such a DIET. The two chosen DIETs were monitored by the same SCERT. They both had male and female teacher-educators and student-teachers. About 80% of the student-teachers were female and 20% were male. The medium of instruction was mainly bilingual, in Hindi and English. The differences between the DIETs were mainly size and socio-cultural makeup: their history, length of existence and cultural mix of the students. From a common pool of candidates, centrally selected for admission by SCERT, each year, DIET-Chotapur admitted about 50 student-teachers and DIET-Badapur about 90–120 student-teachers (Principal, DIET-Chotapur, 2015).

The next step was to gain consent from the participants. Each teacher-educator, at both sites, usually mentored two groups of about five student-teachers during each SEP. I had planned to research with a total of two teacher-educators and two student-teachers from each DIET. This would give me data from different people which would allow comparison and greater learning, making my study stronger. This would mean studying four teacher-educators and four student-teachers across the two DIETs, the minimum sample size to allow comparison, and one that I could research alone. However, I started SEP1 with a greater number of participants in case some were unable to participate right through to the end of the longitudinal study of two years. I first gained consent from three teacher-educators at each DIET. Each teacher-educator identified two student-teachers from her group as opportunity samples. I approached the student-teachers for their consent. At the end of the study, as originally planned, two student-teachers from each DIET were researched and reported upon. The final design is represented diagrammatically in Figure 8.
3.4. **FINALISING THE RESEARCH QUESTIONS AND FRAMEWORKS**

On the basis of these decisions, the research design became located and scoped to investigate the naturally occurring learning contexts in two DIETs that were pre-service initial teacher education institutes located in a small state in India. The research would be a qualitative, longitudinal, multiple-case study design with a socio-cultural focus aiming to answer the following overarching research question with four sub questions:

Overarching research question: How is reflective practice fostered, implemented, and perceived to support the professional development of student-teachers during the two-year Diploma in Elementary Education (D.El.Ed.) programme at two District Institutes of Education and Training (DIETs) in India?’

Sub-research question 1: How is reflective practice fostered at the two-year long Diploma in Elementary Education (D.El.Ed.) programme?

Sub-research question 2: How do the student-teachers reflect?

Sub-research question 3: How do reflections influence student-teachers to change their practices over two years in the District in Elementary Education programme?
Sub-research question 4: What are the perceptions about reflection among experts and in policy articulations, and among the principals, teacher-educators and student-teachers, within the DIETs?

Research design needs to be considered both conceptually and practically. While designing the research, the manner in which analysis would be carried out was deliberated. In the study it was important to understand what I could view through the frameworks. This would dictate how the frameworks would be applied. This was not all clear at the beginning of the study and was led by the research questions. According to Yang and Kim (2011), in a socio-cultural study the key to attaining and increasing consciousness (awareness and responsiveness to one’s surroundings) is dependent on the use of tools and signs (for example, language) applied to mediate human activity. In this study, reflection was studied around student-teachers’ practice classes. Reflection took place during the planning, implementation and evaluation of each class to meet specific learning objectives. The overall outcome of learning to teach reflectively for the student-teachers was to learn to teach constructively with reflection through social interaction and individual self-regulation (inter-mental and intra-mental development). While mediation, observed in the activity system, can be specific to the participants (Foot, 2014) AT also shows the key elements, their relationships and their interaction in the institutional system. It is AT that offers a conceptual framework to holistically analyse the context under study. AT has concepts and principles that can be used to understand the interaction and influence of the different components in the main activity system for reflective practice at the DIETs. AT is analysable in relation to the multiple dimensions it is made up of. This makes it possible to include activities whose mediation is, for example, cultural, historical, or social. Further analysis was needed to understand how the components dynamically interacted with each other. Three principles were considered when I applied the activity system for research analysis.

A. All activity systems exist in a socio-cultural context

For example, in this research, the activity of learning to teach related to the activity of student-teachers going to a DIET which is situated in the larger context of a SCERT and the national teacher education policy in India, which in turn creates the rules under which the DIET works. The rules, community expectations, beliefs and attitudes influenced how learning to teach took place at the DIET.

The activity system for fostering reflection at a DIET (AS) was viewed over a period of two years, through SEP1 to SEP2. The object of learning to teach constructively and reflectively
in the activity system related to the larger context of the DIET. The student-teachers/subjects’ activities were mediated by the rules which guided the planning of their lessons, practice teaching and writing reflections in their journals, the subject and the community perspective on ‘good teaching’. The role of the community guided the teaching towards greater reflection. All the components and their interactions influenced the teaching and learning experiences of the pupils in the practice classrooms.

The research questions were viewed through the activity system. With the alignment of AT components with the DIET, the history of each DIET situation was also planned to be considered during analysis. More about this follows.

**B. Consider the history of the activity**

Activity systems constantly change and develop (Engeström, 2001). The history of the activity system and context influences its development over time. In this research reflective practice was emphasised in the curriculum in 2014 to teach the student-teachers to transition from using teacher-led methods to constructivist methods, with reflection, in their classroom. The aim was to change the experience of learning with relevance and meaning, and to increase inclusion in government school classrooms. For this, reflection was needed. This implied a study of the change in practice emerging from the student-teachers’ reflections.

**C. Identified contradictions can be sources of disruption and change**

Contradictions offer options for change and development within the activity system (Foot, 2014). In this research, contradictions that prevented and encouraged the development of fostering reflection were explored. The contradictions could be because of the perceptions of reflection held by the community members, their perceptions of ‘good teaching’ practices, their knowledge of reflective practice and their ability to foster it in others, as well as how they implemented reflective practice.

**3.5. DATA SOURCES**

From the cycle of teaching followed during the SEP several tools were identified as being able to provide data on individual reflections. lesson plans, observation and teacher-educator reviews of classroom practice teaching, reflective journals, interviews and stimulated recall interviews. A brief description of each of these sources of data follows.
3.5.1. Data about reflections from lesson plans

A common progression of reflection in a school experience module, at the two DIETs, starts when student-teachers reflect in advance, before their class (reflection-before-action), and develop lesson plans with or without help from their teacher-educators and peers. When developing the lesson plan, they think about what they want to teach. They reflect in advance about the strategies for teaching and pupil learning, how and why, and then rehearse them, anticipating potential problems and planning for them.

The lesson plan template is a written, mental plan as well as an action plan, a linguistic tool and a sign that mediates materially and conceptually, influencing external behaviour and internal conceptions. In its conceptual, visualised form what is in the mind is converted to a lesson plan that mediates teaching in class, influencing thought and behaviour (Wertsch, 1985). Transformations and changes are observed to take place when a lesson plan template is changed or when student-teachers participate in social interactions or have discussions with a more knowledgeable teacher-educator, senior or peer over the lesson plan. For a student-teacher, the physical form of a lesson plan and the social interaction it stimulates both interact (Wertsch, 1985). A well-reflected lesson plan tends to provide the student-teacher with a sense of control, direction, and confidence, as well as engagement and motivation for the pupil. Finally, teacher and pupil learning may or may not work out as planned due to situational circumstances.

3.5.2. Data about reflections from practice teaching

Practice teaching is a good time to collect data about reflections because the practicum or internship module (the SEP at each DIET) is considered central to learning how to teach. It is during this module that student-teachers are known to reflect in dyads with a more knowledgeable other, such as a teacher-educator supervisor or a peer. Reflective conversations (Valli, 1987) in triads consisting of student-teachers, teacher-educator and schoolteacher mentor are also known to result in deeper reflection (Ghaye, 2007) and to improve learning. During this module student-teachers are known, through reflection, to learn to enact pedagogical strategies, to connect theory with practice, and to reflect-in-action, learning to become professionals (Major and Santoro, 2016; Holdaway et al, 1994). When reflection does not take place, some researchers have found that practicums are also known not to improve practice. Little reflection or professional development occurs when there are no common learning goals (Holbert, 2010; Clarke et al, 2014).
Teacher-educators who are reflective practitioners themselves are reported to make more effective supervisors to nurture reflective practice (Walkington, 2005). Studies show that reflective teacher-educators understand themselves and are more open both to investigate and change themselves and to help student-teachers to do the same (Collin et al, 2013). Any of these might be observed to occur during the practice teaching and to show up in the data collected.

3.5.3. Data about reflections from reflective journals

Reflection is known to be represented in written form in reflective journals globally in teacher education programmes and academic research (Collin et al, 2013). A daily reflective journal is a mandatory, evaluated assignment in the D.El.Ed. and must be collected as data and studied for reflections. During the SEP, the student-teachers are expected to maintain daily reflections about their practice teaching and experiences in the practice schools. They reflect individually. Teacher-educators review the reflections and advise improvement formatively, and through marks.

The assignments are known to help student-teachers to develop a sense of ownership, analyse their own goals and successes, and identify areas for improvement (Valli, 1997). Black et al (2000) reported that student-teachers may need to be taught reflective writing. Alternatively, student-teachers who enter the programme with deep-rooted beliefs about the fixed nature of teaching have been found to continue to hold on to these, and not to change with reflection (Valli, 1997). When reflections are made mandatory and evaluated, student-teachers have been shown to comply superficially (Hobbs, 2007). This also raises ethical issues of autonomy, privacy and confidentiality, increasing the need for guidelines for the development of portfolios and journals (Ghaye, 2007). Collin & Karsenti (2011) argue for the advantages of holding collaborative discussions in which reflections on shared experiences need not be restricted to the personal, and contained in a portfolio, but can be used to trigger reflective discussions with peers and others.

3.5.4. Data about reflections from stimulated recall interviews

Stimulated recall interviews are known to reveal information about practice teaching through the thoughts and experience of participant student-teachers. This is acknowledged as a valuable technique to investigate decision-making in relation to specific events. It is believed to produce insightful and useful data about the thinking behind various teaching decisions of the student-teacher during the class (Calderhead, 1981; Lyle, 2003; Dempsey,
Of the many stimulated recall methods, two were used in this research: video and audio stimulated recall.

Reflections from the participants were elicited through an interview on various aspects of their recorded interactions as they viewed recorded videos or audios of their own practice teaching situations. Each participant was shown approximately five to ten minutes of a 45-minute practice class that they had taught, recorded in Year 1 at the D.El.Ed. programme, and a second extract from a recording of a lesson that they had taught at the end of Year 2. This covered one incident from the beginning of the participant’s practice and one incident towards the end of practice teaching in the D.El.Ed. programme. A comparison of these responses contributed to an understanding of their approaches to reflective practice over two years.

It is normally advised that the stimulated recall interview should be carried out immediately after the action or classroom practice, in order to enhance validity (Lyle, 2003). This was not done in this study. To avoid unduly influencing the natural development and thinking around reflection during the research, a stimulated recall interview was conducted only at the end of the research and not during the research. There was a time lag of one year between the recording and viewing of the student-teachers’ practice teaching in Year 1. The video or audio recording of the practice teaching of Year 1 was played to the student-teacher concerned at the end of Year 2 to stimulate recall of the practice teaching. Because of this, it was possible that the participants would not accurately recall their reflections at the time of their practice teaching a year ago. However, their reflections during the interview stimulated by the video or the audio recording would still be their own reflections and so would be valid, showing their reflective maturity.

3.5.5. **Data on reflections from focus-group discussions**

People in groups are often able to share things they normally would not share when they are alone (Hammersley, 2009). This makes focus-group discussions a valuable method to gain in-depth information about why people think things are the way they are or to understand the reasons behind opinions and behaviour. Where respondents might be cautious of opening up individually because they want to avoid getting into trouble for their opinions, focus groups allow people to express themselves in the anonymity of a group.

Summarising this section, since reflection was built into the D.El.Ed. curriculum and the prescribed teaching cycle, it was decided that data for identifying reflections would be collected from the different artefacts created during teaching. These were lesson plans,
teacher-educator reviews and researcher observations of practice teaching and supervision reviews, the student-teachers’ reflective journals and stimulated recall interviews, as well as focus-group discussions and interviews with the teacher-educators and principals. The question arose as to what parts of these artefacts would be reflections. This is dealt with in the following section.

3.6. IDENTIFYING REFLECTIONS

There were several challenges encountered when planning the methodology. I first needed to establish that reflection took place. For this I needed to identify reflections. I was researching on reflection but could not ask the participants about it as this would influence the research. There was no clear definition in Indian grey literature. I identified a definition of reflection for the research from literature which aligned with the NCFTE (NCTE, 2009). Reflection is ‘thinking about action with a view to its improvement’ (Hatton and Smith, 1995:40). To carry out a socio-cultural analysis of a teacher’s reflection, as a higher mental function, one needs to understand the relationship between action, the need for the action, and the cultural, institutional, and historical contexts in which the action takes place. Reflective action might begin with experiencing a concern. This creates a motive for action. The action itself could involve the four stages shown below (also shown in Figure 2, Chapter 2).

a. Experiencing concern
b. Plan of action (reflection-for-action)
c. Teaching action (this can include reflection-in-action)
d. Review of teaching action or metacognition (reflection-on-or-after-action).

Any description which contains any one or more of these steps (a, b, c, d) is considered a reflective action. It consists of a description which focuses on a particular teaching action. According to Ward and McCotter (2004), ‘any text that focused on a specific teaching action was considered to be reflective. The fact that the action was being described implied deliberate thinking about the action and desired improvement’ (2004:248). A reflection could consist of a single sentence, or it could be several paragraphs long.

I decided to develop a tool to identify, thematise and categorise the student-teachers’ reflections. I adapted Ward and McCotter’s reflective rubric framework to develop a research tool based on the Indian view of teacher education which I developed from the WMF and Indian grey literature and referred to it as the Reflective Practice Tool (RPT).
Addressing the first sub-research question, ‘How is reflective practice, mandated by the policy, fostered at the two DIETs in the two-year long D.El.Ed. programme?’, required a closer study of the four steps detailed above. This revealed that reflection took place socio-culturally through the use of different mediational tools and signs such as language, lesson plans, enactment of the plan during practice teaching, evaluation and interviews which review the teaching action. The RPT helped me to identify reflections, their levels and when they occurred in the various learning events conducted at the DIET. This led to the findings of the second sub-research question, ‘How, when and where do the student-teachers reflect?’

The third sub-research question is an evaluative one: ‘How do student-teachers change their practice over two years in the D.El.Ed. programme?’ This called for a close comparison of themes reflected upon. The individual data mapped on the RPT and viewed through AT heuristics would yield an understanding of each participant’s reflective practice in terms of reflective levels from different data sources, over two years. Comparative analysis of the same theme over two years could reveal patterns of genetic development in individual reflective practices within the same DIET and further add value with comparison over the two DIETs. For example, how was writing developed over two years? Or how was drawing used for different types of learning over two years?

The fourth sub-research question, ‘What are the perceptions about reflection among experts and in policy articulations, and among the principals, teacher-educators and student-teachers, within the DIETs?’, was exploratory. It sought to reveal the different meanings and interpretations of reflection among the participants, including experts, principals, teacher-educators, and student-teachers. Vygotsky’s SCT, at its core, examines humans as meaning makers. An understanding of these terms, collected through language-based evidence like transcripts of classroom observations, reflective journals, and interviews with the participants, could be analysed applying Vygotsky’s SCT concepts such as everyday and scientific terms, language, languaging, inner and private speech, collaborative dialogue, and AT.

Once the plan had been established, I then turned to thinking about how to organise the data generation process to obtain comprehensive findings to the research questions, in the most reliable way possible (Yin, 2014). The following section looks at how quality and reliability was built into the research design.
3.7. ENSURING QUALITY AND RELIABILITY IN THE RESEARCH DESIGN

The naturalistic case study research adopted in this study had, by virtue of its character and conceptualisation, an interpretivist perspective of multiple realities with multiple meanings and participant-dependent findings (Yin, 2014; Lincoln and Guba, 2009). Taking these conditions into consideration, a few criteria for qualitative research were applied to the study: triangulation, credibility, dependability, prolonged engagement and systematic, persistent observation, transferability and confirmability, (Lincoln and Guba, 2009). These are described in greater detail in the sections which follow.

There are several strategies to build trustworthiness in research. One approach is to reduce researcher bias by being conscious of one’s own perspective, to be appreciative of others’ perspectives, and to be fair to the values embedded in the perspectives (Lincoln and Guba, 2009:684). I needed to be reflexive of my own biases. To increase trustworthiness, Lincoln and Guba (2009:684) recommend that researchers ask themselves questions such as ‘Whom do I not see? Who have I seen less often? Where do I not go? Where have I gone less often? With whom do I have special relationships?’

Trustworthiness can also be built through triangulation. Qualitative researchers believe that data collected by a single method can never describe a phenomenon adequately. Multiple sources of data facilitate a deeper understanding.

By combining multiple observers, theories, methods, and data sources, [researchers] can hope to overcome the intrinsic bias that comes from single-methods, single-observer, and single-theory studies. (Denzin, 1989c in Patton, 2015:661)

Triangulation in qualitative research involves collecting and analysing several different perceptions, from diverse sources of data and during analyses, applying alternative frameworks to view them and different methods to collect them (Patton, 2015; Lincoln and Guba, 2009). The aim is to reveal different perspectives about one issue rather than to seek to develop a single truth (Patton, 2015). Triangulated findings are also known to contribute to insights that ensure credibility.

This research study was designed to apply the triangulation method and different methods to collect data from the student-teachers’ lesson plans, practice class observation, reflective journal entries, focus-group discussions and interviews. Observations are known to provide direct evidence of viewing the context and participant behaviour. Interviews are valuable as they provide access to the participant’s thinking at a particular time, and are sometimes the only way to gain access (Patton and Parker, 2017). Besides this, sometimes
interviews give additional information that might be missed during an observation or in a document. Information can also be checked for accuracy by asking specifically about a particular action or event, like classroom practice teaching in this research. Triangulation of observations and interviews then provides a more complete and accurate account than either could alone (Patton, 2015).

A second strategy is dependability through the use of thick descriptions, which are believed to be in-depth, rich, highly detailed descriptions in qualitative research, especially suited for extrapolation, to reveal higher level concepts and theories that are not unique to a participant or setting (Polit and Beck, 2010; Geertz, 1973 in Lampert-Shepel, 2008; Lincoln and Guba, 2009). Dependability emerges from a logical, traceable and well-documented process, ‘a systematic process systematically followed’ (Patton, 2015:684). This strategy was part of the research and is reported in this thesis.

To establish credibility, a third strategy, Lincoln and Guba (2009) emphasised prolonged engagement or spending enough time at the research site, and persistent observation or focusing in detail on the elements that are most relevant to the research study. Lincoln and Guba (2009) stated that ‘if prolonged engagement provides scope, persistent observation provides depth’ (2009:304). This has been established in this study, which is designed to be a longitudinal one, with data collection and fieldwork spread over two years. Data collection was done for five months each year. Prolonged engagement and persistent observation were planned for two field trips, each lasting five months. The lengthy duration of the field trips was expected to increase familiarity, trust and understanding. The process of deriving meaning from data, in this project, called for a thorough immersion, understanding and engagement with the bilingual data in Hindi and English. This took place during data collection, transcription and translation of student-teachers’ practice teaching, stimulated interviews, reflective journal entries and other sources of data (Figure 9).

Figure 9. Sources of data from each participant
A fourth strategy is transferability. This study was designed to use two frameworks: Vygotsky’s SCT with AT and RPT, with the intention that another researcher, in India or anywhere in the world, could apply these to their studies on reflective practice. Transferability requires that the researcher provide the readers with enough detail, so that the reader identifies the similarities between the research being studied and the research where the findings may be transferred.

Within the scope of this PhD thesis, readers have been provided with precise information about the context of the study. This includes details of the environment, processes and key events at the DIETs, such as the SEP orientation and practice teaching. Informative, detailed descriptions about participant student-teachers, teacher-educators and principals are provided, including critical demographic information about participants in terms of age, ethnicity and any social characteristics. This detailed attention to the context, participants, processes and research design are helpful to researchers from other geographical or cultural locations, so that they might adopt what would be useful for their own research design.

The fifth strategy, confirmability, requires that the claims made in the research are linked to the data, findings and interpretations in ‘readily discernible ways’ (Patton, 2015:684). Carrying out thematic analysis increases confirmability in different ways and at different levels (Patton, 2015). Much of qualitative analysis involves constant comparisons. In this research, there are opportunities to compare themes in different data sources and also across studies. They increase the richness of description and closely capture what participants have said, written, done or made. Patterns in themes lead to insights and findings used to develop theory and explanations. According to Patton (2015), there are two aspects to this constant process:

a. Comparisons that check for consistency and accuracy in the codes of data
b. Comparisons of the codes, looking for differences and variations in the activities, experiences, actions and so on. For example, variations across data sources, settings and cases. During constant comparison, in an ongoing analysis of similarities and differences, the researcher can ask questions such as:

What things go together in the data? What things are different? What explains these similarities and differences? What are the implications for the overall inquiry, purpose, and conclusions? (Patton, 2015:658)
Examples of the first instances of comparison in this research can emerge when reflective chunks are collected from the different data sources. These can be matched with rubrics in the RPT. This mapping checks for consistency and accuracy of the reflections when matched with the rubric descriptions. Similarity with the rubric helps the researcher to identify the reflective level. This mapping of reflective data to the rubric description is a logical or deductive thematic analysis and requires constant comparison.

A second instance of comparison, in this research, can emerge through variations across data sources. Different data sources often produce different results. It would be enriching to understand when and why these differences arose. The fact that observational data might produce different results from interview data might mean that different data sources have captured different levels of reflection. The same learning event in class is known to show differences in reflection depending on the sources of data, such as the lesson plan, a record of teaching practice, review of teaching, reflective journal entry and stimulated recall. Content similarities or differences in reflections, on further scrutiny, might reveal greater detail about the development and process of reflection.

3.8. DATA COLLECTION, TRANSCRIPTION AND TRANSLATION

A 'research portfolio' was assembled for each student-teacher participant in the study, featuring data collected during SEP1 and SEP2 over two years, as follows:

- Two class observations (CO1 and CO2) of practice teaching by the student-teacher during SEP1 and SEP2, based on two lesson plans (LP1 and LP2) showing situated reflection and instances of reflection-in-action.
- Two supervisor reviews of the same classes recorded verbally and in writing on an evaluation template (SR1 and SR2).
- Two Reflective journal Entries (RE1 and RE2) about the same classes generated by the student-teacher as reflection-on-action called Reflective Entries.
- Extracts from a single stimulated recall interview (SI) conducted at the end of SEP2. The extracts showed reflection-after-action about the same classes planned and observed during SEP1 and SEP2, and any other experiences during the two SEP modules.
- A collection of general reflections during semi-structured interviews (INT) after the stimulated recall interview, or an interview or reflective conversation held sometimes before and after the two practice classes with teacher-educators or student-teachers.
• Entire reflective journals (RJ1 and RJ2) created during SEP1 and SEP2.
This data was collected from four student-teacher participants. The account of this is visually depicted in Table 9. There were a few instances of missed data sources marked with an x. Data was also collected from an expert, teacher-educators and principals during interviews (INT) or focus-group discussions (FGD). Perceptions of reflection were collected from three additional student-teachers from DIET-Chotapur. After each field trip (SEP1 and SEP2), the data collected was transcribed and translated to form the data corpus for analysis.

Table 9. Data Schedule and details of data collected from the participants over SEP1 and SEP2 (Nov 2015-16; Dec 2016-17).

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<td>2</td>
<td>Dr Batra</td>
<td>●</td>
<td></td>
<td></td>
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<td>KEY</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>x</td>
<td>Data not collected</td>
<td>●</td>
<td>Data collected as planned</td>
<td>RE</td>
<td>Reflective entry in journal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LP</td>
<td>Lesson plan</td>
<td>CD</td>
<td>Class observation</td>
<td>SR</td>
<td>Supervisor review comment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>Interview</td>
<td>RJ</td>
<td>Reflective journal</td>
<td>FG</td>
<td>Focus-group discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not part of data plan</td>
<td>PO</td>
<td>Post observation interview</td>
<td>SI</td>
<td>Stimulated recall interview</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data was collected and generated at two points during the two-year implementation period of the D.El.Ed. programme. The data collection started at the beginning of the SEP1 in year
1 (2015-16) and towards the end of SEP2 in year 2 (2016-17). Data was collected from two student-teachers at each DIET over the two years (Appendix 3A). Introductory interviews were conducted with the participants (Appendix 3B) Lesson plans were collected before observing the practice teaching classes (Appendix 3C and 3D). The practice teaching classes were sometimes partially recorded as audio or video (Appendix 3E). Immediately after the observation of the practice teaching class the supervisor’s and student-teacher’s verbal interactions and written comments reviewing the practice class were recorded (Appendix 3F and 3H). At the end of year 1 and year 2 the completed reflective journals were collected and reflective entries for the observed practice classes were noted (Appendix 3I-L).

Stimulated recall interviews were conducted after all the other data was collected, at the end of SEP2 in year 2 (Appendix 3M). During these interviews the questions were stimulated around the audio or video recordings of the practice classes observed during SEP1 and SEP2. A focus group discussion was held with teacher-educator participants at each DIET (Appendix N). The experts were interviewed (Appendix 3O).

The data corpus from the different data sources was enormous. Initially, the data was transcribed in Hindi, Urdu and English depending on the language collected, using Roman script, and then translated into English. Transcription and translation took about six hours for each hour of recording. Processing the data took about 800 hours. The intensive data collection workload prevented transcription being completed in India. Instead, much of the transcription was completed on my return to the UK, working directly from student-teacher and teacher-educator documents, field notes, original digital text, audio and files to ensure accuracy and cross-checking. While translating, the observations were re-lived, and memories of experiences refreshed. I started to notice details that I used to enrich my analysis. Both transcriptions and translations were maintained in the same table for easy reference. Very simple rules were maintained for transcribing and translation, adapted from Swann (2010). For example, when I used Hindi to talk to the participant, Hindi was transcribed in roman script in column 2 and the translation was recorded in column 3, as shown in Table 10.

Table 10. Brief example of transcription and translation (adapted for a bilingual situation from Swann, 2010).

<table>
<thead>
<tr>
<th>Transcription of recorded audio as it happened transliterated in roman script.</th>
<th>Translation in English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aapko teen classes dikhaungi.</td>
<td>I will show you three classes.</td>
</tr>
</tbody>
</table>
3.9. THEMATICALLY ANALYSING REFLECTIONS AND DEVELOPING A TOOL

Thematic analysis offers a straightforward, ‘theoretically-flexible’ way of analysing qualitative data. Thematic analysis simply involves a search for themes and patterns through constant comparison from a stated epistemological and ontological position (Braun and Clarke, 2006, Figure 10). It can yield a rich, layered, detailed and complex analysis.

Figure 10. Iterative process of analysis.

After translation, the first round of thematic analysis was carried out. The data was first coded following the process laid down by Braun and Clarke:

A theme captures something important about the data in relation to a research question and represents some level of patterned response or meaning within the data set. (2006:10).

One of the challenges encountered in the research was how to code reflections thematically to make them visible for analysis. This was planned in three phases. In the first phase, a rubric-based Reflective Practice Tool (RPTv1) was developed to identify and map reflective units from each data source into different levels of reflection, before embarking upon the fieldwork during SEP1. The tool was prototyped with some data from SEP1. The reflective rubrics in the tool were finalised, and the thematically coded data was mapped to matching rubric descriptions in the second phase. This made individual student-teachers’ reflections visible according to levels of reflection, over two years. During the third phase of thematic analysis, reflective data was mapped to an activity theory heuristic during years 1 and 2. This showed the change in teaching strategies and objectives in student-teacher practices over two years of reflective practice.

3.9.1. Developing Reflective Practice Tool version 1 (RPTv1)

The WMF was selected from several reflective typologies because it was found to align with the conceptions of teacher education in the NCFTE (NCTE, 2009) (Section 2.4.3). The RPTv1 was developed from the WMF as a rubric-based tool with the same 12 rubric descriptions found.
Table 11. Reflective Practice Template version 1 (RPTv1 adapted on the WMF, 2004).

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Teaching practice</th>
<th>Routine Reflection</th>
<th>Technical Reflection</th>
<th>Dialogic Reflection</th>
<th>Transformative Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Self-disengaged from change</td>
<td>Instrumental response to specific situations without changing perspective</td>
<td>Inquiry is part of the process, involving cycles of situated questions and action and consideration for others’ perspectives</td>
<td>Fundamental questions and change</td>
</tr>
<tr>
<td>Focus (What is the focus of concerns about practice?)</td>
<td>Routine reflection</td>
<td>Focus is on self-centred concerns (how does this affect me?) or on issues that do not involve a personal stake. Primary concerns may include control of students, time, and workload, gaining recognition for personal success (including grades), avoiding blame for the future.</td>
<td>Focus is on specific teaching tasks such as planning and management but does not consider connections between teaching issues. Uses assessments and observations for efficient learning, to mark success or failure without evaluating specific qualities for formative purposes.</td>
<td>Focus is on students. Uses assessments and interactions with students to interpret how and in what ways students are learning to help them. Especially concerned with struggling students.</td>
<td>Focus is on personal involvement with fundamental pedagogical, ethical, moral, cultural, or historical concerns and how these impact students and others.</td>
</tr>
<tr>
<td>Example data</td>
<td>Inquiry (What is the process of inquiry?)</td>
<td>Questions about needed personal change are not asked or implied; often not acknowledging problems or blaming problems on others or on limited time and resources. Critical questions and analysis are limited to critique of others. Analysis tends to be definitive and generalised.</td>
<td>Questions are asked by oneself about specific situations or are implied by frustration, unexpected results, exciting results, or analysis that indicates the issue is complex. Stops asking questions after the initial problem is addressed.</td>
<td>Situated questions lead to new questions. Questions are asked with others with open consideration of innovative ideas. Seeks the perspectives of students, peers, and others.</td>
<td>Long-term ongoing inquiry including engagement with model mentors, critical friends, critical texts, students, careful examination of critical incidents, and student learning. Asks tough questions that challenge personally held assumptions.</td>
</tr>
<tr>
<td>Example data</td>
<td>Change (How does inquiry change practice and perspective?)</td>
<td>Analysis of practice without personal response – as if analysis is done for its own sake or as if there is a distance between self and the situation.</td>
<td>Personally, responds to a situation, but does not change situation to change perspective.</td>
<td>Synthesises situated inquiry to develop new insights about teaching or learners or about personal teaching strengths and weaknesses leading to improvement of practice.</td>
<td>A transformative reframing of perspective leading to fundamental change in practice.</td>
</tr>
<tr>
<td>Example data</td>
<td>Note on other related behaviours observed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

in the WMF (Table 11) which described different reflective levels related to different teaching orientations, and three criteria labelled ‘Focus’, ‘Inquiry’ and ‘Change’. Under each
of these descriptions was an empty field to match data which mapped to each rubric description in the tool.

3.9.2. Analysis of data collected during SEP1 with RPTv1

Reflective chunks of text were identified from the student-teachers. These were thematically coded into the four reflective levels. Next, I matched the identified reflective chunks to the different themes of ‘Focus’, ‘Inquiry’ and ‘Change’ described in RPTv1 (Table 11). It immediately became apparent that the rubric descriptions taken from the WMF were not parallel or consistent in each reflective level. For example, when describing the focus of teaching practice, the criteria at each level did not consistently include aspects of teaching practice such as planning, teaching, pedagogy, class management and evaluation in each level of reflection. A second improved version of the Reflective Practice Tool v2 was needed with parameters that were consistent across reflective levels, contextualised for use at DIETs and the Indian teacher education situation.

Global reflective typologies based on the same genealogy as WMF, i.e., grounded in knowledge types as conceived by Habermas (1972) and reflection by van Manen (1977) as well as Indian grey literature were considered as a basis for developing RPTv2 before the SEP2 field trip. These were: Ward and McCotter (2004); Grimmet et al (1990); Hatton and Smith (1995); Wellington and Austin (1996); Nelson and Saddler (2012); NCERT (2005); NCTE (NCTE, 2009); and D.El.Ed. syllabus (NCTE, 2015; SCERT, 2014). This was a painstaking process. The broad emergent themes are shown in Table 12.

Table 12. Themes which emerged from thematic analysis of global and Indian grey literature.

<table>
<thead>
<tr>
<th>A. Focus (What is the focus of concerns about practice?) on the following?</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Aims of practice</td>
</tr>
<tr>
<td>ii. Knowledge perspective</td>
</tr>
<tr>
<td>iii. Learning environment (and relationship with authority and learner)</td>
</tr>
<tr>
<td>iv. Teaching and learning: strategies, processes (learning choices, linkage of content, contexts and learners)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Inquiry (What is the process of inquiry?)</th>
</tr>
</thead>
</table>

| C. Change (What is the process of change?) |

The four reflective levels or themes in the WMF formed the foundation of the second version of the Reflective Practice Tool (RPTv2), too. A sample of the RPTv2 template is shown in Appendix 1. The ‘Focus on concerns about practice’ theme was elaborated to include a ‘Focus on aims of practice’, ‘Knowledge perspective’, ‘Teaching-learning processes and strategies’, ‘Learning environment’ including relationship with authority and learner, and then ‘Inquiry’ and ‘Change’. The rubric descriptions were developed for each theme.
The RPTv2 describes 28 teacher practice themes. The next section demonstrates the process of mapping reflective data chunks to different rubric descriptors in the template.

### 3.9.3. Data processing and analysis of SEP1 and SEP2 data using RPTv2

After SEP2, and during phase two of thematic analysis, the second round of data was also transcribed and translated. All the data was thematically coded. Examples of reflections were identified and abstracted deductively into the core categories of reflective levels into routine, technical, dialogical and critical-transformative reflection. These were then matched with the 28 rubric descriptions described in RPTv2 across all reflective levels, according to the focus of concerns about practice, inquiry and change. These reflections were further sorted to include reflections about the aims for practice, knowledge perspectives, relationship with authority, reflections related to teaching and learning strategies, processes, inquiry and any changes achieved. The reflections identified could be extended to any length, from a sentence to a paragraph or several paragraphs, in accordance with the themes identified in RPTv2.

The reflective chunks from different sources of data collected and generated during SEP1 (LP1; CO1; TEC1; RJ1, INT) and SEP2 (LP2, CO2, TEC2, RJ2, SI, INT and FGD) (see Table 9) were identified and matched to rubrics at different reflective levels on the RPTv2. The presence of these reflective chunks was mapped on to RPTv2 template thumbnails (Figure 11 and 12) for each student-teacher participant, for each source of data.

![Figure 11. A thumbnail template of the RPTv2.](image)

![Figure 12. The thumbnail template of the RPTv2 mapped from stimulated interviews.](image)
Sabia’s Routine Reflection, Focus on Aims

The situation

In a stimulated recall interview towards the end of SEP2 in January 2016, Sabia reflected about her learning to ‘manage’ in the initial days by maintaining the status quo and remaining disengaged from change. She learned to meet the immediate demands in the school. To illustrate this, she talked about two different situations she experienced. According to her schedule, Sabia had planned to conduct three practice classes. On reaching the practice school, she found she was assigned an additional three classes in place of absentee schoolteachers. On another occasion, she missed scheduled classes to undertake examination invigilation. She learned to manage these situations by learning to maintain the status quo and surviving as pleasantly as possible and ignoring learner needs in missed classes.

Sabia’s reflections:

‘From school, it was like this: Ma’am, I learned how to do management, with ourselves and everyone else. [...] Like we have been given 6 periods in one day, (Ma’am told us) ‘These are your classes. Three are your classes and three in arrangements’ (replacement teaching for classes when the schoolteacher is absent). Then, we have to do it. We cannot refuse. Don’t refuse [...] How to talk to the teacher, how to handle anyone, how to take a class. If you are missing a class, then leave it. If you have a duty in examinations, then go for the examination’.


This reflection matched the following rubric description in the tool:

RRFocus1 Focus on Aims

Focuses on the immediate demands of the group or the task to survive and maintain a pleasant experience. Reflection is focused on applying best practice while maintaining the status quo to achieve success, so that the teacher gets personally recognised (including good marks). Teaching is teacher-directed, keeping a control over the learners, time and workload. The teacher tends to ignore low achievers.

Each reflection was matched and mapped to the appropriate rubric description as shown in Figure 13 (more examples are shown in Appendix 5). More detail about the data generated was depicted in thumbnails developed for each student-teacher on the RPTv2 template (Appendices 6–9).
3.9.4. Thematic coding of data related to Vygotsky’s SCT and AT

In the next phase of analysis the data was coded to meet the themes related to Vygotsky’s SCT tenets related to languaging, language, genetic development, everyday and scientific concepts, and the components of the activity system. Data, generated from interviews, observations and reflections, was identified to relate to the subjects, object, outcome, tools and signs, rules, community and division of labour. A template of the heuristic is shown as Figure 14 and is used again in Figure 15.

Figure 14. A template of the activity system heuristic.

<table>
<thead>
<tr>
<th>Tools and Signs</th>
<th>Object</th>
<th>Outcome:</th>
</tr>
</thead>
<tbody>
<tr>
<td>pupils’ lives, games, activities like mask making</td>
<td>Learning to teach Reflectively with constructivist pedagogy</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rules</th>
<th>Community</th>
<th>Division of labour</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.E.Ed. Syll. NCFTE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 15. The activity system heuristic template with thematised data from a student-teacher’s practice.

<table>
<thead>
<tr>
<th>Tools and Signs</th>
<th>Object</th>
<th>Outcome:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Asha</td>
<td>good listener</td>
<td></td>
</tr>
<tr>
<td>Object</td>
<td>caring</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rules</th>
<th>Community</th>
<th>Division of labour</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.E.Ed. Syll. NCFTE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The reflective actions from different data sources were identified and further analysed for the principles of Vygotsky’s SCT and components of AT. From the resulting analysis emerged the findings to answer sub-research question 2: How, when and where do the student-teachers reflect and change their practices over two years in the D.El.Ed. programme? These are reported in Chapter 6.

Thematic analysis of the reflection deductively mapped to the RPTv2 and inductively, tracking the genetic development of common themes over the two-year period, also helped to generate findings for sub-research questions 2 and 3: How, when and why do student-teachers reflect? How does reflection change the student-teachers’ practice during the internship module over two years in the D.El.Ed. programme? Examples and findings emerging from this process are reported in Chapter 6.

Next, excerpts from interviews with the principals and student-teachers of the two DIETs, and a focus-group discussion of teacher-educators at each DIET, were transcribed and translated to reveal the perceptions of the principals, teacher-educators and student-teachers about reflection and reflective practice. These were viewed through Vygotskian principles of everyday and scientific concepts, languaging and AT, leading to the findings for sub-research question 4: What is the perception of reflection and reflective practice of experts, principals, teacher-educators and student-teachers? Examples and findings of this research question are reported in Chapter 7.

3.10. ETHICAL RESEARCH: PLANNING AND EXECUTION

Researching across continents and cultures poses very specific ethical considerations. My research was carried out as part of The Open University in the UK. I followed the University guidelines and gained approval from the Human Research Ethics Committee (No. HREC/2015/1645/Sarkar/1). The fieldwork was conducted in India, with Indian participants, so my research planning needed to adopt ethical guidelines followed in India. However, I learned that India has no ethics body ‘exclusively devoted to education’ (Govil, 2013:18). As explained by Jeswani and Barai (2018), ‘The issues of ethics in social science ... have been given less prominence in India’.

Mindful of the need to address ethics culturally and systematically, I looked for a framework which would provide me with clear, logical guidance. I found the Stutchbury and Fox (2009) framework very useful. It covered elements of The Open University code (2012) and BERA (2011) Guidelines, and addressed methodological considerations and ethical issues related to culture and research outcomes (Stutchbury and Fox, 2009).
This framework is fashioned into four layers moving from the external contextual ethical considerations in Level 1 to internal, personal ethical considerations in Level 4.

Level 1, the external/ecological section, considers the external, wider context of the research and recognises that the context will throw up ethical issues that will need to be resolved. For example, compliance with protocols, written permissions from the SCERT and the DIETs, informed consent from the participants, and consideration of responsibilities of the researcher to the University, sponsors and self. This layer also includes data protection and security, logistical challenges, challenges of researching across culture and issues of power, gender and language. Details of how these were covered are included in Chapter 5.

Level 2 is called by Stutchbury and Fox the utilitarian/consequential layer, during which, as the researcher, I considered the benefits of the research for society, groups, individuals, participants and myself.

Level 3, involving deontological considerations, covers issues related to doing one’s duty, and is concerned more with the process of action or doing things rather than with outcomes. This layer is conceived to cover universal behaviours such as ‘telling the truth’ and ‘minimising harm’. Chapter 5 explores how trust and good relationships were developed with clear communication, respect, consideration and honesty with the participants.

Level 4, the relational/individual layer, accords respect for participants’ entitlement to privacy, and their rights to confidentiality and anonymity (BERA, 2011).

This aspect of my research offers a contribution to qualitative methodology that will be valuable for researchers in similar research situations. A description of how key ethical dilemmas were resolved follows.

Level 1, the external-ecological layer, addressed the external, wider context of the research, such as compliance with protocols and getting permission from the SCERT to research with DIETs, as explained above. Two codes of ethical guidelines were followed in this research: ‘The Ethics Principles for Research involving Human Participants at The Open University’ (The Open University, 2012) and the British Educational Research Association’s (BERA) ‘Ethical Guidelines for Educational Research’ (BERA, 2011). Approval for the research was obtained from the University ethics committee at The Open University, UK, by submitting a preliminary project proposal along with an information leaflet, a format of the consent form and the data collection tools developed for the research.
Obtaining written permissions from the SCERT for research with the DIETs required three weeks of persistent follow up. I received permission to research on reflective practice at the DIETs through a letter from the SCERT. The only condition laid down was to share the findings with the SCERT. The SCERT permission was the key to accessing the DIETs and practice schools as part of the DIET team.

To secure informed consent during the first two weeks of fieldwork, I approached several participants identified for their consent. The participants autonomously agreed to participate in the research. I developed an information sheet in English and Hindi which informed participants about:

- the aim and methodology of the project
- the benefits, risks and commitments that participation involved
- their right to withdraw their consent.

By signing the consent form, developed for the research, participants allowed interviews, observation of practice classes, focus-group discussions, and copies of documents such as lesson plans, reflective journals and evaluations. Some allowed video/audio recording. They were assured confidentiality of data and were free to withdraw from the research should they wish. The participants were also told that the data would be destroyed five years after completion of the PhD. Participants could receive a copy of the research findings, in Hindi or English, if they desired.

I explained the forms in English and Hindi to ensure that participants understood their involvement, commitments and my promises. The student-teachers recorded their consent by signing two copies of the consent form. I signed one of these copies and gave it to each participant, signifying my commitment, too.

Consent, I found, could be complicated. I had permission from the SCERT to carry out the research. Receiving this, the principals from both DIETs agreed, too. I was given direct access to their DIETs, yet, initially, both the principals refused to sign and give their agreement in writing. Not gaining an informed consent in writing has been experienced by other researchers working in Asian countries, too. Sheyvens and Storey (2003) suggest that in countries with strong oral cultures or countries that have experienced a negative history with official documentation, ‘participants may be very wary of signing a form which could end up in the hands of authorities’ (2003:144). One principal took the consent form and kept it. He finally signed it, long after his interviews. For me, his willingness to allow me
access, help me with my research, give his time to do interviews, were forms of active consent. Securing the written consent was important evidence for the University.

Gaining informed consent from teacher-educators also proved to be difficult. Teacher-educators, initially, seemed to be reluctant participants despite signing the consent form voluntarily. I later found that many were not permanent faculty but had contracts with the DIET, and maybe they consented because the principal approved the research and they felt they had to comply. With time, gradually, they learned to trust me.

As my research progressed, I found that consent had to be revisited and negotiated verbally throughout the research. Hammersley and Atkinson (2019) acknowledge that this is not uncommon, and that ‘access may need to be secured through gatekeepers, but it will also have to be negotiated and renegotiated with the people being studied’.

There were many logistical challenges. The process of research sounded clear, tidy and eminently executable in the probation plan. The reality of the research was anything but smooth. The project required constant re-scheduling and planning, adjustment, determination and persistence. To keep the research going required ingenuity, putting to use knowledge of closely observed situations and people, understanding of the socio-cultural context and constantly thinking oneself out of the box, into reality and control.

At separate points in the project, I found myself checkmated by a riot, several city-wide strikes of municipal workers, teachers and doctors, extremes in wintry weather and pollution levels which touched 50 times the permissible World Health Organization limits – all leading to city-wide closures of schools and traffic – and, once, even a complete lack of drinking water. I had lived 30 winters in this state, but I had never faced such a catastrophic set of roadblocks to work. My own efficiency was affected when I found my research funds were unexpectedly paused from the University, and on other occasions I experienced illness, loss of close family and even a pandemic. For me, the PhD had to go on.

Scheduling appointments was also a logistical challenge and had to be revisited and adjusted every night during fieldwork. Timetables were not sacrosanct at either of the DIETs. My exasperation at being ‘stood up’ changed to a more careful perusal of the context. The DIET faculties are at the beck and call of three different institutions, the DIET, the SCERT and the Ministry of Education. The DIET was the least powerful of the three. The teacher-educators would often find themselves double booked for classes and other activities. Indeed, the schedule for classes, which was in their control, would be recreated every morning according to the latest roster of work. So, when I was given an appointment
to observe a teacher-educator in her class or with her mentees, she herself was not sure if she could honour it.

Data protection and security are built into the systems of the sponsors of this research, The Open University. Field notes and other primary data are kept on a server at the University, subject to strict security practices and in password-protected computers. I shared photographs, video and audio recordings of the research sparingly, only, when necessary, with my supervisors. The data was not used for any research dissemination purposes. To ensure anonymisation, pseudonyms have been used for DIETs and participants.

There are many challenges in researching across cultures, such as whether the researcher is a cultural outsider or insider. Balance of power and cultural considerations in researcher–participant relationships can influence research results enormously. The insider/outsider situation was perceived to be complex. A key debate in literature was whether it is an advantage to be an insider or an outsider to the researched context and subject (Chavez, 2008; Hammersley, 1993). Hammersley argues that there are ‘no overwhelming advantages for being an insider or outsider (1993:219). Other researchers (Mercer, 2006; Chavez, 2008) claim that there is no clear dichotomy between the two positions, and that insider and outsider roles are products of research contexts and can be placed along a continuum (Figure 16).

Figure 16. Conceptualisation of insider/outsider positionality on a continuum (Chavez, 2008).

<table>
<thead>
<tr>
<th>Indigenous insider</th>
<th>Indigenous-outsider</th>
<th>External-insider</th>
<th>External outsider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close</td>
<td>(Socialised in community)</td>
<td>(Socialised outside the community)</td>
<td></td>
</tr>
</tbody>
</table>

The knowledge–power gradient was tilted in my favour, as a researcher and an outsider. I had a more privileged education and had access to greater resources than my participants. I was more informed and experienced about reflection and reflective practice, the topic of my research, sponsored by a university in the UK. The latter added more weight. Reflection, when I entered, was considered a mere ‘topic’ in the curriculum. Teacher-educators lacked knowledge, experience, training and exposure to reflective practice, and did not clearly know how to foster it in the programme. During my initial meetings with the two principals and a teacher-educator, I was asked what reflective practice was.

A second tilt of the power gradient stemmed from the nature of employment at the DIET. Teacher-educators at DIETs are either permanent faculty or annually contracted. This led to
an ethical dilemma in the research. The contract teacher-educators were wary and careful about what they allowed me to observe. They consented to being video recorded after having signed but confusingly complained to the principal. I had to convince them that getting the exact language and actions during class observations was important, as these were subjectively and individually constructed. Finally, we negotiated, and most times I was permitted to make audio recordings and field notes, which are more anonymous than video, and so were considered to be ‘safer’.

The faculty were also insecure about being ‘judged’ on an issue about which they were unsure. This created another dilemma in the research. My research and my presence increased consciousness about reflection. Maybe because of this, during SEP2, at both DIETs, the reflective journal templates were ‘improved’. They were made more elaborate and segmented, guiding the student-teachers to write their entries in a more structured and detailed way. The fact that the data was collected from a variety of sources helped to build a more balanced picture about their reflections, allowing for triangulation.

I could not fully control people’s positioning and perception of me (Leslie and Storey, 2003). My intention as a researcher was to blend in and reduce any power differences. There were personal traits like my age, size, gender and ethnicity that I could not change. Factors such as qualifications, experience, political philosophy and personal history could be underplayed. I did not want to be someone I was not (Leslie and Storey, 2003), as this would not help me build trust. However, I was culturally sensitive about traits I could control, like my appearance, behaviour, interactions, language used, clothes and food (Scheyvens, Nowak, and Scheyvens, 2003:151).

I shared lunches with teacher-educators and student-teachers. We exchanged notes on the way pickles were made, or how food was cooked, or festivities. I grew up in a neighbouring state. This strengthened our ethnic and gender bonding. My gender came in useful since more than 60% of teacher-educators and 85% of student-teachers at the DIETs were female. I found it easier to mix with the female participants than with the men. Female research participants are reported to ‘respond more freely and openly to a female researcher’ (Scheyvens, et al, 2003:170). The relationship with the male teacher-educators was more difficult. The power gradient presented a constant challenge. There was a need to establish capability. I was careful to make suggestions gently.

Due to my age, the student-teachers naturally related to me like an older teacher-educator, calling me ‘Ma’am’. When asked to give a judgement on their performance, I used my
background as an educator, pointing out what I found interesting in their practice and asking them their reasons for it. Over time when they realised that I did not influence their marks or discuss them with anyone else. They learned to trust me.

Level 2 in the framework, involving consequential or utilitarian considerations, meant that the outcome of this research, at the macro level, was to understand how classroom interactions can be improved with more reflective teachers. At a more personal level, some of the participants acknowledged feeling more positive about their performance because of answering questions about themselves and understanding their own reasons for improvements in their own practices.

Addressing Level 3 or deontological considerations, care was taken to build trust and develop amicable relations with the participants. I was respectful of their time, maintained clear communication and contributed where I could.

At Level 4, involving relational or individual considerations, I realised that confidentiality and anonymity were important in the research to gain continued consent from the participants. It was important that participants were not identified, and that both their professional and their personal identities remained protected through anonymisation. The DIET situation was hierarchical. There was a lack of knowledge about the topic of the research, reflective practice. Admitting to this lack of knowledge or showing ignorance during the research could adversely affect participants professionally. This was to be avoided at all costs. The BERA (2011) Guidelines state that ‘Researchers must recognise the participants’ entitlement to privacy and must accord them their rights to confidentiality and anonymity’. Except for the experts who gave permission for their identity to be retained in the research and the thesis, participants and venues were given pseudonyms. I was also conscious of how my presence could impact the research at every stage.

3.11 CHAPTER 3 CONCLUSION

This chapter reports on the methodology planned and applied in the research to study the fostering of reflection at two DIETS qualitatively through two longitudinal, interpretive case studies during a common two-year D.EI.Ed. programme. It explains how the research strategies adopted responded to the evaluative, exploratory and interpretive nature of the research questions. Quality in the research was ensured through triangulation of multi-level and varied data sources. A description of the systematic approach to data collection is followed by a description of how the data collected was processed, viewed and analysed through the selected frameworks, Ward and McCotter’s framework for reflective practice,
and Vygotsky’s socio-cultural theory and activity theory. The former was adapted to
develop a research tool which helped to make visible different levels of reflection in
student-teacher practices, and Vygotsky’s SCT explained learning, reflection and the
teacher education processes.

This chapter described how the research tool was put through a rigorous process of
development so that, though it was adapted from Ward and McCotter’s rubric framework,
it was further informed by relevant global literature, Indian grey literature and the
templates used at the DIETs, to make it responsive to Indian teacher education. In the
remaining sections of this chapter, the process of data preparation, analysis and collation
were described. For ethically planning the research, Stutchbury and Fox’s framework was
applied. The chapter closed with a discussion of the ethical considerations, dilemmas and
challenges pertaining to the current study.

The next chapter, Chapter 4, will set out the central activity of reflective practice as viewed
through activity theory and in doing so paint a picture of the sites of the two case studies,
DIET-Chotapur and DIET-Badapur, and introduce the participants.
4. THE RESEARCH SETTING

4.1. INTRODUCTION

To understand how reflective practice was fostered at the two District Institutes of Education and Training (DIETs), it was important to consider the situational factors and how they interacted to affect the implementation of the Diploma in Elementary Education (D.El.Ed.) programme at both the individual and institutional levels. Activity theory (AT), developed from Vygotsky’s socio-cultural theory (SCT), offers a conceptual framework to analyse the situation. Its core components of subject, object, outcome, rules, community, division of labour, roles and responsibilities, tools and signs can be applied to understand the interaction and influence of the different factors on activities (Yamagata and Hauchenschchild, 2009).

4.1.1. Chapter structure

In this case the key activity was to understand how reflection is fostered in the D.El.Ed. programme at two DIETs. The activity to foster reflective practice among student-teachers in teacher education programmes, like those at the DIETs, will be referred to as the activity system (AS) and is described in Section 4.2. The environment of the two DIET campuses is described in Section 4.3, followed by the community of practice in Section 4.4. Section 4.5 presents details of the SEP orientation and module, from which emerge the rules of the activity system. Section 4.6 concludes the chapter.

4.2. THE ACTIVITY SYSTEM (AS)

The D.El.Ed. syllabus provides the rules for activities planned in the programme at the DIETs. Expressed in activity theoretical terms, the object of the activity system was that the student-teachers learn to teach reflectively and constructively, engaging their pupils to learn with meaning, and developing in them an ability to reflect and create knowledge. The subjects in this research were four student-teachers, two from each DIET. Each DIET community was made up of the principal, teacher-educators and student-teachers. They performed the activity by taking on different roles and responsibilities: the division of labour. The tools mandated in the syllabus were designed and planned by the principal, teacher-educators and the student-teachers. They formed the community in the activity system. This study followed the interaction of the different elements, pathways and processes in the activity system (Figure 17).
4.3. THE ENVIRONMENT AND COMMUNITY AT DIET-CHOTAPUR AND DIET-BADAPUR

Both DIETs were primary teacher education institutions offering a two-year D.El.Ed. programme developed and monitored by a common State Council of Educational Research and Training (SCERT), in accordance with the guidelines laid down in the National Curriculum Framework for Teacher Education (NCTE, 2009). The SCERT monitored the DIETs and the D.El.Ed. programme through its rules and syllabus. The D.El.Ed. syllabus (2014) introduced in January 2014 in the state’s DIETS aimed to develop reflection among its teachers so that they were able to innovate and improve their teaching in their classrooms (SCERT, 2014). To achieve the aim of the programme, the D.El.Ed. syllabus envisioned the student-teacher as being able

To integrate her/his knowledge base, understanding of children and classroom processes and theoretical understanding of pedagogical approaches with her/his classroom teaching and related tasks to become a competent and reflective teacher. (SCERT, 2014:130)

The first of the two DIETs, DIET-Chotapur, started the D.El.Ed. programme in 2003. It was a clean, peaceful and pleasant DIET exuding a friendly, relaxed, secure air, tucked away from the main road, and located in a recently developed, less crowded part of the city.

DIET-Chotapur’s tiny campus had two rows of six rooms and a large courtyard in the middle. Most rooms served multiple functions. One row of rooms accommodated the administrative staff, the principal’s office, three teacher-educators’ rooms and a training
room. The second row of rooms had two classrooms, one for each cohort, an ICT lab with 15 computers donated by a non-governmental organisation, and teacher-educators’ work rooms that also doubled up as the library and as centres for work education, art education and teaching and learning materials. The DIET had one auditorium and a courtyard sandwiched between two rows of rooms. The auditorium and the central courtyard were used for holding the daily morning assembly, classes with group work and demonstrations, performances and workshops. The central courtyard provided much needed breathing space within the DIET. It was also used for parking three cars The DIET had a dedicated training room which was used for in-service trainings and workshops.

The room that served as a library, a quiet room, contained old books locked up in rarely opened cupboards. This was also the room used by the academic head teacher-educator, and the prayer room for the Muslim student-teachers’ daily prayers. Every Saturday it was used by a group of mostly Hindu student-teachers and teacher-educators for chanting the Durga Vahini, recently initiated by the head teacher-educator.

The clean, cared-for, airy DIET space, low number of students and pleasant atmosphere promoted an easy sense of community. Student work adorned the walls and busy notice boards and created an environment that reflected interaction and activity.

The DIET-Badapur campus was about four times the size of DIET-Chotapur and was in an old colonial building in an old part of the city. In 1958 a hospital wing had been converted to become one of the first teacher training institutes in the city, as part of the initiative for teacher training inaugurated by Gandhi in 1948. In 1975 it had become a nursery teacher training college and then, in 1994, a DIET through the Centrally Sponsored Scheme of Government of India, Ministry of Human Resource Development (MHRD).

Architecturally, there were three rows of rooms, shaded by a continuous veranda. Bordering three sides of a large central lawn was a raised brick stage used for performances and activities, community gatherings, classes in the sun in winter, and for relaxation. There were several spaces where student-teachers could sit undisturbed. Each classroom was equipped with a webcam providing the principal with a view into every room through an array of monitors in his office.

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8 The name of the city has been kept anonymous to preserve the anonymity of the DIETs and the participants.
DIET-Badapur had two large, long rooms which could tightly accommodate the two cohorts of 200 student-teachers together. One functioned as an assembly hall or classroom and the second as an auditorium or training area. DIET-Badapur was known to pilot new programmes initiated by the SCERT through Dr Bagga, the principal.

4.4. THE COMMUNITIES AND DIVISION OF LABOUR AT THE DIETS

Gaining admission into the nine government DIETs is highly competitive. Every year only about 1040 new student-teachers are selected from about 27,000 applicants. Applicants are between 18 and 24 years old and admitted on the basis of marks in their final year at school. In 2015 the minimum marks considered for admission in the general category were 82%.

The cohort of 2015–17 at DIET-Chotapur had 50 student-teachers, while DIET-Badapur had 100, of which approximately 80% were female and 20% male. At DIET-Badapur, 20 seats were reserved for Urdu medium student-teachers since there were several Urdu medium schools in the vicinity.

DIET-Chotapur had nine teacher-educators. Of these, six were female and three were male. All the teacher-educators shared rooms. There were three teacher-educators who were contracted annually. They were all female. Of the contract teachers, the teacher-educator who had been there longest had worked for six years, with a fresh contract each year. The most recently contracted had joined in 2016, during this research.

DIET-Badapur had thirteen teacher-educators. Of these nine were female and four were male. Teacher-educators had single or shared rooms, depending on their seniority. Most of the female teacher-educators worked with an annual fixed-term contract, some for as long as eight years. Each year the contract teacher-educators were on tenterhooks, not knowing whether or not their contracts would be renewed. As a result, they tended to work strategically and carefully all year. The study’s participants, the principals, teacher-educators and student-teachers, all of whom participated in the SEP and influenced reflections, the community of practice at each DIET, are listed with their roles and responsibilities under pseudonyms, in Tables 13 and 14. The teacher-educators were either leaders at the DIETs or were student-teacher supervisors or responsible for the reflective journals at each DIET.
The principals at the two DIETs

The principals were key to the running of the DIETs. In research by Dyer et al a senior staff member of Udaipur DIET observed,

The Chair directs the whole DIET. The DIET works according to the Chair. The initiation is always from the Chair. If the Chair looks forward, the DIET will move forward. If it looks backwards, the DIET goes backwards. (2005:145)

Things were similar in this research. The principals played an influential role in the implementation of the SEP. Both DIETs had two principals over the two years of the research (Tables 13 and 14).

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### Table 13. The participants at DIET-Chotapur with their SEP responsibilities.

<table>
<thead>
<tr>
<th>Participants (pseudonyms)</th>
<th>School Experience Programme (SEP) responsibilities relevant to the research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principals</strong></td>
<td></td>
</tr>
<tr>
<td>Dr Kiran Shastri</td>
<td>Principal 2015–16</td>
</tr>
<tr>
<td>Dr Meena Bir</td>
<td>Acting-principal 2016–17</td>
</tr>
<tr>
<td><strong>Teacher-educators</strong></td>
<td></td>
</tr>
<tr>
<td>Dr Meena Bir</td>
<td>Head of Academics and SEP1 and 2. Introduced, facilitated, evaluated reflective journals (SEP1) General supervisor to Sabia, SEP1 and 2</td>
</tr>
<tr>
<td>Dr Sudha Pandey</td>
<td>General supervisor to Asha, SEP1</td>
</tr>
<tr>
<td>Dr Nita Mehta</td>
<td>Introduced, facilitated, evaluated reflective journals (SEP2)</td>
</tr>
<tr>
<td>Mr Vivek Vohra</td>
<td>General supervisor to Asha, SEP2</td>
</tr>
<tr>
<td><strong>Student-teachers</strong></td>
<td></td>
</tr>
<tr>
<td>Asha</td>
<td>Participated in the SEP orientation and module</td>
</tr>
<tr>
<td>Sabia</td>
<td>Participated in the SEP orientation and module</td>
</tr>
</tbody>
</table>

### Table 14. The participants at DIET-Badapur with their SEP responsibilities.

<table>
<thead>
<tr>
<th>Participants (pseudonyms)</th>
<th>SEP responsibilities relevant to the research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principals</strong></td>
<td></td>
</tr>
<tr>
<td>Dr Rohan Bagga</td>
<td>Principal 2012–14</td>
</tr>
<tr>
<td>Dr Alam Khan</td>
<td>Acting-principal 2014–15</td>
</tr>
<tr>
<td>Dr Rohan Bagga</td>
<td>Principal 2015–17</td>
</tr>
<tr>
<td><strong>Teacher-educators</strong></td>
<td></td>
</tr>
<tr>
<td>Dr Sandeep Khanna</td>
<td>Introduced, facilitated, evaluated reflective journals (SEP1)</td>
</tr>
<tr>
<td>Dr Sushmita Dhar</td>
<td>Introduced, facilitated, evaluated reflective journals (SEP2)</td>
</tr>
<tr>
<td>Ms Snigdha Srivastava</td>
<td>Head of SEP and Academics</td>
</tr>
<tr>
<td>Ms Amita Gupta</td>
<td>General supervisor to Habiba and Zohra</td>
</tr>
<tr>
<td><strong>Student-teachers</strong></td>
<td></td>
</tr>
<tr>
<td>Zohra</td>
<td>Participated in the SEP orientation and module</td>
</tr>
<tr>
<td>Habiba</td>
<td>Participated in the SEP orientation and module</td>
</tr>
</tbody>
</table>

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4.4.1. The principals at the two DIETs

The principals were key to the running of the DIETs. In research by Dyer et al a senior staff member of Udaipur DIET observed,
DIET-Chotapur’s principal, Dr Kiran Shastri, had worked in six DIETs in the state before he joined DIET-Chotapur in 2011. He had a rich experience of teaching in school for seven years with the Directorate of Education. He chose to be a teacher to help people reach their potential through education.

Dr Shastri was a committed principal who seemed to live for his work. In 25 years he had recorded less than two weeks of leave. He ran his small DIET with a quiet but firm hand. His style of management involved distributing responsibility among his faculty especially two teacher-educators in his team who were active, dynamic leaders: Dr Meena Bir, head teacher-educator of academics, and Dr Sudha Pandey. Dr Shastri’s management style was gentle, giving space to his team to apply themselves, with his active and ready support. Most of his faculty rose to the occasion and took ownership of their responsibilities, and when they did not, he was there to ensure it.

Dr Shastri, in an interview, expressed that a common problem at all DIETs was one of a severe lack of teacher-educators, and lack of equivalency in pay and benefits to similar posts in universities. Dr Shastri was a hands-on academic and administrator. When a teaching slot was empty, he would conduct a class and fill in. He retired from DIET-Chotapur on 31 December 2016, during this research. Dr Bir, the head teacher-educator at DIET-Chotapur, took over as acting-principal during SEP2.

Dr Bir started in this research as an important gatekeeper. She was the head of academics at DIET-Chotapur and in-charge of implementation of the SEP programme. Dr Bir was the driving force of the SEP, reflection and action research at the DIET. She was also responsible for introducing changes in formats, for example in lesson planning, evaluation templates and reflective journals. When the teacher-educator in charge of reflective journals left the DIET, early in 2015, Dr Bir took over responsibility for SEP1.

Dr Rohan Bagga, the principal of DIET-Badapur, joined the SCERT in 1996 having started work ten years earlier, in 1986, as a post-graduate teacher. He continued to work with the SCERT and six DIETs for the next sixteen years. He was principal of DIET-Badapur from 2012 to 2015. Dr Alam was appointed acting-principal for an interim one year, 2015–16, after which Dr Bagga was re-appointed principal for the second time at DIET-Badapur in 2016. He was a dynamic, energetic principal, practical and pragmatic. He said teacher-educators were willing to listen to him as he was ‘considered to be well-connected’. He was responsible for introducing and prototyping the writing of reflective journals at DIET-
Badapur in the academic year 2013–14, a year before they were introduced by SCERT in the new 2014 D.El.Ed. syllabus. He was assisted in this by Dr Sandeep Khanna.

Dr Bagga was full of ideas on improvement of SEP output. He put in a great deal of planned effort to increase reflection among his teacher-educators. He was the driving force of reflection at DIET-Badapur. He changed the format for reflective journals in SEP2. He introduced public expression of opinions and arguments in the assembly every morning. During SEP2, much to the delight of the student-teachers, Dr Bagga introduced many different teaching-learning strategies and propelled his faculty team to own and champion five teaching-learning strategies each. Each of the teacher-educators introduced their five strategies to the two cohorts during the SEP2 orientation.

4.4.2. The teacher-educators at the DIETs and their responsibilities
In the D.El.Ed. syllabus teacher-educators were assigned to become general internship supervisors. Through the SEP the teacher-educators were expected to facilitate the student-teachers to teach reflectively:

- Understand the difference between the content of a subject and its pedagogy.
- Learn to transact the subject matter in accordance with the needs and interest of the children.
- Develop required skills to teach in an inclusive classroom.
- Use different activity based, joyful and age specific learning methods in the classroom.
- Develop subject specific teaching-learning material (TLM) for elementary school children.
- Incorporate the component of CCE (Continuous classroom evaluation) in classroom transactions.
- Learn about school activities, schemes, programmes, and their impact on school children.
- Utilise the community resources for meaningful partnership between school and community.

(D.El.Ed. syllabus, SCERT, 2014:130)

According to the syllabus, the DIET would tie up with local schools to ensure an experience of practice teaching for their student-teachers. Each cohort was formed into groups of four to six student-teachers, assigned to a teacher-educator who would be their general supervisor at the practice school. Teacher-educators had multiple roles, as general supervisor or subject supervisors, and were also responsible for introducing, monitoring and evaluating different assignments in SEP1 and SEP2 such as reflective journals, action
research projects, work education, art education portfolios and more. Along with the teacher-educators, a schoolteacher mentor from the practice school was assigned to between four and six student-teachers, depending on their area of subject specialisation. The schoolteacher mentor was expected to become part of the DIET team and guide the student-teachers. She, with the school principal, would evaluate the student-teachers with 20 marks. The DIET supervisors also evaluated the experience with 20 marks.

At DIET-Chotapur at the time of my study Dr Bir was head of academics and responsible for organising the SEP module. She evaluated the reflective journals during SEP1. She was also, general supervisor for one of the participant student-teachers, Sabia, during SEP1 and SEP2.

Dr Pandey was the key gatekeeper and a storehouse of information about the history of pedagogies and traditions in both the DIET and the practice schools. She was well-regarded and often busy with assignments outside the DIET. Among her colleagues, she stood tall in commitment to social justice in education. A double PhD, she had changed career to become a teacher-educator. She joined the DIET system in 1993 and was one of the first lecturers at DIET-Chotapur when it started in 2003, with Dr Bir. She was creative, with a firm command over her areas of work, and was always seen to push the envelope beyond accepted boundaries, encouraging student-teachers to be self-reflexive and to show initiative. She was also general supervisor to a second student-teacher, Asha, during SEP1. Asha’s general supervisor during SEP2 was Mr Vivek Vohra.

Dr Mehta was a new teacher-educator and had joined DIET-Chotapur at the end of the SEP1 in 2016, my second year of field work. During SEP2 she was a regular supervisor and responsible for orienting student-teachers to reflect in their reflective journals as well as for evaluating the journals during SEP2.

Of the teacher-educators at DIET-Badapur, Ms Gupta, a teacher-educator, was the general supervisor in the SEP module at the time of my research. As a general supervisor, she mentored Zohra and Habiba in their practice teaching in the SEP. For Ms Gupta, education was aimed at modifying student behaviour. She felt that, over time, a change in practice and reflection ‘should and does show’. Ms Gupta was an outspoken, frank and independent person, a regular and constant source of information about events at DIET-Badapur. She helped me keep track of the dynamic and fluid schedules that were characteristic of DIET-Badapur.

Dr Sandeep Khanna was a young enthusiastic teacher-educator, responsible for initiating and orienting the student-teachers from both cohorts to maintain reflective journals during
SEP1 at DIET-Badapur. In an interview, he said he learned about reflective practice from Dr Bagga, who introduced reflective journals during his first tenure as principal at DIET-Badapur in 2013–14. Later, Dr Khanna tried to learn more about reflection from the internet and from a teacher-educator at his alma mater across the city. One of the first questions he asked me was, ‘What is reflective practice?’

After Dr Sandeep Khanna, Dr Sushmita Dhar was given responsibility for introducing, monitoring and evaluating reflective journals during SEP2 (2016–17) at DIET-Badapur. She was observed not to be confident about fostering reflective practice.

Ms Snigdha Srivastava was head teacher-educator at DIET-Badapur. Though she was designated head of academics and the SEP modules, it was Dr Bagga who actively directed the academics, SEP modules relevant to this research, and was the champion for reflection at DIET-Badapur. Ms Srivastava’s role in this research was limited to that of administrator and teacher for the SEP module.

4.5. RULES IN THE D.E.L.E.D. PROGRAMME AND THE SEP MODULE EMBEDDED WITH OPPORTUNITIES FOR DEVELOPING REFLECTIVE ABILITIES

Both formal and informal rules regulated the teacher-educators’ and student-teachers’ teaching and learning interactions. According to Foot (2014), rules tended to follow well-established patterns of verbal and non-verbal practices which developed historically and reflected established professional and cultural norms. This was evident at each DIET. Some norms were mandated by the syllabus and SCERT, and were common to both DIETs, such as the D.E.L.E.d syllabus (2014, NCTE) of which the School Experience Practice module was a part. The SEP orientation was mandated before visits to practice schools which followed a process-based teaching cycle. There were rules that the DIETs had developed for themselves. For example, at DIET-Chotapur, Dr Bir had designed a lesson plan template which reminded the student-teachers about steps in constructivist teaching. Yet, the teacher-educators were also free to create different lesson plan templates according to what they thought was needed to teach their subjects. Among the peers there were several informal rules and tips that were passed on by the seniors to the junior student-teachers, for example, tips on lesson planning and how to write a reflective journal. The student-teachers were introduced during the SEP to all aspects of work in an elementary school environment. The rationale of the SEP module was to enable the student-teachers to teach reflectively by

- connecting theory to practice
- developing their own perspective about the aim of education
• using their knowledge to teach effectively systematically and reflectively with a constructivist approach.

The D.El.Ed. syllabus had two SEP modules, one in each year. The student-teachers learned how to teach children in Classes 1 to 5 during SEP1 (2015–16), and Classes 6 to 8 during SEP2 (2015–16). A month before the SEP module started in schools, the student-teachers at the DIETs were introduced to the SEP via an SEP orientation at each DIET. The structure of the orientation was laid down in the D.El.Ed. programme. This is encapsulated in Table 15 and described further.

Table 15. SEP orientation activities from the D.El.Ed. syllabus (2014:131–2).

<table>
<thead>
<tr>
<th>SEP Orientation Activities (Aug–Sept)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNOWLEDGE PERSPECTIVE</td>
</tr>
<tr>
<td>Pedagogy of different subjects:</td>
</tr>
<tr>
<td>Language, mathematics, environmental studies</td>
</tr>
<tr>
<td>Health and physical education</td>
</tr>
<tr>
<td>Work education and art education</td>
</tr>
<tr>
<td>Knowledge about learning styles</td>
</tr>
<tr>
<td>FOCUS AND AIMS</td>
</tr>
<tr>
<td>Purpose and objectives of the SEP module (including opportunities for reflection)</td>
</tr>
<tr>
<td>Lesson planning</td>
</tr>
<tr>
<td>The lesson planning format</td>
</tr>
<tr>
<td>Framing objectives</td>
</tr>
<tr>
<td>Teaching methods</td>
</tr>
<tr>
<td>Constructivism</td>
</tr>
<tr>
<td>TEACHING-LEARNING PROCESSES AND STRATEGIES</td>
</tr>
<tr>
<td>Skills of good teaching</td>
</tr>
<tr>
<td>(This was detailed by each DIET differently.)</td>
</tr>
<tr>
<td>Introduction</td>
</tr>
<tr>
<td>Probing questions (DIET-Badapur)</td>
</tr>
<tr>
<td>Explanation</td>
</tr>
<tr>
<td>Stimulus variation (DIET-Badapur)</td>
</tr>
<tr>
<td>Pupil participation</td>
</tr>
<tr>
<td>Blackboard writing</td>
</tr>
<tr>
<td>Strategies for teaching</td>
</tr>
<tr>
<td>Simulated teaching</td>
</tr>
<tr>
<td>2nd years present model lessons to the first-year student-teachers</td>
</tr>
<tr>
<td>Microteaching + observation of peers</td>
</tr>
<tr>
<td>Second years observe and guide first-year student-teachers who demonstrate different skills of teaching in five microteaching cycles and observation of peers</td>
</tr>
<tr>
<td>Creating good teaching-learning material</td>
</tr>
<tr>
<td>Preparation, administration, and analysis of a diagnostic and achievement test</td>
</tr>
<tr>
<td>Conducton of neighbourhood survey</td>
</tr>
<tr>
<td>Developing a school profile</td>
</tr>
<tr>
<td>Learning about school records (from seniors)</td>
</tr>
<tr>
<td>LEARNING ENVIRONMENT</td>
</tr>
<tr>
<td>Managing the class environment</td>
</tr>
<tr>
<td>Maintaining reflective journals</td>
</tr>
<tr>
<td>Integrating work education, art education and health and physical education with teaching subjects</td>
</tr>
<tr>
<td>CLASSROOM RESEARCH</td>
</tr>
<tr>
<td>Action research planning and execution</td>
</tr>
</tbody>
</table>
Student-teachers need to be able to negotiate their way to understanding the social and cultural so as to create engaging learning. Their participation to achieve this had been given space in the D.El.Ed. programme during the SEP orientation each year, planned and guided by the teacher-educators through simulations created by senior peers at the DIETs. More about this follows.

4.5.1. SEP orientations in Year 1 and Year 2

In this programme the participants came together in the SEP orientation to better understand the teaching and learning process. The SEP orientation created the space and atmosphere in the programme in which the student-teachers experienced educational events and practised and learned together. The student-teachers developed a sense of how practice teaching should be done, learning the appropriate orientations, behaviour, actions, conventions and communication. They also learned what to avoid in order to achieve the valued aim of teaching well. Gallimore and Goldenberg (2001) found that the cultural values in a programme are encoded in the ‘environmental and event interpretations, what is valued and ideal, what settings should be enacted and avoided, who should participate, the rules of interaction, and the purpose of the interaction’ (2001:47).

During SEP1, due to late admissions, very little was done during the SEP orientation. During SEP2, at DIET-Badapur, the student-teachers from the senior Year 2 cohort introduced practice teaching through simulated classes with peers. They demonstrated microteaching, skills of ‘good teaching’ and more, as shown in Table 15. This was carried out with planning and was highly attended. At DIET-Chotapur simulated classes were replaced by lectures.

The syllabus mandated that student-teachers be taught to frame objectives, create lesson plans, execute a variety of teaching strategies, develop and implement teaching-learning materials (TLMs), and understand the pedagogy of teaching different subjects: language, environmental science, health and physical training, work education and art education. They also had sessions in constructivism, reflective practice and how to maintain a reflective journal, how do action research, and how to design and conduct diagnostic and achievement tests.

4.5.2. Observing the SEP orientation in Year 1 (2015–16) and Year 2 (2016–17)

The SEP orientation was supposed to be conducted from August to September each year. In Year 1, during phase one of field work, admissions were delayed due to changes in the admission process. The SEP1 orientation in 2015 was delayed, ending in mid-November at DIET-Chotapur and end-November at DIET-Badapur. Only a few student-teachers were able
to undergo a short four-day SEP orientation at DIET-Chotapur instead of the normal 45 days in August and September. Most activities listed in Table 15 were only touched upon or not done in Year 1 (2015–16) at both DIETs. This gap in Year 1 showed in the student-teachers’ SEP1 experience. It was perceived as negative by most and positive by others. For example, Dr Shastri, the DIET-Chotapur principal, felt that the (school) pupils did not do very well during the beginning of SEP1 in 2015. During a morning assembly he told the student-teachers:

> I have visited seven schools. Our school is known for outstanding performance in previous years. This year the performance has not reached that status so you will have to improve [...] Whatever your problems, consult your supervisors. Fifty percent of our teacher-educators are on leave, so there will be four persons here. Meet whoever you can.

(Principal, DIET-Chotapur, Assembly, 24.11. 2015)

Conversely, Dr Pandey felt that the student-teachers had performed better when they had been left to manage on their own.

The SEP2 orientation (2016–17) was completed in time because fresh admissions were completed by August at both DIETs and the semester start was not delayed. In Year 2 (2016–17), most of the activities detailed in Table 15 were covered and carried out in greater detail.

The SEP orientation set the tone for the student-teachers. It trained them with a mix of very old strategies (NCERT, 2005) and relatively newer ways of teaching. During the orientation it was almost possible to observe the history of teaching in teacher education at the DIETs in India. The principles of ‘good teaching’ that the SEP orientation started with were grounded mostly in the traditional ‘transmission’ model. Knowledge and skills were initially treated as directly transferable from ‘expert’ teachers to the student-teachers in a one-size-fits-all manner. Kumar (2005) has described how the teaching resembled what took place almost a hundred years ago in the normal schools set up by the British when they trained large numbers of teachers together. The student-teachers, as in colonial times, were given no space to relate the content of what was being taught to the larger social environment (Mayhew, 1926, in Kumar, 2005). Similarly, habits of ‘punctuality, politeness, cleanliness and neatness, cheerful obedience’ (Cotton, 1896:24, in Kumar, 2005:82) were emphasised.

The processes and practices adopted in the SEP orientation were not grounded in social justice and did not emphasise equity or reflective practice as stipulated in the NCFTE (NCTE, 2009). Further, the socio-cultural aspects of teaching were not emphasised. The student-teachers learned about constructivism through a lecture at DIET-Badapur and through the
use of a lesson plan template developed by Dr Bir at DIET-Chotapur. Student-teachers at DIET-Chotapur also learned about microteaching by listening to lectures for three days delivered by a visiting teacher-educator. Ms Snigdha Srivastava, the head teacher-educator at DIET-Badapur, in a conversation, pointed out that the SEP orientation was the same as when she was a student-teacher; Ms Srivastava was about 57 years old in 2015, three years from retirement.

There were, however, a few changes. While the basics of ‘good teaching’ followed the old template, a more activity-based, student-centred, and constructivist pedagogy was introduced to bring in newer ways. There was an emphasis on using teaching-learning materials and storytelling, showing patterns in pedagogical change that were introduced during the District Primary Education Project (DPEP) and Andhra Pradesh Primary Education Project (APPEP), when several DIETs came into existence in the 1990s (see Section 1.3. DIET-Chotapur used several lesson-planning templates based on the preferences of the different subject teacher-educators. There was no mention of reflection except when the teacher-educator responsible for the reflective journal assignment told the student-teacher how to write reflective journal entries.

During the SEP orientation, the student-teachers in Year 2 simulated and presented examples of model classes to Year 1 student-teachers. Student-teachers followed the prescribed teaching cycle and strategies taught during the SEP orientation. Each student-teacher created peer observation reports. Each of these ways of teaching carried, within them, teaching orientations and different ways of being practical in the classroom.

4.5.3. Objectives and planned structure of the SEP module including intended opportunities for reflection

The objectives for SEP1 and SEP2 were clearly laid out in the D.El.Ed. syllabus. In addition, during SEP2, the student-teachers were expected to innovate within the school’s systems, to conduct meaningful classroom activities and to evaluate a pupil’s learning, recording participation as part of evaluation. It was stipulated in the syllabus that each SEP was to be conducted in 40 days in three phases of 5, 20 and 15 days. To achieve the objectives, in the first of three phases, the student-teachers were expected to observe and critically reflect on classroom teaching of supervisors and peers in order to gain insights into pupil behaviour, instructional practices, learning, learning environments and classroom management (D.El.Ed. syllabus, 2014) for five days, after SEP orientation (see Table 16).
Table 16. Recommended calendar of events during each SEP for 40 working days (D.El.Ed. syllabus, 2014:131).

<table>
<thead>
<tr>
<th>AUG–SEPT</th>
<th>SEPT</th>
<th>OCT–NOV</th>
<th>JAN–FEB</th>
<th>FEB–MAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEP ORIENTATION</td>
<td>PHASE 1 OBSERVATION 5 days</td>
<td>PHASE 2 PRACTICE TEACHING 20 days</td>
<td>PHASE 3 ROTATION EVALUATION 15 days</td>
<td>Submission of reflective journal, portfolios, research report</td>
</tr>
</tbody>
</table>

Student-teachers taught what were called ‘teaching subjects’ and ‘practical subjects’ (D.El.Ed., 2014, Table 17) and two languages, English and a regional language, which could be Hindi or Punjabi or Urdu. The teaching subjects were, in SEP Year 1, maths and environmental sciences; and maths, science and social science in Year 2.

Table 17. Number of lesson plans, lessons and activities to be created and delivered in each SEP phase.

| NUMBER OF LESSON PLANS, LESSONS AND ACTIVITIES TO BE CREATED AND DELIVERED IN EACH SEP PHASE |
| Phases in SEP | No. of (lesson plans for) lessons in the different teaching subjects (TS) | No. of (lesson plans for) lessons in practical subjects (PS) to be integrated with other teaching subjects (TS) |
| Phase 1 OBSERVATION, 5 days | Year 1: To acclimatise student-teachers to the school and its environment, understanding the children, teaching and learning processes and social dynamics | No lessons delivered |
| Phase 2 PRACTICE TEACHING, 20 days | Year 1: 2 TS and 1 PS | 8 Hindi/Punjabi/Urdu 8 Math 7 EVS 7 English | 5 AE 5 WE 5 H & PE ARP |
| | Year 2: 3TS and 1 PS | 20 Hindi/Punjabi/Urdu 20 Math 20 Social science 20 Science 20 English | 5 AE 5 WE 5 H & PE ARP |
| Phase 3 ROTATION EVALUATION 15 days | Year 1: 2TS and 1PS | 8 Hindi/Punjabi/Urdu 8 Math 7 EVS 7 English | 5 AE 5 WE 5 H & PE ARP Activity: an art and craft end exhibition demonstration |
| | Year 2: 3TS and 1PS | 15 Hindi/Punjabi/Urdu 15 Math 15 Science 15 Social science 15 English | Activity: A cultural programme based on performing arts activities to be organised at the end of SEP |

The ‘practical’ subjects were art education, physical and health education, as well as work education. These were integrated with the teaching subjects. The number of classes to be delivered in each subject was stipulated in the syllabus for each phase and over the two years.

In the D.El.Ed. programme, after each practice class student-teachers were expected to reflect on the class, and to discuss things with peers, teacher-educators from the DIET and the practice schoolteachers who had observed the class. This point in the syllabus offered opportunities for reflection between student-teachers and their general supervisor. During Phase 1, student-teachers observed teaching and norms of practice at the practice schools. During Phase 2, the class observations were formatively evaluated by the general supervisor. During Phase 3 and the last 15 days of the SEP, planned in January–February, the student-teachers’ practice teaching was observed, and the lesson plans and class observations underwent summative evaluation by each of the general supervisors, in turn, in rotation. This provided an opportunity to all student-teachers to discuss and reflect on their work with each supervisor at the DIET, beyond their general supervisor (D.El.Ed. syllabus, 2014). Evaluation was recorded in evaluation sheets developed at each DIET. These evaluation sheets ensured consistent assessment by observation of practice teaching (D.El.Ed. syllabus, 2014).

Among other assignments, the D.El.Ed. programme also stipulated that the student-teachers learn to organise events such as competitions and parent-teacher meetings (PTMs), that they should critically evaluate school textbooks and other resources for the appropriateness of their pedagogy and context and should also take up a small action research project. Finally, every student-teacher was expected in the D.El.Ed. syllabus to maintain reflective journals during the SEP.

The student-teachers are expected to record their experiences, observations and conclusions regarding all the activities undertaken. The entries of reflective journals will be analytical answering ‘what’ is new and different from their (student-teachers’) previous understandings, ‘why’ certain observations made by them with regard to instruction, classroom management, PTAs, etc., are different / same and ‘how’ these observations might lead to a criticism and change in their practice. The students will be assessed based on entries made in Portfolios and Reflective Journals. (D.El.Ed. syllabus, 2015:16)

Both the school principal and DIET teacher-educators were expected to evaluate the student-teachers’ observed classes for a maximum of 20% each as the internal mark. The school principal and the school mentors also evaluated the student-teachers’ performance with another 20% marks.
4.5.4. A note on language usage at the DIETs

There are state-run schools who offer specific languages as a medium of instruction and some who offer the same languages as subjects. Teachers trained in the languages used are needed for schools. The D.El.Ed. syllabus offers four languages as subjects. All DIETs offer two languages as subjects: Hindi and English. Some DIETs offer a third state language as a subject. This could be either Punjabi or Urdu. Student-teachers were expected to learn English and a regional language, which could be Hindi or Punjabi or Urdu. The medium of instruction at all DIETs is Hindi and English. All teacher-educators and student-teachers accept and submit assignments in Hindi or English. Most student-teachers’ main language of communication at the two selected DIETs is Hindi. For some student-teachers, their mother tongue, also, is Hindi. For others it could be Punjabi, Urdu or yet another language which they use at home with their families. The DIETs that offer Urdu or Punjabi as a subject have specialist teacher-educators to teach and evaluate this subject. DIET-Badapur offered the choice Urdu as a subject to 20 student-teachers in each cohort. The area in which the DIET was located had a large population of Urdu speakers. DIET-Chotapur, as mentioned earlier, offered Hindi and English as subjects. Of the four student-teachers, three wrote their reflective journals in Hindi. Only one wrote it in English. All four student-teachers were bilingual in their teaching.

4.5.5. Adjusted schedule for the SEP1 and SEP2 in Years 1 and 2

Regarding the implementation during SEP1 and 2, the two DIETs did not follow 15 days of rotation evaluation. This was because the schools had their examinations in March and wanted practice teaching interventions to be completed well before February. The schoolteachers were under pressure to cover subject syllabi well before the school examinations started. Both DIETs tried to manage their schedules to complete the SEP module’s school-related work either before 25 December or by 15 January at the latest. In Year 1, this was not possible for both DIETs. Because admissions were late, the SEP got delayed. It got further delayed because of a cold weather wave in which schools were declared closed by the state government, to protect the children. This was followed by a strike by government teachers and then there were riots in a neighbouring state which led to further closures. The 2015–16 SEP and submissions was a scramble till closure by February. However, in the following year, 2016–17, both DIETs were able to complete practice by December, giving the student-teachers more time to complete assignments and to reflect (Appendix 2).
1.1. CHAPTER 4 CONCLUSION

From the description established during the SEP orientation, I visualised the process as shown in Figure 18, identifying the places where opportunities for reflection are embedded in two teaching cycles, such as reflection-for-action during lesson planning, reflection-in-action during practice teaching, reflection-after-action during journaling, reflection-on-action and after-action with the supervisor.

This chapter described the situation created by the activity system for fostering reflection during learning to teach at a DIET. It introduced the elements in the activity system likely to influence reflection for teaching constructively, including the DIET environment, the leadership and community members, consisting of the principals, teacher-educators and, briefly, the student-teachers with their roles and responsibilities. The rules for fostering reflection were described through the planned D.El.Ed. syllabus, the SEP modules and SEP orientations. The differences in the execution of the actual SEP orientations were also described. The next chapter introduces how reflective practice was fostered through mediation in the D.El.Ed. programme at the two DIETs.
5. UNDERSTANDING HOW REFLECTION IS FOSTERED AT THE DIETS

5.1. INTRODUCTION
The next three chapters (Chapters 5, 6 and 7) address the findings that answer the research questions through analysis of the data processed and thematically coded according to the different frameworks.

This chapter focuses on answering the research question, ‘How is reflective practice fostered at the two-year long Diploma in Elementary Education (D.El.Ed.) programme?’ Following the policy articulated in the National Curriculum Framework for Teacher Education (NCFTE) (NCTE, 2009), reflection is fostered through a teaching process built into the D.El.Ed. syllabus. Reflection is embedded and mediated through different tools and signs such as templates, pedagogies, supervision reviews, reflective journals and interviews. During the current research, this was implemented at the DIETs over the two years of this study. The data, some of which is shared in the following chapters, revealed a messiness and differences in perceptions that were the result of historical and cultural issues that hindered the fostering of reflection at both DIETs.

5.1.1. Chapter structure
It was not well known at the DIETs that reflection was a crucial part of the process-based teacher education recommended by policy. This is established in Section 5.2. Section 5.3 discusses how the different lesson plan templates mediated reflection. Section 5.4 describes the differences in reflection resulting from the interaction of the student-teachers and supervisors during practice teaching and classroom observation. Section 5.5 discusses how reflections from the supervisors were found to vary depending on the subject and teacher orientation. Section 5.6, considers whether reflective journals – which have long been a preferred way to foster, monitor and evaluate reflection in teacher education institutes and in research (Valli, 1997; Griffiths, 2000; Ghaye, 2007; Collin & Karsenti, 2011), are the best way to evaluate or evidence reflection at the two DIETs studied in India. Section 5.7 builds on this in proposing that reflections during interviews, and during stimulated recall interviews, may result in higher levels of reflection, as evidenced in the current study. Section 5.8 discusses how an innovation introduced at DIET-Badapur - carrying out collaborative reflection socially during morning assemblies - presented a new possibility for fostering reflection and Section 5.9 describes how reflection varies according to the way it is expressed or represented. Section 5.10 discusses the
contradictions to foster reflective practice at the DIETs and Section 5.11 summarises and concludes the chapter.

Throughout this chapter, and Chapters 6 and 7, references are made to the rubric tool designed for this study (RPTv2) – a point of reference for understanding different levels of reflection, as discussed in Chapter 3. The reader can refer to the tool in Appendix 1.

5.2. LACK OF UNDERSTANDING ABOUT THE POLICY: THAT REFLECTION IS THE CENTRAL AIM OF TEACHER EDUCATION

The NCFTE (NCTE, 2009) hailed reflective practice as the ‘central aim of teacher education’ (2009:19). Implementing the policy required the DIET teacher-educators to be familiar with the NCFTE (NCTE, 2009) and its key messages. The lack of support for implementing the policy was evident when most teacher-educators, including the head teacher-educator from DIET-Badapur, either did not know about the NCFTE (NCTE, 2009) or had not read it. Most faculty did not know that the NCFTE (NCTE, 2009) regarded reflection to be very important for improvement in practice. A few faculty at both DIETS, like Dr Pandey, Dr Bir and Dr Mehta from DIET-Chotapur, and Dr Bagga, Dr Khanna and Ms Dhar from DIET-Badapur, showed that they had different self-grown perceptions about reflection and reflective practice.

The second and closer policy document, the D.El.Ed. syllabus, did not lead the teacher-educators to connect the goal of constructivist pedagogy directly with the aim of learning to teach with reflection. Without training teacher-educators to implement the new emphasis on reflection in the new syllabus, it seemed difficult to develop a culture of reflective practice in each DIET.

In addition to the lack of knowledge about reflection and reflective practice, the cohorts at DIET-Badapur and DIET-Chotapur experienced very different School Experience Programme (SEP) orientations at the beginning of the SEP in Year 1 (SEP1) and in Year 2 (SEP2). Due to late admissions at both DIETs in Year 1 (Appendix 2), the SEP1 orientation did not take place for the planned 15 days. The first few student-teachers who were admitted in October instead of July underwent a very short four-day orientation. Most student-teachers, who joined later, missed the orientation. They had no introduction to the theory and norms of teaching. This situation was perceived by faculty at both DIETs in different ways. Both principals regretted the near absence of planned and structured facilitation. Dr Pandey at DIET-Chotapur, however, felt that the student-teachers gained from having missed the SEP orientation. She felt that they learned unencumbered by the teacher-educators’ biases.
It is like leaving a child in the water and telling the child to swim. ... This time they went in directly and did better ... As a teacher-educator, I have shortcomings and prejudices. ... The student-teachers learn these and so they do not blossom as much. I felt this time it was better. (Dr Pandey, conversation)

The senior cohort facilitated the learning about the teaching process. This included lesson planning, class management, reflective journaling and learning to teach by applying constructivist pedagogy. In the beginning of Year 2, the same cohort experienced a complete and timely implementation of the SEP orientation. The student-teachers appreciated the second orientation.

Tools and signs were found to play a key role in guiding the student-teachers at the two DIETs to reflect. According to Vygotsky, ‘the general goal of instruction is to assist students in becoming fluent users of a sign system’ (in Wertsch, 2007:186–7). The important tools used in the activity system at the DIETs are templates for lesson plans, evaluation and reflective journal templates, and supervision reviews. In addition, I conducted interviews, stimulated recall interviews and a focus group discussion. A description of how each of these was found to foster reflection at these two DIETs follows, starting with lesson planning.

5.3. FOSTERING REFLECTION-FOR-ACTION WITH LESSON PLANNING TOOLS

Repeated use of the lesson plan template was built into the SEP module when student-teachers were expected to develop a fixed number of lesson plans and implement them as practice classes in each subject. This ensured repeated opportunities for reflection on lessons. Based on Vygotsky’s tenets, it could be assumed that this learning was first inter-mental (i.e. social and cultural) and then intra-mental (i.e. internal) (Vygotsky, 1981). Again, following Vygotsky, the templates mediated the initial thinking, reflection and planning of the lessons. The DIET community tended to follow one dominant template for planning classes in most subjects. These templates differed at each DIET, though they evidently originated together because they had several common text fields.

5.3.1. Following a tradition of lesson planning at DIET-Badapur

With no specialised training about reflection, the teacher-educators at DIET-Badapur continued to teach in the manner they were habituated to. Herbart’s five steps of lesson planning, which are known to have been introduced almost a hundred years ago when Normal schools were set up by the British (Kumar, 2005), continue to be applied at the DIETs.
The first of Herbart’s five steps invokes pupils’ curiosity by asking them questions about their world. This is done until the pupils reach they cannot answer, and this is called ‘the problematic question’. In the next step, the teacher presents the abstract definition of the key concept. Following this, new knowledge or concepts are presented through a concrete experience or what is now known as teaching-learning material (TLM). The new concept is introduced association and comparison. The last step is the application of the newly acquired knowledge, by the pupils in class, so that they own the knowledge. Lessons usually end with checking understanding with questions or doing something concrete.

I observed an example of this lesson plan structure during SEP1 at DIET-Badapur, in the first practice class of Zohra, one of the student-teachers that I had followed. Zohra planned to teach ‘Boxes and Sketches’ to Class 4 pupils. She planned her class with objectives and checked their existing knowledge, based on her understanding, till she reached the ‘problematic question’. In order to provide pupils with a concrete experience, Zohra planned to use 3D shapes and boxes as TLM. Each lesson plan notebook at DIET-Badapur had to have a miniature version of the TLM drawn in it. Zohra then planned to elaborate on the concept by showing how to make a sweet box, pointing to the differences between a sketch and box, and the definition of a sketch. At the end of Zohra’s lesson plan was ‘Conclusion and Homework (Experience enhancing work)’. The plan was created on the only template used at DIET-Badapur (see Figure 19).
Figure 19. Zohra’s SEP1 lesson plan at DIET-Badapur.

**Practical Objectives:**
1. Understand the difference between boxes and a sketch
2. Recognise a box and a sketch
3. Apply the knowledge of a box and a sketch in their lives

**Existing knowledge**
The children are familiar with boxes.

**Established pre-existing knowledge**

<table>
<thead>
<tr>
<th>Student-teacher interaction</th>
<th>Student reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children, do you like Indian sweets?</td>
<td>Yes, Ma’am</td>
</tr>
<tr>
<td>Children, have you bought sweets?</td>
<td>Yes, Ma’am/ No</td>
</tr>
<tr>
<td>Children, how are sweets packed?</td>
<td>In a box</td>
</tr>
<tr>
<td>What is the shape of the sweet box? What is it called?</td>
<td>Do not know. (Problematic question)</td>
</tr>
<tr>
<td>Do you know that your room is also in the shape of a box?</td>
<td>The children are silent and are ready to know more.</td>
</tr>
</tbody>
</table>

**Teaching and learning aids (TLMs):**
Blackboard, chalk, some 3D shapes, and boxes.

**Aim of the class:**
Children, today we will learn about/discuss the shape of a box

**Presentation**

<table>
<thead>
<tr>
<th>Introduction to a box and sketch</th>
<th>Student-teacher interaction</th>
<th>Student interaction</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student-teacher will talk about a box and gives its characteristics.</td>
<td>Student will listen attentively and try to understand.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Concept of a cube | The student-teacher tells the students about a cube and provides its definition, in which when all six faces are equal the shape is called a cube. She writes this on the blackboard and makes a drawing. | The students listen attentively and understand what a cube is. | What is a cube? |

| Sweet box | The student-teacher teaches the students to make a sweet box. | The children watch attentively. |

| Difference | The student-teacher makes a sketch, shows the children a box and points out the difference between the two. | The students listen attentively and, in their books, make a sketch. | What is a sketch? |

| The definition of a sketch | The student-teacher gives the definition of a sketch. Before making anything a sketch of the object is essential. For example, when a house is made, it is decided where a window will be located, etc., a sketch is readied, and after that a house is made. | The students listen and understand attentively. And understand the whole discussion. | What is a sketch? Give the difference between a box and a sketch. |

**Conclusion**
The student-teacher concludes the class.
1. What is the difference between a box and a sketch?
2. What is the definition of a cube?

**Homework (Experience enhancing work)**
All the students will make a sketch of their houses and bring it to school.
Analysis of this plan suggested that Zohra focused on the aims of practice, which mapped to technical reflection in the RPTv2. The rubric described the reflection as follows:

Reflection is focused on directing and controlling practice by actively meeting specific externally defined curricular outcomes of learning through specific, narrow teaching tasks (Appendix 1: RPTv2:TRFocus1)

However, I observed Zohra’s practice teaching class based on this lesson plan. She added more interaction during her practice teaching, which was not included in her lesson plan. In her practice teaching she tried to relate the content to the pupils’ lives. She asked her pupils about who bought sweets in their homes, and whether any pupil accompanied that person? What were the sweets packaged in to carry home? She tried to help the pupil to construct knowledge through the TLMs, activity-based teaching and ‘joyful learning’. She showed different shapes that she found at the back of the class and drew the same on the blackboard. She called on pupils to draw a box on the board. She added homework to make a box and bring it to class. All this was not part of the lesson plan. The change to become more constructivist and student-centred was not built into this traditional lesson plan format used at DIET-Badapur. It needed student-teachers to reflect. Zohra demonstrated this with reflection-in-action during the practice teaching.

These observations pointed to the need to have teacher-educators who were reflective practitioners and guides-on-the-side, at the DIETs, with an understanding about mediation. Dr Khanna, a teacher-educator at DIET-Badapur, was observed trying to change the thinking about lesson planning. Instead of asking regimented questions, Dr Khanna emphasised the pupil’s point of view and encouraged student-teachers to approach the lesson plan in a more learner-centred, dialogic manner by discussing the topic with their pupils to make learning more ‘social and contextual’. According to him the contextualisation of the topic for the pupil was very important because this helped the pupils to relate to it and realise for themselves the potential it had to change their lives. In turn, the student-teachers would learn more about their pupils, their point of view and what they already knew about the topic. He also believed it was crucial to establish the practical objectives of the lesson in the lesson plan.

In considering these humanly mediated details like discussions, contextualisation and familiarisation with the pupils’ way of life and establishing practical objectives, like Zohra did, it was possible for the student-teachers to become more dialogically reflective in their lesson plans.
5.3.2. A tradition of change in lesson planning at DIET-Chotapur

As at DIET-Badapur, there was one dominant lesson planning template at DIET-Chotapur. This had been introduced in recent years by Dr Bir, the head of academics. At the same time there were other templates used to plan lessons in different subjects. The different styles of lesson plan templates were shown to shape different levels of reflection.

Dr Bir had attended a workshop at the National Council for Education and Training (NCERT) in 2009 on how to introduce constructivism into the classroom. The workshop did not include a mention of reflective practice. Dr Bir incorporated her learning into the design of the ‘Lesson plan template 1’ (Figure 18) and the ‘Evaluation Proforma for Teaching Practice’ (Figure 20).

Figure 20. Asha’s lesson plan during SEP1 using DIET-Chotapur’s most frequently used ‘constructivist’ LP Template 1.

<table>
<thead>
<tr>
<th>Lesson plan Template 1 in SEP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definite and indefinite pronouns</td>
</tr>
<tr>
<td><strong>Lesson plan</strong></td>
</tr>
<tr>
<td>Student teacher: Asha</td>
</tr>
<tr>
<td>Class: 4</td>
</tr>
<tr>
<td>Class teacher:</td>
</tr>
<tr>
<td>Subject: Hindi</td>
</tr>
<tr>
<td>Date: 1.12.2015</td>
</tr>
<tr>
<td>Topic: Definite and indefinite pronouns</td>
</tr>
<tr>
<td>Duration: 30–35 minutes</td>
</tr>
</tbody>
</table>

**Aim of the lesson:** To make the pupils familiar with definite and indefinite pronouns.

**Teaching aids:** Blackboard, chalk.

**Introduction:** The student-teacher writes some examples on the board.

for example, 1: Why have you come here?

for example, 2: This is a book.

**Student-teacher’s question:** Can you tell me what do you say to the underlined words?

**Pupils’ answer:** These are pronouns.

**Student-teacher’s question:** Which type of pronouns are these?

<table>
<thead>
<tr>
<th>Engage</th>
<th>Explore</th>
<th>Explain</th>
<th>Elaborate</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student-teacher relates a story.</td>
<td>The pupils write the pronouns in the story in their exercise book. For example, someone, this, that, few.</td>
<td>The student-teacher tells the pupils that the underlined words are definite and indefinite pronouns. Definite pronouns are those which give an idea of definiteness. Indefinite pronouns are those words which give an idea of indefiniteness.</td>
<td>The student-teacher reads the textbook and asks the pupils to encircle the definite and indefinite pronouns.</td>
<td>The student-teacher writes some examples on the blackboard. She underlines the pronouns. For example, someone is in the room. This is my house.</td>
</tr>
</tbody>
</table>

**Extension (Homework)**

The student-teacher gets the pupils to write the examples in their exercise books. She asks them to encircle the definite and indefinite words.
As Dr Bir explained, both of these templates were designed to mediate and guide student-teachers’ own learning to use increasingly constructivist pedagogy in their teaching. She was not aware of reflective practice, at the time, and so reflection found no mention in either of the templates. Many teacher-educators at DIET-Chotapur felt that different designs of lesson plans were more suitable for teaching different subjects, such as art education, social science, physical education and languages. For example, Dr Pandey, at the same DIET did not agree with the use of TLM in each class. She felt that experiences, stories and other means could provide a richer mediation for learning the topic. Dr Bir was flexible, and at DIET-Chotapur, the teacher-educators could introduce different lesson plan templates which they found suitable for planning their subjects.

During SEP1 and SEP2 at DIET-Chotapur the student-teachers used different templates to create their lesson plans. For example, Asha, a student-teacher participant at DIET-Chotapur, created three lesson plan templates to plan her lessons in three different subjects: pronouns in English language (LP Template 1 or LPT1), time in maths (LPT2), and introduction to gender equity in social sciences (LPT3). The aims, objectives, introduction to the topic and the workplan have been compared in Table 18 and are discussed next.
Analysing Asha’s lesson plans on different templates showed that gradually, with each successive template, the plan became increasingly constructivist, dialogical, critical and transformational. Asha facilitated pupils to become more involved in their own learning and construction of knowledge. This will be discussed in greater detail later in this chapter.
The aim of Asha’s lesson plans moved from abstract knowledge to developing a skill, to gaining social awareness and change. In her first lesson plan, the aim was ‘To make pupils familiar with definite and indefinite pronouns’. The aim of practice in this lesson plan mapped to technical reflection in the RPTv2 (TRFocus1). The rubric description TRFocus 1 follows:

**TRFocus1 Focus on aims:** Reflection is focused on directing and controlling practice by actively meeting specific externally defined curricular outcomes of learning through specific, narrow teaching tasks. ... The teacher usually seeks to solve the problems in class without questioning the nature of the problem itself, the learner’s context, or any other teaching issue.

In Asha’s second lesson plan, the aim of the lesson was to ‘Teach the students a lesson in maths. To read the clock (and build) awareness of the importance of time’. This template had an additional field to list ‘behavioural objectives’ as follows:

**Behavioural Objectives:**

During the lesson, the pupils (will):

- Take a topic in maths.
- Understand the importance of time
- (Learn) how to read and tell time
- Apply the knowledge gained in class to daily life
- Can tackle and solve time related issues in daily life

These were expected to facilitate the student-teacher to reflect more deeply and plan for the learning by writing it into the lesson plan. In addition, the second template had fields called ‘The student-teacher’s preparedness’ and ‘Application to daily life’ instead of ‘Teaching learning material’ and ‘Homework’, as mentioned in the first template. The second and third templates used terms that were more student-centred and closer to daily life. The lesson plan, itself based on this template, showed increased dialogical reflection and mapped on the reflective tool to DRFocus1 as follows:

**Reflection is focused on the process of learning and learners, and their context rather than concentrating only on learning outcomes. The teacher uses interactions ... to understand how and in what ways learners learn. Aims to develop concepts in learning among the diversity of students in the classroom. The teacher facilitates, supports, encourages students' own capacity to construct knowledge, ... takes actions for improvement centred on learning tasks achieved holistically. Designed to promote individual learning (Ward and McCotter, 2004). The teacher's orientation is to give importance to personal meaning in education.**
In the third lesson the aim was to:

- Increase the respect for women’s work among the students
- Plant admiration for women’s work and through the work done implant thoughts about how much skill they need

The objectives were expressed as follows:

After learning the students will be able to understand the following:

- The differences between the jobs of women and men
- The importance of women’s work
- Develop a respectful feeling for those women who work at home.

This plan mapped to critical and transformative reflection in the RPTv2 as follows:

**CRFocus1 Focus on aims:** To improve the quality of life of the socially and economically disadvantaged. Critical reflection is focused to equip student-teachers to overcome their biases and develop a personal involvement which seeks to challenge existing ethical, political, social and historical conditions and facilitate students to be responsible for their own learning.

The teacher’s orientation is based on the beliefs that schools and schooling are based on political constructs that replicate the dominant culture, often continuing to produce injustice and inequities in society. The teacher’s orientation is to change the status quo to become more democratic, promote values of peace, equality, justice, liberty, fraternity, secularism, and zeal for social reconstruction.

The teacher especially focuses on self-reflexivity, sensitivity towards inclusivity and environmental concerns.

The work plan structure in each lesson template differed. The details of each particular lesson have not been shown here due to limitations in size of presentation. The implementation of these plans were observed during practice teaching and recorded in field-notes. The first template, introduced by Dr Bir, was structured to make the student-teacher’s class more constructive, with the following template structure:

- Engage
- Explore
- Explain
- Elaborate
- Evaluate

Yet, the lesson was planned with teacher-led teaching, and a more traditional, abstract way of language teaching. This was the method practised in the school. The lesson plan based on LPT1 and the ensuing practice class mapped to technical reflection in the RPTv2. The matching rubric description (TRFocus3) follows:
**TRFocus3 Teaching-learning processes and strategies:** The teacher works on classroom related problems, with a focus on effective teaching for efficient delivery through strong technical skills. The teacher uses established, proven, teaching techniques, guidelines and skills drawn from a researched theory base, for example, student engagement, active learning, prior knowledge, homework review, discovery, and exploration, maintaining order in class and so forth. Pedagogy typically has a behaviourist approach. The teacher tends to give pupils useful feedback, knows when to reteach topics or correct pupil responses. The teacher rarely considers connections between teaching issues. Theory courses have no clear link with practical work and ground realities. Current practices in teacher education train teachers to adjust to the needs of the existing school system through fastidious planning of lessons in standardised formats, fulfilling the ritual of delivering the required number of lessons. Technical reflection directs or controls practice.

The student-teacher, Asha, tried to teach effectively using proven techniques like engaging the pupils, active learning, establishing prior knowledge, instituting a homework review, and maintaining discipline. She used a behaviourist pedagogy following school norms. She later discussed this class with her supervisor.

The second template changed the workplan structure to:

- Aim
- Engage the students
- Knowledge from the point of view of the students (discussion)
- Interpretation
- Student-teacher asks the pupils questions
- Evaluation

‘Explanation’ in the first template was changed to become ‘knowledge from the point of view of the students’. This brought in a change during practice teaching, leading to a class discussion. ‘Elaborate’ was changed to ‘Interpretation’ taking a clear stand that there can be several different points of view of knowledge, and the student-teacher’s view was one explanation. The teacher tried to actively construct knowledge from different sources and link school with home. This reflection aligned more closely with dialogical reflection as described in the RPTV2 in DRFocus2:

**DRFocus2 Knowledge perspective:** The teacher at this level of reflection believes knowledge is constructed actively during learning from multiple sources, personal and social experience, linking school knowledge with community knowledge.

The field ‘Evaluation’ remained the same in all three templates, but methods of evaluation became increasingly social, in each lesson, during practice teaching. Instead of just writing examples on the board and checking if the pupils understood as was done in lesson 1, Asha intended to check pupil learning in different ways. In the second lesson plan, Asha posed questions and invited answers from her pupils. She also applied collaboration, discussion
and observation methods. These were repeated in the third template but were observed to be better applied, with livelier discussion and sharing, during the practice class. Pupil involvement was greater. The discussions between the student-teacher and pupils showed an increasingly dialogical reflection by Asha. This aligned with DRFocus 3, in RPTv2 as follows:

**DRFocus3 Teaching-learning processes and strategies:** Reflection at this level informs practice by enabling meaningful learning for students. The teacher explores, weighs and applies alternate teaching techniques that are contextually appropriate and responsive to student needs like organising learner-centred, activity-based, participatory learning experiences, structured group discussions – play, projects, discussion, dialogue, observation, visits, integrating academic learning with productive work. These strategies help to provide opportunities to revisit examine and challenge (mis)conceptions of knowledge. Teachers evoke responses from students to engage them in deeper discussions and reflection. The teacher tends to consider linkages between content, context and students taking into account individual and social experiences, preconceptions, perspectives and prejudices, while teaching. Pedagogy is typically humanistic, stresses effective communication, and constantly adapts to learner needs, feelings and attitudes through reflection by the teacher. The teacher opposes content coverage and tries to understand the problems of struggling learners have, to improve their learning.

During the third practice class, reflection enabled meaningful learning with the student-teacher using contextually appropriate stories which encouraged the pupils to re-examine their personal views and led to deeper discussions on gender equity.

The lesson that was planned with the third template stood out in having a story created by Asha and one taken from the textbook to introduce the topic to the pupils. Overall, the design of the template had been changed in small but crucial ways to direct the student-teacher to increase pupil involvement through a search for existing knowledge as well as new knowledge.

Each lesson plan template provided a space for a student-teacher to sequence and detail a considerable amount of information and activity within a lesson. Asha’s practice teaching was observed to develop with each change in the different lesson plan templates. The next section discusses the different ways in which reflection mediates practice teaching.

**5.4. FOSTERING REFLECTION-IN-ACTION WITH PRACTICE TEACHING**

Detailed lesson plans were found to both constrain and develop the student-teachers’ classroom teaching. Reflection-in-action was observed to play a crucial role to keep practice teaching effective. This is demonstrated through the observation of two of Sabia’s practice classes. Sabia was Asha’s colleague and another participant from DIET-Chotapur. In her
initial classes during SEP1, Sabia tended to follow her lesson plan closely in her practice class despite repetition and visible pupil boredom. The following extract from my observation of a pattern that was followed in Sabia’s three initial classes shows this:

Sabia started her practice teaching following a set pattern of teaching. She would often teach a topic through a poem from the textbook. She would read the poem with great vigour and expression the first time. The second time, she would read each line and the pupils repeated the poem after her, line by line, with actions. The third time Sabia would explain the poem – read it in English and explain it in Hindi (if it was an English poem), again line by line.

Sabia would then identify the familiar words on the board, followed by the new words. The children were asked to read the words, sometimes one by one, or spell the words publicly after writing them in their books. A variation to this routine was to draw things that were mentioned or related to the lesson or enacted as a play. A TLM was always used to help learning or establish previous or new knowledge.

Any work a pupil completed, Sabia appreciated it and asked the class to applaud the effort. The loudness of the applause gradually tapered off as the class proceeded. The number of pupils applauding and the gusto with which the poem was recited was high at the beginning of the class, gradually going down with repeated recitations. Initially, the pupils followed Sabia with zest. Gradually, the pupils started tiring out and noise levels would start rising. Sabia would resort to controlling the class by marking rows of pupils A, B, C and D with marks on the board, or asking the pupils to respond louder.

During SEP2, Sabia showed she had become more responsive to pupil needs, especially in the case of the weaker pupils. My observation of one such class showed how Sabia explained multiplication sums repeatedly, individually, to pupils weak in maths (Figure 21).
Figure 21. Sabia’s class interactions during SEP1 at DIET-Chotapur.

<table>
<thead>
<tr>
<th>Sabia’s class observation teaching Maths to a pupil who has trouble understanding multiplication</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="" /></td>
</tr>
<tr>
<td>Sabia to her pupil: ‘Have you understood it? How will you do it? Listen again. When we multiply this number by this number (she points to 3x3), if it is a carry number and there is a number at the front of it, the carry will go over that number (she points to 4 of the 43) but if there is no number at the front, then there will be no carry over, the number is written as it is. For example, 12’. She moved to the next sum. ‘What you have done here is four-fours are 16. Six will remain at the bottom, but the carryover (hasil, in Hindi) will go on the second number which is at the front of the earlier number, and not like you have written it, which is wrong. You have written it over the first 4, child (Beta, in Hindi) whenever we write a carryover, we write it on a number which comes next to the earlier number. It won’t come on the 4 at the back but the 4 at the front’.</td>
</tr>
<tr>
<td>![image2]</td>
</tr>
<tr>
<td>‘2 times 6 is 12. You wrote 2 and carried over 1. Two threes are? (She notices this is wrong). What is two threes?’ Pupil: ‘6’. Sabia: ‘When you add 1 to 6 what do you get?’ Pupil: ‘7’. Sabia: ‘Then why have you written 10?’ Sabia encircled the 10 and said, ‘This is wrong. It will be 7 here’ ...</td>
</tr>
<tr>
<td>![image3]</td>
</tr>
</tbody>
</table>

The observations of practice classes showed that while the development of lesson plans involved reflection-for-action, it was important to be sensitive to pupils’ response and recalibrate the class with reflect-in-action during practice teaching.
5.5. **FOSTERING REFLECTION-ON-ACTION IN FACE-TO-FACE INTERVIEWS WITH SUPERVISORS AND WRITTEN SUPERVISION REVIEWS**

The teacher-educators facilitated and reviewed the student-teachers’ work and performance during the teaching cycle. Viewed through AT, the division of labour distributed the roles and responsibilities of fostering reflection among different teacher-educators based on their expertise. Specialist teacher-educators were responsible for monitoring growth in lesson planning, practice teaching, different teaching strategies and reflective journals. Each subject area was assigned to teacher-educators in accordance with their areas of expertise.

Supervision involves both human and symbolic mediation. At the DIETs the distinction between the two blurred when the supervisor observed a practice class and reviewed it first by personally interacting with the student-teacher face-to-face, providing human mediation, and second by adding marks and comments, providing symbolic mediation. The success of any supervision review lies in the ability of the supervisor to guide the student-teacher towards the object in the activity system. In this case this was to ‘learn to teach reflectively’. How well this happened depended on how well the teacher-educator herself understood the pedagogical issues involved. The human mediation, the supervisor’s oral review and reflection, offered an opportunity for co-construction and dialogic reflection between the student-teacher and teacher-educator, the latter commented on and provided knowledge about possible changes in the lesson plans and practice teaching. This was usually followed by written comments by the supervisor in the lesson planning file (at DIET-Badapur) and in the Evaluation Proforma as ‘Suggestions’ at DIET-Chotapur. No evaluation template existed for supervision reviews at DIET-Badapur. There was a set of comments which were given to all the teacher-educators to apply and use in their written reviews. An example is a review by Ms Gupta, DIET-Badapur, who observed Zohra’s practice class and wrote the following:

- Topic is well introduced with the help of an activity.
- Information on the board should be proper.
- After introducing the topic, write it on the board.
- Pupil participation is good.
- Student-teacher is confident enough for conducting the activity.
- Presentation ... is good.

The review was routine and indicated a firm, unchanging process of teaching, strictly expecting the student-teacher to follow the expected, taught way at DIET-Badapur. The remarks were general and not qualified to help the student-teacher to learn or to improve
her teaching further. However, the face-to-face verbal discussions, before or after the comments were written, did retain a degree of contextual uniqueness that addressed the specific circumstances in which the class was held. At DIET-Chotapur, because of the effort by Dr Bir to bring in a more constructivist mode of teaching, the Evaluation Proforma (Figure 22) was designed with this emphasis in the template. The fields in the Evaluation Proforma acted as a reminder to consider different

Figure 22. Dr Bir’s supervisor review of Asha’s second practice class in the Evaluation Proforma used at DIET- Chotapur.

<table>
<thead>
<tr>
<th>District Institute of Education and Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address (Removed to make it anonymous)</td>
</tr>
<tr>
<td>Evaluation Proforma for Teaching practice</td>
</tr>
<tr>
<td>(School Experience Programme: From xx to xx</td>
</tr>
<tr>
<td>Name of school: Anonymised</td>
</tr>
<tr>
<td>Name of Trainee: Asha</td>
</tr>
<tr>
<td>Class: 4</td>
</tr>
<tr>
<td>Topic: Tick, Tick, Tick</td>
</tr>
<tr>
<td>Senior Secondary School, Address anonymised</td>
</tr>
<tr>
<td>Year: 1st Year</td>
</tr>
<tr>
<td>Subject: Maths</td>
</tr>
<tr>
<td>Date: xx.xx.xxxx</td>
</tr>
</tbody>
</table>

*Instructions: The following Evaluation Proforma is in two parts viz. Preparation of Lesson Plan and Presentation of Lesson Plan in the classroom. Kindly encircle the rating indicated in front of each statement.*

<table>
<thead>
<tr>
<th>Preparation of Lesson Plan</th>
<th>Rating (From 1-5, 5 is good)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Framing of learning objectives using action verbs</td>
<td>3</td>
</tr>
<tr>
<td>2 Degree of Constructivist based Learner Centred Lesson Plan (From Engage to Evaluation)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation of Lesson Plan</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Linking Previous Knowledge to introductory appropriately</td>
<td>4</td>
</tr>
<tr>
<td>4 Organising relevant activity in ‘Engaging’ the student</td>
<td>4</td>
</tr>
<tr>
<td>5 Helping students in constructing / ‘Exploring’ knowledge</td>
<td>4</td>
</tr>
<tr>
<td>6 ‘Exploring’ the concept appropriately using a Demonstration Approach/ Strategy/ TLM/ Video Clipping</td>
<td>4</td>
</tr>
<tr>
<td>7 Proficiency in handling TLM/ICT</td>
<td>4</td>
</tr>
<tr>
<td>8 Ability to ‘Elaborate’ and solidify students understanding of the concept</td>
<td>4</td>
</tr>
<tr>
<td>9 Using different techniques of evaluation to assess student understanding</td>
<td>4</td>
</tr>
<tr>
<td>10 Providing relevant HW/CW/Follow up activity applying knowledge of the concept to the real-life situation</td>
<td>4</td>
</tr>
</tbody>
</table>

**Suggestions/ Observation/ Remarks**

*Objectives need to be written in Behavioural terms.*

*Student-teacher engaged pupils with relevant actions.*

*Class was attentive.*

*You could have asked the pupils to use a model of a clock to tell time themselves.*

**Marks: 39/50**

*Signed TE2*
practices like the use of action verbs to frame objectives; pupil engagement, exploration, elaboration of constructed knowledge and application related to a real-life situation, close to the pupils. In the example shown, Asha was awarded high marks for most parameters. Written suggestions were positive. The only improvement suggested by the teacher-educator was that pupils should use the model clock to tell time and in the process the pupils would learn by doing. This lone comment indicated a strong approval of the observed teaching with no further improvements suggested.

The rich educational potential of tools and signs can only be realised by those who recognise it (Kozulin, 2003). At the DIETs, teacher-educators differed in their understanding of how lesson plans should be planned and enacted in class during practice teaching. During meetings with the student-teachers, these different understandings would emerge in the teacher-educators’ reviews. Expressed in Vygotskian terms, this interaction or human mediation usually worked to bring the two visions or understanding closer together (Kozulin, 2003). Each teacher-educator tended to emphasise different aspects in the lesson plan and implementation in the classroom through her supervision. This explicit, face-to-face human and symbolic mediation tended to emphasise specific aspects of teaching practice influencing the nature and quality of the student-teacher’s reflection.

Review comments of three practice classes taught by Asha were observed by three different teacher-educators at DIET-Chotapur – Mr Vohra, Dr Bir and Dr Pandey. In agreement with Major and Santoro (2016), each set of review comments showed that each observer had a different view of ‘good teaching practice’ and ‘how to enact pedagogical strategies learned in the TEP’ (ibid.:460). For example, Mr Vohra’s comments followed the traditional teaching format as taught during the SEP orientation.

- Lesson plan delivered.
- Introduction done. Probing questions asked.
- Voice level good. Modulation seen.
- Gestures done; confidence good.
- Black board work done.
- Content taught with confidence.
- Class response forthcoming.
- Meditation activity done but no teaching aid used. Need to work on it.
- Evaluation done. (Mr Vohra’s review comments observing Asha’s Lesson 3)

Dr Bir’s review comments pointed to a more learner-centred approach to teaching. She expected more active learning for the pupils when she wrote, ‘You could have asked the pupils to set time using the model of a clock’. Asha told me she had planned to do this but
forgot in the actual practice class. Also, Dr Bir looked for constructivist pedagogy over behaviourist.

- Objectives need to be written in behavioural terms.
- Student-teacher engaged the pupils with relevant actions.
- Class attentive.
- You could have asked the pupils to set time by using the model of a clock.
- Marks 39/50. (Dr Bir’s review comments observing Asha’s Lesson 2)

Dr Pandey’s review comments also showed her concept of good teaching to be pupil related. During her observation, she checked whether the pupils related to the taught topic, whether examples and activities were used, whether pupil discipline was good, and evaluation was carried out at the appropriate time. For Dr Pandey, this was also a space to connect theory with practice.

- The topic was related to the pupils.
- The examples given were good.
- There was good discipline in the class.
- The student-teacher was teaching with confidence.
- The content was related to real life.  
  (Dr Pandey’s review comments observing Asha’s Lesson 1)

Among the most controversial tools for fostering reflection are reflective journals. They are discussed in the next section.

5.6. FOSTERING REFLECTION-ON-ACTION THROUGH REFLECTIVE JOURNALS

Reflective journals are a recognised and often preferred way of representing reflection. Reflective journals were a recognised way to consciously foster and monitor reflection in the D.El.Ed. programme.

The intern is also expected to maintain a daily reflective journal in which the intern will reflect on her practice and also attempt to draw linkages between pedagogy and the theory courses she has studied. (D.El.Ed. syllabus, NCTE, 2015:83)

Most important was that reflection was treated like a subject at both DIETs. A single teacher-educator was appointed to monitor reflection, and this was done only through reflective journals for each cohort. The two teacher-educators responsible for reflection at DIET-Chotapur were each responsible for one cohort of 50 student-teachers. At DIET-Badapur, one teacher-educator was assigned to cover 200 student-teachers’ reflective journals and to grow the ability to reflect.

At the DIETs, student-teachers were introduced to writing in reflective journals during the orientation programme but were not taught how to write analytically and reflectively.
Student-teachers started, during SEP1, with maintaining a daily written reflective journal daily on their own, helped along by their peers, seniors and then supervisors. Significant to this research, both DIETs recommended simple or no formats for writing reflections at the beginning of SEP1. DIET-Chotapur’s ‘format’ had no fields to structure it. The student-teachers presented descriptive, but freely written entries. An entry of Asha follows:

Today started in a hurry but I managed to reach school before time. The prayer time was very different today. There was very well organized. There was a mike, there were also musicians. The morning was good, so the day had to go well.

In the morning I went to class 4. I chatted with the children and then started teaching. I was teaching present tense in English, about DO/DOES and how to apply them. Then the children went to the computer class. Just then my supervisor came. The children were not in class. She saw my board work and she checked my lesson plans. She told me my mistakes. In future I will rectify these. Then lunch happened and the children were back.

After this I went to class 4b where I taught environment studies ‘Pani kahin jyada, kahin kam’ (Water, somewhere there is an excess of it and somewhere there is lack of it) then after 12:30 the children started going home. Studies do not take place after lunch, but verbally studies continue till 2:10 pm. (Asha’s reflective journal entry, SEP1)

Reflective journals at DIET-Badapur started with a minimally structured reflective entry which had two headings, ‘Teaching points’ and ‘Reflection’ (Figure 23). The teaching points were descriptions of what was done in class and the reflections were how different teaching strategies or TLMs could have been used. Most often no reasons were given for the change recommended, so overall, little reflection was visible in these entries. To increase the ways student-teachers reflected and improve reflection, during SEP2, both Dr Bagga and Dr Bir created reflective journal templates which they structured in different
ways with fields to guide reflection in specific directions. Black et al., (2000:72) argue that ‘guided journals help students to centre on specific facts, themes and concepts that are being learned as they incorporate their personal experiences, helping them to reflect on specific issues’.

Figure 24. Zohra’s reflective journal entry on a changed template during SEP2, DIET-Badapur.

<table>
<thead>
<tr>
<th>Date</th>
<th>Reflection translated into English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aims Reflection point</td>
<td>I resolved that in the morning assembly I would give some thoughts, and in the class, I would use various methods to get to know the children. (I would) try and maintain good (relations) with the Staff.</td>
</tr>
<tr>
<td>What happened</td>
<td>I used various methods to instruct (give knowledge to) the children. I was not able to give a thought at the Assembly. The Staff did not let us give it.</td>
</tr>
<tr>
<td>Learning of today</td>
<td>I learned to keep the children quiet in the class.</td>
</tr>
<tr>
<td>Teaching strategies</td>
<td>I taught using various methods.</td>
</tr>
<tr>
<td>Expectation</td>
<td>That the children will stay quiet in class and listen to what I would say and would understand what I explained.</td>
</tr>
<tr>
<td>What happened</td>
<td>The children remained silent and listened to what I said (to my talk).</td>
</tr>
<tr>
<td>Learning of today</td>
<td>Today I realised that children can be taught without books in various ways.</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Today the SST class was supervised, and the supervisor gave solutions. The class was good. (The class remained good).</td>
</tr>
<tr>
<td>Peer Group</td>
<td>Everyone did work well.</td>
</tr>
<tr>
<td>Expectation</td>
<td>That everyone will work together.</td>
</tr>
<tr>
<td>What happened</td>
<td>The staff did not support (me).</td>
</tr>
<tr>
<td>Learning of today</td>
<td>Should not remain dependent on anyone.</td>
</tr>
<tr>
<td>Issue related to SEP Process</td>
<td>From the Staff one member did a job incorrectly and untruthfully blamed me. All day I got teaching classes.</td>
</tr>
<tr>
<td>Co-curriculum activity</td>
<td>NIL.</td>
</tr>
<tr>
<td>What happened today</td>
<td>In this school the Staff do not want us to succeed. They do not want us there. The classes were good but sometimes the Staff hurt us a lot. Afterwards (we/they?) also went to the DIET.</td>
</tr>
</tbody>
</table>

The SEP2 reflective entry template at DIET-Badapur was redesigned by Dr Bagga as shown in Figure 24. The template was structured to identify and reflect on aims of the day, teaching strategies used, the reaction to the class by members of the community, issues, co-curricular activities and a summary of the day’s events. It was structured to record the plan, implementation and learning. This was typically filled in a repetitive manner with little reflection and uniqueness. For example, in her reflective entry about teaching strategies used Zohra wrote that she ‘taught using various methods’.

Her expectation was that ‘The children will stay quiet in class and listen to what I would say and would understand what I explained’. What happened was that ‘The children remained
silent and listened to what I said (to my talk’). Zohra’s learning was that ‘Today I realised that children can be taught without books in various ways’. There was little reflection to connect the theory of learning to the practice experienced or some thought on the reasons for the feedback from the pupils – why would pupils be willing to learn without books? What were the various ways that motivated them to learn? Reflection was found to change when the template of the reflective journals changed in SEP2, as Asha’s reflective entry shows in Figure 25, written in the new template. In this the student-teacher reflected on specific issues such as the academic strengths and weaknesses of the lesson taught, how pupils individually responded to the class, any new ideas, fulfilled and unfulfilled expectations, possible modifications and improvements to the lesson plan. Dr Bir developed this structure for DIET-Chotapur cohorts.

These templates did help Asha and her peers to reflect on a larger number of issues. Yet it seemed difficult to reflect on all the issues each time. The reflections gradually became shorter, and gradually several fields were left blank.

The evaluation of the reflective journals carried a maximum mark of 10 for each student-teacher in the D.El.Ed syllabus. Four teacher-educators were interviewed about the parameters for evaluating reflective journals. There was a lack of clarity in the parameters used at both DIETs. During SEP1, Dr Khanna was not forthcoming about the parameters for evaluation. At the beginning of SEP2, the new, more structured template for daily reflective entries was introduced by Dr Dhar. She ended her class with preparation for evaluation. A new form of evaluation was introduced where the student-teachers, in groups of ten, were asked to develop a single joint report from their different reflections. This should describe the different parameters given in the reflective journal template, like the aim, teaching strategies used, experience with supervisors, peers, faculty, practice school and the SEP process. It should also include an account of the co-curricular activities carried out. These were the different fields in the reflective journal entry template. There was uproar from the student-teachers when they heard the criteria. They were feeling overloaded. Despite the furore, Dr Dhar continued to describe how to compile and submit the report:

Last most important. After SEP, from each school, only one copy will come as a report. The different students in each practice school will form one group and make one report together. Observing the reflective diaries and compiling them together, you will submit [one report]. I will not be able to do it since the job is too big for me. To make 200 reports looking at 40 forms [from each student-teacher]. You will give this report to me based on practice schools. There will be 16–17 schools. I can compile the reports from that number of reports.
### Asha’s reflective journal entry for lesson 3

#### Pro and Con

**Reflect on the strength and weakness of the lesson as taught**

Today was my first period with 6th B. The children had to study adjectives and I taught them adjectives.

**Strength**

The class was disciplined. I have a good hold of Hindi as a subject. It was not very difficult.

Before going to the classroom, I prepared myself, meaning I had thought of adjectives before going to class.

**Weakness**

In the class there are some children who are very naughty because of whom the atmosphere in the class is ruined. The class does not have a smart board because of which I was unable to show the children a video.

And in my third period was with 7c. Where the subject was social science, the topic to study was ‘To grow up like a boy and girl’. And today TEV sir observed this class. And my ‘class was very good’, this is what sir said. He wrote all positive remarks.

#### Academic

**Strength**

Had a good control of the topic
Knew the content
My voice modulation is a very good strength.

**Weakness**

If the TLM could have been better, then maybe the class could have been better.
I had a slight sore throat.
But even then, everything was good.

#### Discuss individual response

The first period was with 6th B in which I taught Adjectives. The children gave examples themselves. For example, Gita sings well. Akanksha’s map is very good.

This was in 7th C as an activity. I got them to do a role play in which all the children were enthusiastic.

And I wrote the following on a chart: ‘Some work for boys and some work for girls. On the chart I wrote many kinds of work/jobs. On these the children marked with a red circle the jobs which they thought were for women and with a purple colour they marked the jobs they thought boys did.

#### Discuss thinking of ideas

**6th’s class thinking and ideas**

The children found adjectives in the story. While teaching adjectives, they shared good qualities with each other and understood the topic.

**7th’s class thinking and ideas**

One child asked, ‘Madam, why do such things happen with girls?’ ‘To get rid of this we can start an awareness campaign’. This is what the children thought.

#### Fulfilled and unfulfilled expectations

**Today’s fulfilled expectation:**

The class sir observed went very well. The children were disciplined. I made good use of the absent teacher’s period. I told the children about the 1857 rebellion.

**Today’s Unfulfilled expectations**

During the prayer time the children are undisciplined despite stopping them. The work education class did not take place.

#### Modify lesson plan

In the absence of the smart board, I was unable to give the children effective knowledge. Even then from daily life I was able to give several examples to make the children understand. And the children understood.

(Asha’s reflective journal entry, lesson 3)
She advised them to focus on the positives of their experience. I later learned from the principal, that this new scheme for evaluation had not worked. The criteria for the final evaluations remained unclear at the end of the research.

A similar situation unfolded at DIET-Chotapur. The evaluation criteria were not decided at the beginning of SEP1 since the teacher-educator responsible for the reflective journals had left the DIET early in the semester. By the end of SEP1 a replacement had still not been found for her. I learned, during my second field trip, that Dr Bir completed the work, evaluating each reflective journal. She did not share the criteria for evaluation with me.

A replacement teacher-educator joined for SEP2 at DIET-Chotapur, Dr Mehta. She explained how she would evaluate the reflective journals. She said it was first important to check the regularity of the student-teacher in her planning, evaluation of observed practice class and reflective entries. Did they all match? If they did, Dr Mehta would continue to look at the reflections against the different fields in the reflective entry template (Figure 2.5). She would use these parameters to evaluate each student-teacher’s reflective practice.

Interviews and stimulated recall interviews have been used in teacher education programmes (TEPs) as another form of reflection-on-action. These are carried out orally in the presence of another, maybe a more knowledgeable other, sometimes using a video or audio file to stimulate responses to the questions. This was an intervention introduced at the end of this research. An account follows in the next section.

5.7. REFLECTIONS DURING INTERVIEWS AND STIMULATED RECALL INTERVIEWS

The reflections showed that student-teachers were more at ease reflecting orally than writing in their reflective journals. During a normal and stimulated recall interview they offered more detail about their experiences and learning than when they wrote in their reflective journals. Written reflective entries had the least detail. For example, when Asha reflected in her journal about her class on pronouns and mask making, she wrote,

I taught the children pronouns and its various forms. I got busy in trying to explain to the children. The children were quiet today. They were ready for an activity. I was going to teach them to make a mask. The children worked hard. There was activity and a buzz. From all directions, there were calls of ‘Ma’am, Ma’am’. There was a loud noise. Today was very difficult managing them. (Asha’s reflective journal entry, SEP1)

In a stimulated recall interview about the same incident (Figure 2.6), Asha’s oral reflection was much more detailed and reflective.
Stimulated recall interviews and interviews provided tools for reflecting in pairs. Focus group discussions in this study provided an opportunity for more than two people to reflect on issues together. The two DIETs had yet another form of reflection, during assemblies, when reflection was done as a community. This was not necessarily reflection-on-action. It

This was the same in other instances of interviews and stimulated recall interviews. This suggests that the student-teachers were not comfortable with writing. There is another possibility, that they felt freer to express their opinion to me because I did not assess them.

From Asha’s stimulated recall interview with the researcher about practice class 1.

Asha: In the pronoun class, my objectives were that the children are able to name and identify definite and indefinite pronouns from regular life, and if they see them written anywhere, they can mark them out. And here in the mask making, my objective was that they learn to hold a pair of scissors, learn to rotate it, and from within themselves whatever they want to make. In case someone is not able to make a mask, they made a tomato or a mango, using their creativity.

Researcher: Ok, and were both these things achieved?

Asha: Yes, in the class about pronouns they were able to learn because from earlier, for quite a bit of time, even when I was teaching the lesson, I would teach them, ‘Beta [child], this is definite and this is indefinite pronoun’, so they were able to achieve it faster.

R: What are you doing here?

Asha: Here I am trying to teach them to make a mask by using the demonstration method. The children are not paying attention.

R: Yes.

Asha: Because they were making many mistakes. So, first I would get them to make a rough of the activity. Then after that I will get them to do it on a hard copy.

R: So, what mistake can they make in making a mask?

Asha: Madam, first in the cutting. Then the most mistakes they make are in making the hair, because it is work to be done with scissors, their fingers have not been developed that much that they can work the scissors ..., so they make mistakes there. Also, in making the eyes and they make the nose big or small, small from one side and big from the other and ... they would always forget to give the difference between the eyes and the nose. The eyes would be here and so would the nose also be in the middle. So, that is why they were saying that first we will make it in rough and then make it in fair.

This (mask making) activity took a little time to achieve because it was a new activity. This activity helped them to learn and led up to making Santa Claus finally. So, in their own way they made a simple mask today. Later when they made it from home, the eyes they were red in colour, also yellow colour, also cream colour and the spikes in his hair were not standing. They sat the standing hair down a bit, (saying), ‘Madam, they cannot stay standing, they can be pressed down. We have put oil-shoil on it’. (Researcher laughs) I said, ‘Ok, he is your vampire, you can make it any way you want. So, in these kinds of things, the children’s own creativity should come out.
could be reflection on larger issues such as social issues. The assemblies are described at each DIET in the following section.

5.8. FOSTERING REFLECTION DURING ASSEMBLIES AT THE DIETS

At both DIETs the assembly, the first activity of the day, was planned for 15–30 minutes and attended by the community: both cohorts of student-teachers, teacher-educators and the principal. Most DIETs and practice schools followed the same basic structure for assembly: a patriotic song, anthem or hymn, followed by the day’s announcements, news in brief, thought for the day and then the national anthem. These activities were interspersed with commands shouted by a student-teacher to stand at ‘ATTENTION’ and ‘STAND-AT-EASE’ (VISHRAM) a few times. The student body followed the commands.

The daily assembly showed itself to be, in Vygotskian terms, a tool for fostering reflection. In the syllabus, assemblies were part of a module called ‘School and Leadership Management, Unit 5’ about planning and community participation. The unit carried 15 marks.

Planning of different Activities for Students: Timetable and calendar of activities in accordance with the Model Rules under RTE Act 2009; Assembly; Mid-day meal, Literary, Cultural and Sports Activities and Competitions; Local Educational Excursion and Tour, PTA and meeting. (D.El.Ed. syllabus, SCERT, 2014:85, the text in bold is by me)

The assembly’s prominence as the first activity of the day, with mandatory attendance by student-teachers, its peculiarly nationalist-religious character and its potential as a tool for fostering reflection, led me to find out more about it from its leaders.

At DIET-Chotapur the principal, Dr Shastri, said that by participating in the assembly at the DIET, the student-teachers were trained to conduct it in schools. He added that personally it fulfilled him to start his day with a prayer, like one would do before embarking on anything good. In India, an inauguration of any event, building or important purchase like a car in a family, a tool in an office, is initiated with a prayer ceremony. Dr Shastri also felt that it ensured inclusiveness and ‘uniformity’. Everyone, rich or poor, from different faiths, gathered and remembered God: ‘Some call God Ram [referring to Hindus], some call him Khuda [referring to Muslims], it is the same thing’. Dr Pandey added that student-teachers and pupils reached their DIETs and (practice) school from different socio-economic backgrounds, different worlds, thoughts, ideas and mindsets. They started their day by assembling, reaffirming allegiance to the institute’s educational aims. The shouted commands were intended to teach student-teachers how to issue commands masterfully. Sharing news developed their communication skills. According to Dr Pandey, assembly had
become a ritual and lost its meaning. The national anthem was rushed through without thought to its purpose and accuracy.

The assembly at DIET-Badapur had a few small but carefully thought out and significant differences in the way it was conducted under the principal, Dr Bagga. It was not as much of a ritual as at DIET-Chotapur, though it followed the same structure. The key difference was that the thought of the day was shared through a collective give and take. This format promoted reflexivity, dialogic and sometimes critical-transformative reflection. After the news was read, a student-teacher would present her thought for the day through a phrase, a parable or simply a personal experience. Each student-teacher prepared, in rotation, a small presentation. After the student-teacher’s presentation, the other student-teachers were invited to voice their thoughts or opinions, in turn. They did this spontaneously. A second student might come up on stage and share a parable or a poem. Quite often there were poems or stories authored by the student-teacher themselves. These would get loud and appreciative applause from the community. Often the principal or teacher-educators joined in. This threaded discussion was meaningfully expressed with high participation, meeting the rubric description of dialogical reflective focus in Appendix 1 (RPTv2, DRFocus2):

> The teacher believes knowledge is constructed actively during learning from multiple sources, personal and social experience, linking school knowledge with community knowledge. (RPTv2, DRFocus2)

Reflection enabled meaningful learning in students. Alternate, contextually appropriate, participatory learning experiences like the assembly at DIET-Badapur helped provide an opportunity to re-examine personal conceptions, evoking deeper community discussions.

This interchange was followed by two timed minutes of silence for what the principal called chintan (Hindi for reflection). He explained chintan as ‘reflection to think of how one could improve oneself with what was shared’. After two minutes of silence, attendance was taken, and the assembly ended with the national anthem.

The principal believed this exchange and chintan humanised everyone. The student-teachers built confidence as public speakers. He felt they also learned to think, argue, articulate their opinions and find their voice through public dialogue. Questions and public presentations promoted social learning, a healthy questioning of underlying values and assumptions. According to Dr Bagga, the two-minute silence created space for thoughts and sent the student-teachers a message that they could be trusted to reflect thoughtfully.
5.9. REFLECTION WAS INFLUENCED BY THE WAY IT WAS EXPRESSED OR REPRESENTED

Researchers have found that meaning can be created through mediation by cognition, action and discourse (Collin et al, 2013). This was observed at the DIETs. Student-teachers were able to reflect more while speaking about their experiences than when writing about them. This was reinforced when observing differences in written reflections and supervision discussions, for example when Asha asked her supervisor, Dr Pandey, about how to teach ‘Do and Does’ interrogative sentences in English grammar. During the supervision review (Figure 27) Dr Pandey pointed to several possible reasons for the lack of understanding.

Figure 27. Dr Pandey’s face-to-face review with Asha at the beginning of SEP1, DIET-Chotapur.

Dr Pandey’s face-to-face review with Asha at the beginning of SEP1

Asha asked her supervisor, Dr Pandey, at the beginning of SEP1, about how to teach ‘Do’ and ‘Does’ in an English language class with Class 4 students. Asha found that the schoolteacher taught the children differently with individual sentences, and without an explanation of the meaning. This seemed to be different from the DIET’s recommended practice. For example, Asha asked a pupil, ‘Do you play?’ and the pupil replied, ‘You are playing’. The schoolteacher had not taught the pupil the interrogative form of the sentence. The pupil was unable to answer correctly. On the board Asha had written:

- In Hindi: Kya/Kaun + subject + verb + object
  - ‘Kya vah khelti hai’

- In English: Do/Does + subject + verb
  - Does she play?
  - ‘Kya vah sota hai?’
  - Does he sleep?
  - ‘Kya vah hansti hai?’
  - Does she laugh?

Asha’s blackboard work

Dr Pandey indicated to Asha and me (the observer of the interchange) how to tackle ‘do and does’. She said, ‘These are interrogative sentences. The teaching of language says that we should teach grammar in context. But the student-teachers have been not oriented at all this year. Due to some administrative reasons, they have taken admission in the month of October instead of July. This year, the admissions were delayed ... And immediately they have been asked to come to school experience programme. They do not know how to deliver a language plan. Grammar-in-action and there are many other concepts that we orient them to before sending them to (the practice) school, could not be done. So, the school class teacher is teaching ‘do and does’ in the old manner. And the new concept is to always teach grammar in context while teaching the lesson, like when teaching a story, while teaching an essay, maybe any other genre, they should also deal with the grammar part. But (turning towards the board and writing on the board) this is the old style the way we have been taught (indicating herself). And it is not their mistake ... Maybe we can discuss with our principal and ask them to come to the institute for a day or maybe two days, we should orient them, but I am not sure that our orientation will make a miracle. Because one or two days cannot bring any kind of change’. (Researcher’s Fieldnotes)
about this. Hindi and English grammar were different. It has been found that it is better to teach grammar-in-context, dealing with grammar through the telling of a story or while writing an essay rather than through isolated sentences written on the board. The student-teachers had not been introduced to this method of teaching because of the lack of academic inputs during the missed SEP orientation in Year 1. Dr Pandey thought that maybe a short workshop on this aspect back at the DIET might help, but she was also ‘not sure that our orientation will make a miracle’. She also pointed to the student-teacher’s dilemma of whether to follow the DIET recommendations or what was done in school, because the student-teachers were awarded marks from both the DIET and the school. She did not offer any solution or express an opinion about it.

A face-to-face exchange took place which was more expansive and dialogically reflective than Asha’s written reflective entry, which consisted of simply a descriptive, technical reflection.

I was teaching present tense in English, about DO/DOES and how to apply them. Then the children went to the computer class. Just then my supervisor came. The children were not in class. She saw my board work; she checked my lesson plans. She told me my mistakes. In future I will rectify these.

She did not mention the problem of teaching her pupils English grammar non-contextually, or her supervisor’s advice to teach grammar in a context.

Reflection was influenced by the goals of teaching at the DIETs and the practice schools, which often did not work in tandem. For example, the aim of teaching at the practice schools was burdened with curriculum coverage before examinations, whereas the DIET mostly emphasised understanding and meaning, and construction of knowledge by the pupils. Sometimes, in practice schools, during the SEP module, student-teachers were observed copying on to the blackboard pre-written answers to questions, posed in the textbook. These answers were further simply copied by the pupils, supporting rote learning. This went against the constructivism the DIET encouraged. The student-teachers tried to please both the principal at the practice school and the supervisor from the DIET, in turn to garner marks.

Both DIET and school faculty had the authority to mark student-teachers on their performance during the SEP with 20 marks each. So, the student-teachers’ practice teaching tended to be routine and strategic when trying to meet the practice school goals, and more student-centred for the DIET observation and evaluation during teacher-educator reviews. Evidence of this clash in educational expectations was evident when I observed a
student-teacher writing answers on the blackboard. These were copied by the students and expected to be produced verbatim in tests.

The student-teachers’ reflection and grasp of the learning situation was strengthened when both the DIETs and practice schools pursued the same goals of learning. However, only rarely did student-teachers, DIET teacher-educators and schoolteachers share common objectives and common goals of learning. When they did, the student-teacher was helped to reflect in the direction intentioned by the DIET. For example, Zohra was helped to think of a normal everyday example to experience and teach gravity. The schoolteacher suggested that Zohra ask her pupils to hold each other’s plaits and ponytails up and then let them go. They would fall due to the force of gravity. This would provide a ready, in-class activity for pupils to understand and experience gravity.

There is a need for the DIETs and practice schools to have a common learning agenda. The teaching strategies used during DIET classes on teacher education were not the ones promoted by the DIET to be carried out in practice schools.

The most common method by which student-teachers were taught was through lectures. Had they instead been facilitated to construct knowledge through their own learning experiences, they would have become more constructivist. For example, during SEP2 orientation the student-teachers were lectured over two days about constructivism by a senior teacher-educator at DIET-Badapur. At DIET-Chotapur, the student-teachers were extensively lectured about microteaching over three days rather than conducting microteaching themselves as was done during the short SEP1 orientation in the previous year at the same DIET.

A common learning agenda must be developed to foster reflection in order to prevent professional development being detrimentally affected (Clarke et al, 2014). The need to develop effective and systematic teacher education institutes and school partnerships to facilitate the fostering of reflection and professional development of pre-service teachers has also been expressed in India (Chennat, 2014:1).

The need to train both sets of supervisors – the teacher-educators and the schoolteachers from the practice schools – was expressed by Major and Santoro (2016). This need was also felt at DIET-Badapur. Dr Bagga held a one-day workshop with the principals and teachers from the different practice schools and the DIET teacher-educators to understand and manage differences and similarities in their approaches. Access to this meeting was not provided to me in this research.
5.10. CONTRADICTIONS TO FOSTERING REFLECTIVE PRACTICE AT EACH DIET

As already discussed in this chapter and earlier, in Chapter 2, activity theory (AT) provides a way to view collective human activity. In this research, AT provided a way to view collective institutional activity that was designed to foster reflective practice. This section describes how AT was used to identify and study historically developed contradictions through thematic analysis of the research data.

Reflection is essential to bring about change in practice. For reflection to be integrated across DIET practitioners, the object to be achieved ('Learning to teach reflectively with constructivist pedagogy') and the outcome of the activity system ('Pupils learn with meaning and develop the ability to construct knowledge') need to be clearly articulated and understood in the institution, when reflection is proposed and then mandated as a policy. This study shows that, through the D.El.Ed. syllabus, reflection was introduced to achieve improvement in practice by engaging pupils to construct their own knowledge. This outcome was not clearly communicated to the inexperienced teacher-educators or systematically woven into the institutional norms or the activity system of the DIET to foster reflective practice.

A contradiction, according to Bonneau (2013), manifests itself in discourse and actions. Opposition within the DIETs produced paradoxes and dilemmas which prevented or limited reflection within each element of the activity system: subject, object, tools and signs, rules, community and division of labour. I have identified a contradiction at each component of the activity system, shown in Figure 28, and have described them in the text that follows.
Contradictions with Tools and Signs

<table>
<thead>
<tr>
<th>Subject</th>
<th>Object</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student-teachers who join the DIET with a desire to learn to teach pupils to learn meaningfully vs. student-teachers who look for convenient employment and aim for high marks to procure it.</td>
<td>vs. pupils who examinations</td>
<td></td>
</tr>
</tbody>
</table>

Rules

Community of practice: reflective teacher-educators

Division of labour: maintained by student-teachers in reflective journals

Contradictions related to rules in the activity system were both internal in the minds of the members of the community – such as their perceptions of reflection and understanding of pedagogy – and external in terms of processes followed and templates used.

Reflection, hailed as ‘the main pillar of teacher education’ in the NCFTE (2009:19), was greeted with puzzlement at the DIETs. In the NCFTE (NCTE, 2009) reflection was envisioned as an integral part of practice as it was in the D.El.Ed. syllabus (SCERT, 2014). It was culturally mediated and socially constructed, embedded in activities in the teaching cycle. But in practice, at the DIETs, reflection was visible and experienced as a construct which was narrowly understood and implemented. Reflection was monitored and evaluated formally by the teacher-educators in a short daily entry in each individual student-teacher’s reflective journal during the SEP1 and SEP2. In this research, a narrow, individualistic implementation of reflection contradicted with the broader embedded, socio-cultural conception of reflection within the same system, as described in policy.

This narrow conception also created contradictions related to division of labour. The reflective journals were monitored and evaluated for all student-teachers in each DIET by teacher-educators specially appointed to this role. At DIET-Chotapur, the smaller of the two DIETs, each of the two cohorts had one teacher-educator responsible for facilitation and
monitoring the reflective journals for one cohort of 50 student-teachers. At DIET-Badapur, a single teacher-educator was responsible for facilitating and monitoring the reflective journals of both cohorts making up a total of about 200 student-teachers. Regularly reading 200 reflective journals was a huge task and could not be done ‘properly’, with other more pressing responsibilities.

In looking at reflection narrowly, the DIET community did not understand that reflection could take place at different levels and be related to different teacher orientations. Because of this gap in knowledge, a more comprehensive understanding of learning to teach reflectively was missed. For instance, Asha was not aware that she reflected differently before, during and after her teaching events. She reflected for getting good marks in her practice teaching with routine reflection. When teaching about pronouns, she followed a technical level of reflection, conducting her class by following a behaviourist pedagogy. When facilitating mask making, she reflected dialogically, her class worked in groups and she conducted her class constructively. When she helped a young drop-out to attend school regularly, she reflected at the critical transformative level. Asha did not realise that she reflected at these different levels and how each level related to her teaching practices, and maybe neither did her supervisor, Dr Pandey, an experienced and reflective and reflexive practitioner. Valli (1997) acknowledged that teachers need to reflect differently, at different reflective levels they were uniquely suited to address different questions. Valli argued that ‘TEPs should help the students develop each type of reflective capacity’ (1997:81). In such a situation, when the community lacked knowledge, fostering of reflection could not be developed effectively.

Several contradictions were encountered due to the tools and signs in use in each DIET. Vygotsky (1978) claimed that human learning takes place in the form of interactions among tools, signs and humans (Yamagata-Lynch, 2009). Signs do not have concrete physical existence in the environment. Instead, signs are the by-product of the interaction between individuals and the tools that mediate thought processes. Vygotsky believed that when individuals interact with tools, cognition in the form of signs is created. This cognition assists in mediating the meaning-making process in the individual.

At both DIETs, student-teachers were provided with templates that gave them guidance to construct new solutions to their problems. A lesson planning template takes on the function of a sign. Lesson planning templates were introduced at both DIETs to provide guidance in planning a practice class in a methodical, targeted, deliberate manner. The
lesson plans called for behaviour change in the student-teachers. But this differed in each DIET. For several years, lesson planning at DIET-Badapur was fixed and unchanging. Only one mandatory lesson planning template was provided with the expectation of a similarly regulated response. This template did not ensure guidance towards planning a constructivist class. This was a contradiction and so limited reflection.

Tools and signs are known to become historically obsolete over time. The lesson plan at DIET-Badapur led to the creation of classes with a behaviourist pedagogy rather than reflective, constructivist classes. Engeström (1987) argued that ‘instead of just benign achievement of mastery, development should be viewed as partially destructive rejection of the old’ (1987:7). This method of lesson planning needs to be rejected to make space for change because it worked in contradiction with meeting the activity system object. By experiencing this practice at the DIET, the student-teachers were more likely to continue the same practice, professionally, in their own classrooms, too.

Templates were observed to play a key role in fostering reflection at both the DIETs. Changes in templates at DIET-Chotapur showed changes in reflection and practice and a more planned move towards teaching with meaning, in both Asha’s and Sabia’s planning and practice teaching. The teacher-educators did not have a complete scientific understanding of the power of working with meditational devices and so were not conclusively able to facilitate learning to teach reflectively with teaching constructively. Lack of this knowledge also showed up in the teacher-educators’ reviews at both DIETs, in the reflections of the student-teachers, and in their practice classes, preventing the fostering of reflection with greater understanding. Dr Bir designed the lesson planning template at DIET-Chotapur which promoted constructivist thinking in a more targeted manner than at DIET-Badapur. While reflection was built into the process, it was recognised to be embedded in the process.

Alternatively, lesson planning was carried out in several different ways at DIET-Chotapur. The head teacher-educator, Dr Bir had attempted to provide a template which would help student-teachers to consider constructivist principles of engagement, exploration, explanation and evaluation as they planned their classes. The other teacher-educators and the student-teachers had also developed their own lesson planning templates which they thought were more appropriate for their subjects.

Several contradictions manifested around the object of the activity system. In this study 85% of student-teachers who joined the two DIETs were women. The two-year D.El.Ed.
Diploma programme made student-teachers eligible for what was considered to be secure, regular, government employment as primary schoolteachers. This was a sought-after job thought to be socially suitable for women. Without additional effort, a teacher’s job was perceived to allow the teacher time and resources to balance their responsibilities at home, and to take holidays at the same time as their children, while earning securely. The student-teachers had gained admission at the DIET due to their good marks in school. As a result, the student-teachers were observed initially to work strategically on their assignments to continue to put in effort towards gaining good marks, since they perceived good marks to be a prerequisite to good employment. This took precedence over focusing to achieve the meaningful and inclusive learning that the policy aimed for in their practice. Asha’s reflective entries frequently showed this conflict:

15 December 2015

Today I was looking forward to school as I was having rotation and my Ma’am was to come. I like her a lot. She gives good marks. But without my effort she will not give marks. I was fully prepared. I don’t know why, but however much you prepare, till observation is done and you get the good numbers you do not get the satisfaction .... (Asha’s Reflective journal entry, SEP1)

Repeatedly I observed peers rushing in after a class observation to ask the observed student-teacher, ‘How many marks did you get?’ The motive of working to achieve high marks led student-teachers to carry out practice teaching and to complete reflective journals routinely and strategically without meaning, going against the object. That the student-teachers at both the DIETs were focused on garnering the highest marks in their SEP was also apparent from their reflective entries. Some of them wrote only positively about their teaching experiences. For example, Sabia wrote about a class observation during SEP1,

I taught the children a poem lesson in English called ‘I am Lucky’ and this poem was observed by a supervisor and in this observation, I got 45/50 marks. (Sabia, Reflective journal entry)

Because student-teachers pursued the object of achieving marks, they used their agency in the situation to cut down their own reflective entries in different ways, such as by repeating reflective entries, leaving blank certain fields in the template, writing routine or repetitive comments, or maintaining journals with fewer entries for fewer days. Reflection could not be done ‘properly’ when other responsibilities that garnered more marks took priority.
Some supervisors understood this contradiction and tried to create spaces for learning with understanding. Dr Pandey, while reviewing Asha’s lesson plan, crossed out something Asha had written. As she did this, she told Asha, ‘I am not going to cut your marks because it is crossed out but so that I can create an understanding within you. If I cut something out do not think that it will affect your marks’. To me this showed expansive thinking on the part of Dr Pandey as she tried to bring about a conceptual change in Asha’s object towards learning with meaning over learning for good marks.

The student-teachers were not conscious of how their reflections changed their practice; they were not motivated to be more reflective and reflexive. Engeström (1987) states that the nature of an artefact only emerges as a tool when it is used as a tool, towards achieving an object. Without knowledge about the object, ‘To learn to teach reflectively with constructivist pedagogy’, the student-teachers did not consciously reflect and pursue the object. An interview with Sabia illustrated this poignantly:

Ma’am, like the questions you are asking, ‘What you did? Why did you do it? How were you helped? What are the changes you have seen in yourself?’ Like when one sits, in free time, we see (only) ‘how we should do the project, how we should make the file, what are the classes left what we have to learn ahead’. Our attention stays on these things. We rarely think about the changes we have seen in ourselves. Now, like you are asking, so here I have time to think about myself, and that has been good. (Sabia, Interview, 2017)

In saying this, she echoed what Killion and Todnem realised:

Busy people typically do not engage in reflection. They rarely treat themselves to reflective experiences, unless they are given some time, some structure, and the expectations to do so. As professionals, we owe ourselves this opportunity for renewal, and revival. Reflection is a gift we must give ourselves. (1991:14)

A second contradiction over a difference in the object to the activity system arose when student-teachers began teaching in practice schools. They were supervised by teacher-educators from the DIETs and schoolteachers from the practice schools. Each set were allotted 20 marks for practice teaching and internship activities. These provided a motive for reflection during planning, practice and later reflection-on-action in their journals.

The practice teaching during the SEP module was conducted just before the school examinations and the schools were under pressure to report good results with high marks. This pressurized student-teachers to teach for coverage and to prepare pupils to answer questions in the examinations. Consequently, the object of the activity system at the practice school was to teach for coverage and examination marks clashed with the DIET object of teaching reflectively and constructively.
The different goals or objects extended to differences in strategies employed for teaching. Dr Pandey talked about this clash in the expectations of the DIET and the schools, in terms of the use/non-use of teaching aids:

Another thing, the way that the concept is taught in school, there can be a clash. Like using teaching aids, the schoolteachers have complained that the student-teachers are not preparing teaching aids. I have asked them not to. There is a clash, and they have 20 marks in the hand of the school principal. ... and 20 marks with me from the DIET [...]. If my views and the (school) principal’s views clash, then they are swinging in between (in a dilemma), whom to follow? (Dr Pandey, interview, 2015)

This presents an important dilemma when the two systems, the one at the DIET and the one at practice schools meet with no solution in sight.

Maintaining reflection as an activity solely to gain marks goes against the aim of reflection to have pupils who are engaged in learning with meaning. Tools and signs can be used either to maintain the status quo or to improve constructivist practice.

For individual teacher-educators at each of the two DIETs it was a heavy burden to foster, monitor and mark all the reflections written by each student-teacher. Rather than this, if the responsibility for encouraging reflection in practice were to be shared by all the teacher-educators, if it could be discussed at the right time, when reflection occurred then it could become more meaningful.

Lacking knowledge about reflection among the teacher-educators posed a serious problem. Teacher-educators needed to the knowledge, skills and experience to foster reflection among student-teachers.

5.11. CHAPTER 5 CONCLUSION

In this chapter, analysis of tools and signs, and identification of contradictions, point to a systematic process through the application of activity system to foster reflection and resolve issues that limit it.

This chapter showed that educational tools and signs, designed and used meaningfully with care, began the fostering of reflection. In the first year of introducing reflective practice in the D.El.Ed. programme, using tools and signs, the principals, teacher-educators and student-teachers were able to begin fostering reflection, directing both the mind and behaviour (Vygotsky, 1981) at different points in the teaching cycle. This was with lesson plan templates, practice observations, evaluation templates, supervision reviews and reflective journal entries.
The examples of various templates for lesson planning showed reflection took place to different degrees and in different ways. Tools and signs provide a natural link between pedagogical thinking and teaching action as well as between the cultural, historical and institutional context in which the actions and activities took place. Individual views and motives of the teacher-educators and student-teachers influenced reflections. Reflection was also influenced by the stage of the teaching cycle in which it occurred: reflection-before-action during lesson planning, reflection-in-action during teaching, reflection-after-action during supervision and in reflective journals. Finally, reflection differed in terms of the way it was expressed: in speech or writing, individually or socially. Reflections were observed to be stronger when discussed and shared with others, or socially in groups over individually written reflections in journals. The student-teachers’ confidence was observed to increase during SEP2 along with their ability to speak about reflections during the stimulated recall interviews and general interviews.

The next chapter describes how and when the student-teachers followed in this research reflected, and how this changed their practice over two years.
6. HOW DO STUDENT-TEACHERS REFLECT AND HOW DOES REFLECTION INFLUENCE THEIR TEACHING PRACTICES?

6.1. INTRODUCTION
This chapter shows how the student-teachers at the studied two DIETs deliberated about action to improve practice, shedding light on sub-research questions 2 and 3 (introduced in Section 3.4): ‘How do the student-teachers reflect?’ and ‘How do reflections influence student-teachers to change their practices over two years in the District in Elementary Education programme?’

6.1.1. Chapter structure
Activity theory, introduced in Section 2.5, offers a way of analysing the accounts of student-teacher reflective practices resulting from my data collection at the two DIETs. Specifically, the relationship between the subject and object in an activity system needs to be understood, as the basis for explaining the different perspectives of the student-teachers encountered in this research. In Section 6.2 activity theory is further discussed, in terms of its role in helping answer sub-research questions 2 and 3. Following that, Sections 6.3 to 6.6 of this chapter present accounts of the reflective practice of four student-teachers. Each account provides a brief background to the student-teacher participant and her beliefs, as she entered the DIET, about the aims of education, being a ‘good teacher’ and ‘good teaching’. This is followed by a discussion of each student-teacher’s reflections over two years, through SEP1 and SEP2. Viewed through the conceptual framework developed for this study, some of the student teachers’ perceptions and practices were gradually observed to change over two years of observation. Section 6.6 reveals – from the findings from the four student-teachers’ accounts – how, when and why the student-teachers reflected. At the end of the chapter, in Section 6.7, findings about how reflection influenced the student-teachers’ practice over two years will be outlined. Section 6.8 concludes the chapter.

6.1.2. Relationship of the subject and object in an activity system
This relationship explains the reasons for the different perspectives of the student-teachers, within an activity system, encountered in this research. As discussed in Section 2.5, activity theory is a theory of socially meaningful activity which fulfils a psychological or social need or object that is bigger than the individual. In essence, ‘The main thing that distinguishes one activity from another is the difference in their objects’ (Leontiev, 1978:62, in Daniels, 2001). So, to understand an activity system one needs to understand its object
Every object has three characteristics: a goal, an inherent motive and a desired outcome. This gives activity systems a determined direction (Sannino et al, 2016). In this research, the object in the activity system for fostering reflection has the goal of ‘learning to teach reflectively and constructively’, the motive ‘a search for knowledge to be able to teach with reflection’ and the outcome that ‘pupils learn meaningfully and develop the ability to construct knowledge’. Once the need is met in a situation or with one subject, it is generated again in many situations and with many subjects.

Generally, an object remains a vision, never being fully realised as it is historically linked to human need, which undergoes constant changes (Sannino et al, 2016:4). Individual subjects each have a different perspective on the object of the activity. Similarly, each student-teacher, or subject, entered the DIET with her own beliefs and tended to follow an object created from aspects of her personal experience and her interactions with others in the community.

Institutionally, objects pursued by generations of teacher-educators can persist over long periods of time in an activity system. The beliefs concerning what constitutes ‘good teaching’ influence the perspective the individual subject takes on the object at any point in time. In this study, the student-teachers were observed to be influenced by their own experiences as students, by socio-cultural conceptions and beliefs which placed value on developing ‘good human beings’, and by social pressures and personal aspirations to ‘perform well’. These were some aspects of personal experience which influenced their practice.

Research by Lortie (1975) suggests that deeply rooted cultural beliefs can resist reforms introduced through policy. For reforms to succeed, such as a change from behaviourist to constructivist pedagogy, mediated by reflection, it is very important to understand the cultural beliefs (in this case, those of student-teachers), and the role these beliefs play in allowing or resisting change (Dyer, 2000; Clarke, 2003; Batra, 2009; Brinkmann, 2015).

As explained in Chapter 3 (Section 3.9.3), units of reflective data were matched to the 28 rubric descriptions on the Reflective Practice Tool version 2 (RPTv2). This was recorded on thumbnail representations of RPTv2, making visible reflections at routine, technical, dialogical and critical levels. Heuristics of the activity system were created from the perspective of each student-teacher participant, observed during SEP1 and SEP2. Comparison of SEP1 results with SEP2 were made possible by applying the frameworks: RPTv2, Vygotsky’s socio-cultural theory (Vygotsky’s SCT) and activity theory (AT).
student-teachers’ practices showed change over the two years. The reflective data for each participant student-teacher mapped to the rubrics in the RPTV2 and the activity system heuristic over SEP1 and SEP2 is visually represented as thumbnails in Appendices 6–9 and will be referred to in the more detailed descriptions that follow in this chapter.

To understand the origin of beliefs and perceptions about teaching and learning the four participant teachers were interviewed.

6.2. HOW DID ASHA REFLECT? HOW DID HER REFLECTIONS CHANGE HER PRACTICE OVER TWO YEARS?

At the time of being interviewed Asha lived with her mother who ran a cosmetic shop where Asha helped every evening. Asha’s mother tongue, state language and preferred language for teaching and writing was Hindi. She graduated from a government school from primary to Class 12. Her school was less well-resourced than her practice school. She graduated top of her class of 50. The only ‘activity’ she remembers doing in her school was making a pen stand. When she arrived at the DIET Asha’s early teaching beliefs were that little children find it boring to be made to read, write, do maths or learn to sit at a desk. She believed they preferred to make drawings of their teacher and have fun, and that they learned when they were motivated.

Asha believed that the aim of education was to develop ‘good’ human beings. It was important that children ‘get good moral values’. This aligns with educational aims from Vedic times (Section 2.3) where the aim was to live a moral life and strive to reach perfection as a human being (Ramachandran and Ramkumar, 2014: xxi). Asha believed that the teacher should lead by example and never ‘transmit a wrong message’, for pupils revered their teachers. She said, ‘For children, a teacher is an idol. Even if a teacher says something wrong, but if Ma’am has said it, it is correct’. This belief echoed the Bhakti (devotional) tradition when poets like Kabir equated the teacher to God for showing the right way (Kakar, 1991). Asha believed that regular attendance of pupils at school and methodical teaching were especially important, to ensure that pupils learned.

According to Asha, a good teacher was caring, appreciative and a good listener, as the National Curriculum Framework for Teacher Education (NCTE, 2009) emphasised in its title ‘Towards preparing professional and humane teacher’. Asha remembered one of her teachers in Class 11, when she was 15, who supported her through a difficult time. This teacher cared for her ‘like someone cares for a small child’ (Asha’s Introductory interview, SEP1, 2015). Following this example, Asha explained ‘whoever I can help at my level, I try
and help, and if I cannot, I feel bad’ (Ibid.). Asha internalised this experience. She combined the pastoral aim with the academic aim. She pronounced that it would be a high point in her teaching – when she would be ‘able to help a low child to become average’. By ‘low child’ she meant someone who is not interested in studies and school but gets motivated by the teacher to attend. ‘That will satisfy me a lot’ (Ibid.), she revealed.

Among her first reflective entries, Asha started with reflection at the routine level. She wrote in her reflective journal:

Today was not good at all. Today I had my first SEP rotation. I was very excited, but nothing went right. Z madam pointed out many mistakes. Today I am really depressed. I only got 26 marks. Madam said, ‘Your concept is not clear. You don’t know how to teach’. But I did my best. Anyway, one should learn from their mistakes. I need to work harder. I just did not feel like teaching. Somehow, I taught the children. After half-day break all my seniors and my peers were comforting me but it’s like my mind does not want to work.

(Asha’s reflective journal 1, SEP1)

In Asha’s teaching, reflective levels were influenced by the subject being taught, and the strategy and pedagogy being applied to teach. For example, she reflected at the technical level when she taught Hindi and English grammar from the textbook, as it was done in the practice school. She also reflected at the technical level when she tested her pupils’ abilities with single correct answers. On the same day, in the afternoon, she reflected dialogically when developing her pupils’ mind-eye-hand co-ordination through mask making in groups during SEP1. Critical-transformative reflection took place when she found her teaching had changed a pupil’s behaviour. An example follows:

Here I got the children to do a role play. The children performed the characters very well. During role play a small part of how discrimination that happens with girls was shown. The children learned from this play the example of discrimination in a home ... all the children were showing enthusiasm.

And I had written this on the chart: ‘Some work for boys, some work for girls’. On the chart I wrote a list of works. On this the children encircled words with a red colour for the jobs done by girls and what work that boys do or can do with a blue colour. Sonia’s answer, in red, making food, in blue: working the plough. Harshita’s answer, in red: managing children; in blue: wrestling ... All children are able to understand things in their own way. ...

While teaching ‘Growing up as boys and girls’ the children drew on their examples and experiences. Like, Mahak said ‘When I am late from school my mother is angry but when my brother is late, he does not get scolded’. (Asha’s stimulated recall interview, 2017)
After a few classes which created awareness about gender discrimination called ‘Growing up as a boy and girl’, some pupils admitted in class that they had shown their appreciation to their mothers by making tea, massaging tired legs and feet, and helping with housework.

Alternatively, reflecting on one subject could take on different levels of reflection depending on how her reflection was represented and when in the teaching cycle she reflected: during lesson planning, practice teaching, in her reflective journals or during stimulated focus interviews. In her reflective journal (Appendix 6d), when she reflected on miscellaneous topics she mainly reflected technically and dialogically.

During an interview of her practice classes, stimulated through video and audio recordings, Asha reflected orally. The same topics, reflected upon during practice teaching and journaling, were reflected upon in greater detail during the stimulated recall interview:

And here [in the mask making], my objective was that they learn to hold a pair of scissors, learn to rotate it, and from within themselves whatever they want to make, in case someone is not able to make a mask, so they made a tomato, someone made a mango, so they are able to use their creativity. …

This [mask making] activity took a little time to achieve because it was a new activity. So, this activity, by the time we were learning to make Santa Claus by that time they had managed to do it. So, that in their own way they had made a simple mask today, but when they made it from home, the eyes they were red in colour, also yellow colour, also cream colour, and the spikes in his hair were not standing. They sat the standing hair down a bit, (saying), ‘madam, they cannot stay standing, they can be pressed down. We have put oil-shoil on it’ … I said, ‘Ok, he is your vampire, you can make it any way you want. So, in these kind of things, the children’s own creativity should come out’.

(Asha, Stimulated recall interview, 2017)

Asha’s reflections were found largely to map to the dialogic and technical reflective level and minimally to routine and critical-transformative reflective levels.

6.2.1. Asha’s reflections and development of practice from SEP1 to SEP2

During SEP1, analysis of Asha’s practice showed that the mediational tools and signs she used in her classes were the DIET templates for lesson planning, evaluation and reflection, pedagogies that were both teacher-led and student-led in different subjects, teaching-learning materials, tests, lectures, examples related to the pupils’ lives, games, and activities like mask making (Appendix 6f).

In her early classes at the practice school during SEP1, Asha realised that her pupils were not keen to read, write or do maths in the afternoon. So, she taught these subjects in the morning and introduced playful activities in the afternoon, which motivated her pupils.
Next, she increased participation by the pupils. Her classes gradually changed to become more relevant and closer to the pupils’ own lives. Asha reflected to bring alive concepts about time in her pupils’ daily life. This was seen in the planning of her second lesson called Tik-Tik-Tik. To engage her pupils, she asked them the timings for different activities in their day, the names of their favourite cartoon serials and when they started. Asha listed the names and timings on the board. She planned for the pupils to show these timings on a mock clock she had made.

At the DIET, Asha learned to incorporate activities in her planned classes. Her limited experience of creating a pen stand in school had not prepared her for this. Her reflections during SEP1 describe activities such as decorating a bulletin board, doing rangoli with leaves, creating a play out of a poem, making pictures about a lesson, playing a word game, Chinese whispers, developing a quiz, conducting a parent-teacher meeting, mask making, making a Santa Claus mask, and more during SEP1.

Asha created what can be interpreted as a dialogical learning environment in her classroom. She did not try to discipline her pupils to any great extent, allowing them to move around the class, or to form their own groups during activities, like during the mask making class. Her pupils were known to be noisy and other teachers complained about this, showing that her methods did not always fit in with the school’s norms.

During SEP2, practice teaching was done in Classes 6–8 instead of Classes 1–5. Asha’s reflections were more detailed, especially about pupil responses and student-led strategies for learning because of the introduction of changed templates, which aimed to have student-teachers think more constructively.

During her SEP2 Asha’s changed beliefs were seen through her reflections and practice teaching, changing aspects of her practice. Her conception of a good teacher developed to one who reflects dialogically, critically, reflexively and allows pupils greater participation in their own learning. This suggested a change from a perception that all pupils were the same to accepting that children are different and have unique talents and strengths, and Asha tried to encourage them to choose their own paths. This valuing of diversity over uniformity was encouraged by the NCF (2005) and acknowledged by Brinkmann (2015) as a cultural trait that was not common among Indian teachers.

Asha continued to use DIET templates during SEP2, some with changes which ensured a more student-centred lesson. She added new activities like problem solving, case studies,
discussions that are relevant to pupils’ lives such as issues of gender inequality. Asha reflected to motivate pupils with play, listening and caring (Appendix 6g).

Asha’s reflections gradually brought about changes in her practice. For example, her conceptions about evaluation deepened. She started by a pre-test with one correct answer to each question. This changed to taking note of pupil participation and understanding, and meeting learning objectives. She realised that marks were not the only way to evaluate teaching success.

The evaluation of a lesson plan becomes easier when the children understand the subject. My effort remains that the objectives I come with, I definitely complete. (Asha’s reflective journal, SEP2)

Her reflections changed her practice, starting with technical reflection about children’s right and wrong answers.

The children’s evaluation was not only done on their answers … but on the children’s participation and their activeness.

She then moved to consider her supervisor’s evaluation of her own lesson plans when she reflected in her reflective journal:

My lesson plans were quite good. Sir praised them a lot. I had improved my use of TLMs. A good lesson plan is one which keeps the children engrossed and attentive, understanding the concepts.

Slowly, for Asha, being able to enthuse a pupil to learn, gained importance. Conceptually, Asha learned to evaluate herself, and by the middle of SEP2 had taken ownership of her teaching. This changed to dialogical reflection when she began to evaluate her own teaching practice in terms of pupil enthusiasm, degree of engagement and participation. About this she reflected:

The evaluation of a lesson plan can be seen when the children give the correct examples for the concepts. A lesson is evaluated as good or bad based on the children’s enthusiasm, attentiveness, and interest. In my class, the children were attentive, participative, and interested always. Whether the lesson plan is good and specifically works is known better when the children enjoy the concepts through activities.

Her reflections became more transformative as she evaluated her own ability to ensure learning and change in her pupils.

The student-teacher does the evaluation of her lesson plan through the participation, enthusiasm and interest [by the pupil] like the role play done.
This was witnessed during a discussion on women’s empowerment at the end of SEP2. Asha’s reflections began to consider the pupils’ own contexts and experiences to construct their learning. This can be seen in her reflection which showed the application of different strategies and techniques in class. Asha reflected that each pupil understands things differently, in their unique way:

Children understand everything according to their own mental makeup and interest. Children understand every subject according to their level of understanding … their experiences and maturity. Students cannot be pressured or forced (to learn).

She realised that pupils get enthused to learn when learning is meaningful for them:

If the activity is according to the children’s interest, then the children get enthused to learn. One has to explain the same concept in different ways like plays, stories … To teach different children about the same subject, with understanding, different methods have to be evolved.

Asha understood the importance of using different strategies and techniques. It was important to enthuse children and motivate them to learn by using age-appropriate strategies to explain concepts to them related to the pupils’ interest and experiences. Asha also realised that it was difficult to teach large numbers of children. The pupils produced adjectives from stories they had read, and from their own lives, for example: ‘Mahak sings well. Asha Ma’am is very good, etc’. When learning about synonyms, she reflected back on her class:

In Class 6 … they produced their [non-formal] names, like Abhilasha [who was also called] Abhi, Akki and Baabu; Aakanksha was also called Akku, Bihaaran and Poonam. (Asha’s reflective journal, SEP2)

Asha continued to explore different strategies to engage her pupils to learn. For example, when learning about ‘Growing up like a boy and a girl’ from a lesson in the textbook, she organised her pupils to do a role play to show how discrimination begins. In the next part, she taught her pupils gender roles through ‘the importance of work and housework’. She listed miscellaneous works on the board. She asked the pupils to encircle what was traditionally considered boys’ work and girls’ work in two different colours and discussed it with them. In a third session, she introduced the lives of working women and housewives through a film on video on her mobile. Later she organised a role play about Adivasis (Tribals). She reflected on this:

If there is full collaboration from the children and the activities organised for the children are interesting then the children themselves get enthused to give answers to questions, like
in Class 8 a role play was organised. The children enthusiastically performed their roles.
(Asha’s reflective journal, SEP2)

Asha, in the development of her practice over two years, through her reflections, showed a change from conducting technically oriented classes to increasing the role her pupils played in their own learning. By the end of SEP2, Asha observed and evaluated her own practice, without hesitation, in her reflections. She planned her lessons for increased interaction and ownership of learning among her pupils. Activities were increasingly dialogical. Her stimulated interviews showed greater thoughtfulness. Her already comfortable relationship with her pupils showed greater confidence in using her own judgements to direct her own practice.

6.3. HOW DID SABIA REFLECT? HOW DID HER REFLECTIONS CHANGE HER PRACTICE OVER TWO YEARS?
This section introduces Sabia, a student-teacher participant from DIET-Chotapur. Sabia’s mother tongue was Urdu, but she chose to teach in Hindi medium. She answered her assignments in Hindi, too. Sabia’s father was a tailor and her mother a home maker, who was ailing. So, Sabia took care of much of the housework. She lived a tightly planned and disciplined life. Awake at 7 am, she offered namaz, morning prayers, made breakfast and lunch for the family, and travelled to the DIET. She returned home by 5 pm, tutored children from 6 to 7:30 pm, offered namaz, made dinner, and then completed her studies from 10 pm to 12 am. Sabia graduated from a government school that was less well-resourced than her practice school. Sabia’s English teacher, who Sabia respected immensely, introduced her to a charity which offered girls English improvement classes from Classes 8–10 and a scholarship for further studies, based on merit. The scholarship Sabia received and her earnings from tuitions helped her to pay her DIET fees and expenses. Early on, in interview, Sabia said she believed that the three important qualities in a teacher were:

a. Practising your profession with commitment and honesty.

b. Whatever a child is taught the child should understand and it should be related to real life. Then the child will not forget.

c. Stay friendly with the child ... If the child is not afraid of the teacher, you can rest assured that child’s life is made. (Sabia’s Interview, SEP1)

Sabia’s meaning of ‘commitment and honesty’ is identifiable in the next quality she described, to support each pupil to learn with meaning. This is close to what is required by the policy in the NCFTE (NCTE, 2009). Brinkmann (2015) showed that a key barrier to
reflection and constructivism, according to policy, was when teachers pursued task completion or routine teaching over learning with meaning.

However, in spite of her belief, Sabia’s own practice in the beginning of SEP1, showed in her reflective journal that she started with routine reflection, measuring her success as a teacher by her own performance and marks first during practice teaching (Appendix 7). Sabia’s routine reflection about her first-class observation follows:

My first observation took place (today) ... I taught a lesson from Environmental Science about colours. My observation went off quite well. The only mistake was that I kept holding the chalk in my hands. And during observation time my class children they sat very nicely in my class and participated well in the class ... I got 47/50 marks for this class. (Sabia’s reflective journal, SEP1)

Yet, Sabia gave importance to learning with meaning, when she talked about the qualities of a good teacher. According to Brinkmann (2015) learning with meaning is related to a constructivist pedagogy. It took Sabia some time to reach there. Sabia’s reflections moved from being predominantly routine to becoming more technical as she began to reflect on her pupil’s performance. For example,

Today, in my class, I took the first test which was in Maths. During the test I understood that I had to improve their (the pupils’) learning and the way they behaved. Their speed of writing was also very slow because of which I had to wait quite a bit for them to complete their test. (Sabia’s reflective journal, SEP1)

Her reflections moved from reflecting routinely on her own marks to evaluating her own performance and her pupils’ performance through her observation of pupil involvement, interaction, their observations and their answers.

To help the children explore the topic I asked the children to draw their favourite animal. And to write five lines about it. This way they will do their work with interest.

The children’s evaluation was done in the ways which follow: On the basis of their involvement/interaction, by observation, and through question and answers. (Sabia’s reflective journal 1, SEP1)

Sabia also moved to reflect at a critical-transformative level when she planned a homework activity in which she sent her pupils to look around their neighbourhoods for any incorrect use of water, to stop it, and not to misuse water themselves (Appendix 7d).

Sabia conscientiously reflected in her reflective journal. These reflections, representing different levels and different practice parameters, were mapped from a collection of 30
reflective entries during SEP1 and 22 entries during SEP2. Sabia’s reflective journal reflections mapped to routine, technical and dialogic reflections as already shown.

Sabia’s reflections during stimulated recall interviews revealed reflections which were more detailed than the reflections in the reflective journal entries. In these she gave stronger reasons for decisions in her planning and practice (Appendix 7e). For example, she talked about changing her strategies for teaching in her lesson plans. In another reflection she differentiated between teaching methods used in the practice school and at the DIET to teach language.

Sometimes when our content ... is a poem, for example in the 2nd class [there was a poem], about the rain, something like ‘the rain comes’. Then if I was doing it in Hindi then two of my objectives were related to the content. Like the children are able to recognize the difficult words in the poem. Or they can answer the questions.

The third objective I made was that they are able to relate this poem to real life. Then that is separate from the content. Meaning in that ... I am trying to get them to relate the rain to real life. Yes, if there is rain in the poem then, in their real life, have they seen rain like this? Does this happen, the trees sway, the trees bathe? The children go and play, make paper boats, they swim, does this happen in reality? Then my 3rd objective was ... completely separate from the content.

But in Hindi language what we are taught here [in the practice school] is ... that our objectives should be related to the language only, we should cover that completely.

Sabia reflected about how the DIET emphasised a constructivist approach so that pupils were engaged in learning actively with meaning.

Like they said [at the DIET] that it should be a constructivist approach. So, in our teaching we try to use it. OK, we know the content, we have done the reading once, we will tell the children and they will understand. Not like this. We will now have [to prepare] the whole lesson plan [so that] for all 30 minutes our children are engaged. During this time, the children remain active. We should have good activities. The children should be answerable themselves. The children should understand things. They should not be bored in class. All these things we have to see. So, our complete lesson plan gets changed. (Sabia’s reflections, stimulated recall interview, SEP2)

Sabia envisioned her actions in her lesson plan following the ‘5E constructivist approach’ as prescribed by the head teacher at DIET-Chotapur, applying the steps of Applying Engage-Explore-Explain-Elaborate-Evaluate. She planned to ‘Engage’ the pupils actively by having them chant ‘the poem in a group with rhythm, beat, tone and expression’; and to ‘Explore’ the poem while they ‘recited it’. She ‘Explained’ the meaning of the poem to them, identified new and difficult words on the board with their meanings and then used them in sentences. At first, though she planned her class by using the template, she engaged her
pupils through more technical activities, like chanting a poem together or reading loudly and her reflections were more technical reflection. In her later classes she changed the way she ‘Engaged’ them, using more dialogical reflection, such as engaging them with a play or telling them to ‘read loudly one-by-one and then explain it in their own words’.

6.3.1. Sabia’s reflections and development of practice from SEP1 to SEP2

Sabia’s beliefs about good teaching, the tools she used, and how she reflected to improve her practice during SEP1 were analysed and mapped on the RPTv2 and the activity theory model or heuristic.

During the early days of SEP1, Sabia established the importance of reading. Sabia wrote in her journal,

I had a lot of trouble to prepare this first lesson ... I asked my pupils, ‘Why do we read books and what is their importance?’ The students answered, ‘To become a good person, to become a teacher, etc.’ I asked, ‘Where do people read books?’ The pupils answered: ‘Library’. This way I understood how much the children knew and what they were learning from this lesson ... I told the children the importance of books and showed them pictures ... I told the children to find out the names of new books.

Sabia emphasised learning to read in her classes. Reading caught Sabia’s attention in the first class after she tested her pupils’ overall learning during SEP1. ‘After the pre-test, I started telling the children a story and I tried to understand the meaning of the story from the children, and I mixed with the children quite quickly’. This introduction motivated Sabia to work on her pupils’ reading skills.

During her SEP1 Sabia identified causes for low reading skills such as:

- Having parents who did not speak or read Hindi or English at home,
- Another language being used at home,
- Peers who sometimes used abusive language,
- Teachers who did not bother to correct mistakes in pronunciation, reading or writing,
- Low vocabulary and a lack of understanding, and
- A physical impairment.

Figure 29. Sabia’s class showing an example of a print-rich class at DIET-Chotapur
Sabia started developing reading habits by making sure that the pupils understood the meanings of words they read. She created a print rich display in the classroom (Figure 29). She then tried to build their vocabulary. She wrote in her journal of her first class,

> I then read the lesson with them, told them the meanings of the new words and then got them to use them in sentences. And my practice work was successful. 80% of the children had understood the work well. Once the lesson was understood well, I went over it again.

One of the solutions Sabia proposed to encourage reading was to build a library corner in class. This was a unique idea in the practice school. Sabia asked the children and teachers to contribute books.

During SEP2, she applied different strategies to engage the pupils. She introduced word games and activities like ‘word charades’, ‘whose memory is best?’, ‘storytelling’, ‘recitations during assembly’, and other word games. She also decorated her class and made it print-rich, full of words and related pictures. These actions she believed would increase core reading skills by increasing the theory-practice, like applying ‘phonemic awareness, alphabetic principle, sound-spelling correspondence, decoding ability, spelling, vocabulary, writing and comprehension skills’. Increasing active learning through recitation was a strategy encouraged at DIET-Chotapur. This was introduced during the large national projects like DPEP and APPEP as a pedagogical change (Clarke, 2003; Ravi and Rao, 1994).

One of the tools Sabia used often in different ways was drawing. The way she used drawing changed over time. Sabia’s first classroom overlooked a noisy playground which distracted the pupils. To keep her pupils occupied she asked them to copy her drawings from the class blackboard.

Next, she used drawing in her teaching to develop opportunities to work and celebrate together. She wrote in her reflective diary,
I taught the pupils to make greeting cards on Diwali (an Indian festival). ... I made a large greeting card ... I told the class to make small greeting cards. All the children made the cards and wrote their feelings in them. ... We stuck these small cards on the large greeting card. I decorated one bowl as a diya [a traditional lamp] with toffees [in it. We made a queue and ... went to the principal’s room and we wished him ‘Happy Diwali’. Sir was very happy. He wished the children ‘Happy Diwali’. Then we made a line and returned to the class and ate toffees to celebrate Diwali. We made paper diyas and the children decorated the class with them. We had great fun doing this work and my pupils were very happy. And today I mixed up with my children well. (Sabia’s reflective journal entry, SEP1)

Slowly, by the end of the year, she started to use drawings to help her pupils explore their own knowledge about animals by asking them to draw their favourite animals and write about them.

To engage the children, I gave them a sheet of A4 size paper and asked them to write the names of animals and their marks. Then I showed them pictures of the animals. I asked the children to draw their favourite animal and write five lines about it. (Sabia’s reflective journal entry, SEP1)

Gradually, thinking more critically and changing her own attitude and behaviour with her pupils, Sabia reflected at the critical transformative reflective level. She encouraged her pupils to include and draw with a child with special needs in her class.

Sabia learned and talked about the importance of different strategies and techniques of teaching she learned at the DIET. She believed a constructivist approach was better than lectures for children.

Many children have a very small attention span, not more than 5 minutes, so what is the use of our lecture method where our 25 children sleep in class? So, there we must use a method that is good for everyone. ... not only for those children who are listening in class ... Here [at the DIET] we are told different methods of teaching – like ... project method, creative writing approach, etc. So, we can use different constructivist approaches to teach. (Sabia’s stimulated recall interview, SEP2)

Her lesson plans by the end of SEP1 became multifaceted, assigning her pupils a greater role in their own learning.

During the District Primary Education Project (DPEP), a large educational project pursued in the 1990s, Clarke (2003) reports that teachers who formerly used only the textbook for instruction changed to using many teaching-learning materials. Similarly, Sabia reduced using textbooks during SEP2. Instead, she developed stories and other interactive means to engage pupils. For example, she enacted a story with Rangbirangi, a colourful puppet character she had created, to teach division and fractions. Rangbirangi was invited to a
birthday party where each table had a cake on it but with a different number of children. Rangbirangi wanted to sit at a table where she would get the largest piece of cake. Sabia asked the pupils to help Rangbirangi and in the process, introduced the pupils to division and fractions in maths.

Initially Sabia would ask rhetorical questions, followed by questions to which she knew the answer. During SEP2, she introduced different ways of questioning, which increased pupils’ participation. She began to ask open-ended questions and reached into her pupils’ worlds. For example, ‘Which season do you like? What is your favourite food in this season?’ This was again a change of the cultural construct of transmission of knowledge to the much-pursued construction of knowledge with meaning (Brinkmann, 2015).

Sabia learned to bring more sensory exploration into her classes, increasing experiential learning. In one class she got toffees and asked a student to taste them and to describe the taste. She gradually learned to relax with her pupils, learning from them about the different things they loved to do. In the process, she discovered their talents. All these showed a conscious move towards more social learning, better use of tools and signs, and improving the class environment.

Sabia herself was very competitive. She came second in SEP1 and topped the class in SEP2. She started off as a strategic learner, very conscious of her marks. She gradually changed to include a more dialogical orientation. Sabia stayed task-focused and marks-oriented while also pursuing student-learning and tackling diversity, maintaining a high professional commitment. Her account shows a gap in Brinkmann’s (2015) study of cultural constructs where the focus on tasks does not go hand in hand with learning with meaning. Sabia demonstrated through her practice that she did both.

Sabia was forced to innovate and used reflection to get herself out of dilemmas she encountered. An example was her managing and teaching Raju, a child with special needs. Gradually, she learned to take the help of her pupils to integrate him with the class.

In the development of her practice over two years, Sabia, through her reflections, showed a change from conducting highly controlled, teacher-led classes with a distinctly behaviouristic orientation to more interactive classes with a more constructivist orientation. Slowly, from tightly leading all the activities and whole class teaching, she became more open to new ways of teaching, trying to relate to her pupils’ worlds. She used books, increased open-ended questions, and made learning more experiential and inclusive through both individual and group work.
By the end of SEP2 her reflective entries had decreased drastically. However, the lesson plans became more creative and dialogical and Sabia demonstrated that she reflected to create her own stories and puppets, and to engage her pupils individually, if needed, through relevant activities, for inclusion.

6.4. HOW DID ZOHRA REFLECT? HOW DID HER REFLECTIONS CHANGE HER PRACTICE OVER TWO YEARS?

At the time of being interviewed, Zohra lived with her mother and four siblings. Her father, a driver in Saudi Arabia, was away for long periods.

In her early days of SEP1, Zohra was nervous about teaching. She said,

> We ourselves had just completed [class] twelfth [and] I did not know how to teach properly .... At the DIET, all admissions were late and delayed. We did not have much practise either [during SEP1 orientation]. (Zohra’s interview)

For Zohra, the aim of education was to live as a good citizen. According to her,

> To be literate is that one has learned to read and write, [to be] educated is to have the knowledge of right and wrong. Like when it is written, ‘Spitting is forbidden here’ even then people do it. The meaning is clear to a literate because he has read it but the person who is educated, will apply his mind, and think, this is wrong for our area and for our public, and ... avoid doing it (Zohra’s stimulated recall interview, SEP2).

This aim of education echoes the general Indian belief in the natural moral order of Karma (Clarke, 2003:29) which signals a fulfilling of public duties, by following a stipulated way of living life, following dharma. Zohra showed an openness to regulation, which Clarke has identified as one of four cultural traits that influence practice. This trait went beyond religion. It was cultural, since Zohra was not a Hindu. Zohra believed that it was important for a teacher to understand and strike a rapport with her pupils, to understand ‘what a back and front bencher feels ... [and] be sensitive to when the children are hungry’, reiterating the model of a caring, humane teacher (NCTE, 2009).

Zohra entered the DIET with views that a good teacher should be ‘knowledgeable, open-minded and innovative, capable of thinking, ... with good people participation so that children are attentive till the last period is over’ (Appendix 8e).

Zohra revealed lively reflections at the technical, dialogic and critical transformative level in her stimulated recall interview. At the critical-transformative level she related how she was able to change the behaviour of a disinterested pupil to come to class by making her a monitor (Appendix 8d).
Zohra reflected differently depending on the stage of the teaching cycle and how her reflections were represented. During lesson planning Zohra’s reflections were initiated by topics in the syllabus. The lesson plan, mediated by a DIET-Badapur template, was used to plan the classes. Zohra’s first lesson plan observed was a maths class about ‘Differences between boxes and sketches’.

The class was planned at a technical level of reflection for transmission to the pupils with whole-class teaching. Pupil interaction was planned at a routine level, as shown in RPTv2 rubric descriptor, where the pupils were mostly expected to ‘listen attentively’ and ‘try and understand’. This manifested the dominant, traditional mode of teaching and followed the hierarchical social construct studied by Clarke (2003), in part. While Zohra retained control of her class, and did not encourage questions, she did ask open-ended questions which encouraged her pupils to talk about themselves and as a result she learned about their world, their prior knowledge, and some interests. Zohra concentrated on getting her pupils involved and motivated by the content and delivery. Her reflective journal entries were descriptive and brief during SEP1. After her maths class, her journal entries were limited to just two sentences when she wrote:

‘In maths, I taught shapes by using boxes to make shapes. The class went quite well’.

This reflection gave no indication of the detailed reflection and planning which was visible during her practice class. Other than this she was observed to do reflection-in-action during the practice teaching. None of this reflection was written about in her reflective entry showing that her reflective journal did not showcase her reflective capacity.

6.4.1. Zohra’s reflections and development of practice from SEP1 to SEP2
In accordance with RPTv2, Zohra’s reflective entries during SEP1 suggested that she reflected primarily at a technical level. Early in SEP1, Zohra used TLMs such as charts, flash cards and picture cut-outs, to create engagement and understanding. To improve her practice, she often suggested a change with no specific reason. She was probably following what she had learned at the DIET or her own experience, a version of new pedagogy referred to as ‘Joyful and activity-centred learning’ introduced to diminish rote learning prevalent across Indian classrooms (Clarke, 2003). However, at the end of the SEP2, Zohra said that during SEP1 there was an overuse of TLMs:

I felt in the first year, that we had to use TLMS, TLMs, and TLMS only. The children remained active only by raising their hands and answering questions but not through body movements, etc. This was because in first year ... we used TLMs more. We did not have any training.
Zohra’s changed beliefs about good teaching included a respect for her pupils’ own knowledge and the importance of them becoming good, inclusive citizens.

During SEP1 Zohra reflected to motivate and involve her pupils with contextually connected teaching with well-considered, all the while she maintained strict discipline. She reflected to improve her practice during SEP2. By the end of SEP2 she reflected more social and embodied activities and tried to understand her pupils to help them change their behaviour. Zohra reflected to motivate and involve her pupils with contextually connected teaching. She learned a lot about her pupils and she reflected about how pupils ‘can be taught without books in various ways’, ‘understand things without TLMs’, ‘can be explained things without inciting fear, ...lovingly’, ‘get enthused by doing activities’, ‘have a lot of talent’, and ‘should be explained things peacefully’. She realised that children ‘learn by doing’, ‘can learn to cooperate’, and that ‘when children get excited, they can be taught anything’. According to Zohra’s learning, she should ‘treat the children well for them to remain peaceful in class’. Reflecting on what she had learned, she incorporated games, using new techniques to teach, telling stories, having discussions with her pupils and not getting angry. She realised, ‘In children there is knowledge already’. As she understood her pupils better, she learned ways to improve her teaching.

During SEP2 Zohra reflected and developed learning to become more dialogical and social in her classes. She reflected to have her pupils work in groups to make a charts, paintings and thread paintings together. For example, Zohra made a chart about ‘The first day in school’ and asked the pupils to talk about their first day at school. Zohra introduced ‘Seasons’ through pictures and asked the children to talk about each season. In her reflective journal Zohra wrote that ‘The children played the Trust game’ and organized competitions in painting and writing. And at the end, the winners were announced and prizes distributed.

Zohra’s reflections showed a mixed experience of supervision. In her total of 47 reflective entries, she writes about waiting for the supervisor in 19 of them, and about the fact that only 11 supervisions took place with the DIET supervisor and two with the school supervisor. Towards the end of SEP2, Zohra’s disinterest in her supervisions came through in cryptic comments such as: ‘Today Ma’am will not come’, ‘Ma’am did not come’. Or ‘Today supervision will be good … Ma’am could not come’ or ‘Today Ma’am will come … Ma’am came’. The stimulated interview with Zohra revealed her lack of dependence on supervisors:
In the first year I used to feel very scared of our supervisors. But now after two years ... I do not feel scared. I just feel that whatever must be done I have to do that. First year there was nervousness but in the second year, I have experience.

Zohra’s confidence in her own abilities and ownership of her teaching increased during SEP2. When asked, in the stimulated interview, what she did when the supervisor did not come she responded in a way that demonstrated her self-sufficiency:

When the class is completed, then the children give feedback. From that one knows how much the children know or do not know. So, when the children answered well, it meant my goal had been fulfilled. But if the children did not answer then I would write that the next day I will improve and by going on improving, little by little, it couldn’t get worse, so I would try that it would get better and better.

By this answer she showed herself becoming a reflective practitioner. Zohra’s reflections during a stimulated interview after the SEP2 revealed deeper reflections.

Zohra used her authority to manage her classes. She related the following incident during her interview. One day her pupils refused to study. They wanted to practise their street play. Zohra pretended a show of anger and on the board wrote, ‘Surprise test’. She proceeded to test them on three subjects at one go. When they objected, saying, ‘This never happens’, she retorted, ‘This also does not happen, that you don’t work when I request you’. This taught her pupils to listen to her.

Yet, on other occasions, Zohra empathised with her pupils when they expressed that they did not want to study. She responded by declaring that she did not want to work either. She would lead them to play, for example, a game of word charades, starting with ‘A’ for ‘Apple’ and spelling ‘Apple’. Another pupil would take on the chain by spelling a new word starting with ‘E’ the last letter of ‘Apple’, such as ‘E for Eagle’. Peers would help any child struggling with a spelling. This way Zohra would coax her pupils into studying. This ability to engage the pupils was acknowledged as a strength by her principal at the practice school. Zohra was selected as one of the best of three student-teachers, held up as an example to emulate, because she did not scold or beat her pupils but engaged them.

Zohra admitted that there were occasions when she scolded her pupils a lot, and they sat quietly. She asked them ‘OK, tell me, did I scold you incorrectly?’ They replied strategically, ‘Madam, no, you are right’. When Zohra asked whether they should be punished, her pupils would punish themselves by holding their ears and going up and down 50 to 100 times. Unmoved, Zohra felt this form of punishment was better than hitting them, because it gave them exercise.
Zohra showed herself to be a strategic teacher. She adjusted her teaching methods to meet the methods applied at her practice school even if these went against DIET recommendations. She believed that at times lectures were essential, too. Zohra also learned from her school supervisor who was constantly present with her. Zohra’s pupils told her how one of their schoolteachers had taught them to learn from stories by forming questions around each paragraph they read. For example, a text mentioned Gandhi’s birth. The pupils created a question around this, ‘When was Gandhi born?’ In this way, their learning improved, as did Zohra’s. Influencing pupils to think in a particular way, in her perception, was reflection. She said,

So, from this I got to know what the reflection of the teacher was and what mine was on them. I then included this activity in the many activities I did with my pupils, and I got quite good results.

Zohra brought learning into her pupils’ daily lives in a simple, enjoyable, social way. She asked her pupils to show their mother how a clock makes different angles with its hands; how to divide a roti (Indian flatbread) into fractions. She made use of displays on their classroom wall, changing the way the pupils used their environment for learning.

Zohra increased the self-respect of weaker pupils. She did this by paying special attention to the weaker group of students, called Nishtha group. She encouraged them to speak in English, starting with words and meanings. She followed this with simple sentences, spoken with gestures, like in dumb charades. The gestures provided a second line of communication. She said, ‘Their vocabulary increased. And they learned sentence formation. Not proper, but they started speaking slowly.’ They also helped each other with English words and simple sentences, increasing learning together.

Zohra said that there was much fighting, pulling of hair and use of abusive language in school. To reduce this, Zohra identified the girl who was often in this mode. She was rude and avoided studying by hiding in the bathroom. When Zohra told her she was very intelligent, she replied, ‘No, Ma’am, I am famous for being shameless and rude’ [batameez in Hindi]. Zohra appointed her monitor, assigning her the responsibility to manage the class. The pupil transformed, started attending class, eager to learn, managing things and asking Zohra, ‘What will you teach now?’

Zohra started by conducting detailed, teacher-led but child-friendly classes with TLMs. She used everyday examples, to make the learning relevant to her pupils. During her SEP2 she moved to conducting more activity based, embodied classes, for example forming acute,
obtuse and right angles using arms to form angles. She gradually gained confidence and learned to deal with complex activities and events. At the end of SEP2, Zohra’s reflexivity increased. She learned to look for feedback about her teaching from her pupils’ interactions with her.

In the development of practice over two years Zohra, through her reflections, showed an increase in confidence, which she acknowledged led to sparser reflective entries. She became less dependent on the supervisors and learned to deal with complex activities and events herself. She collected feedback about her own teaching from her pupils’ interactions with her. Their growing engagement increased her reflection and confidence.

6.5. HOW DID HABIBA REFLECT? HOW DID HER REFLECTIONS CHANGE HER PRACTICE OVER TWO YEARS?

Habiba came from a more affluent family and locality than her peers. She had studied in an English medium private school for some time and so was more fluent in English than her peers. She was very conscious of it. Of the four student-teachers she was the only one who wrote her reflective journals in English. However, her Hindi was also good, and she used both languages to answer her assignments and to teach. During an interview when asked ‘Who is a good teacher?’, Habiba answered by saying that according to her a good teacher is one who has four important characteristics:

- She shares a rapport with her students. There should be a relation, a bonding.
- Content knowledge should be strong. Without content knowledge what is the use of a teacher?
- The teacher should be able to conduct a class according to the interest of the class.
- The teacher should follow her own directions [judgement].

When asked what she thought the aim of education was, she answered,

Students do not understand education. They are forced to go to school. ... Now I am beginning to understand it ... just learning to live life is education. Everyone reads books, [but education is about] how is life to be lived, how to adjust in society. (Habiba’s interview, SEP1)

Here Habiba seems to have endorsed the view that understanding how to live life, finding dharma, was the most important aim of education. This, according to Habiba, was conjoined with ‘adjust(ing) in society’. This echoed the cultural construct when ‘an individual’s decisions and choices are often constructed by choices made by the community rather than by individual experience and perception’ (Clarke, 20013:29).
When the reflections were mapped on the RPTv2 template Habiba’s SEP1 thumbnails of planning, practice teaching showed technical reflection. Unlike the other participants, Habiba’s reflective journal during SEP1 showed some technical, dialogic, and a few critical-transformative reflections. During SEP2, Habiba’s routine reflections increased for planning, practice teaching, reflective journals and stimulated recall interviews (Appendix 9).

6.5.1. Habiba’s reflections and development of practice from SEP1 to SEP2

Habiba started by believing that ‘a good teacher’ should be engaging, should share a rapport with her pupils and know her subjects. This conception changed to include the ability to learn by seeing, doing and experiencing.

I observed Habiba’s first two English language practice classes. Habiba’s initial observation showed that Habiba’s classes were logically planned with technical level reflection. The first class’s planned objectives were:

- The pupils will be able to define verbs
- The pupils will be able to identify verbs, the words describing activities
- The pupils will be able to write sentences in Hindi
- After learning words of activities, the pupils will be able to use them in sentences.

(From Habiba’s lesson plan, SEP1)

After observing her first class, the supervisor commented that the topic was well introduced, and the class was disciplined, with pupils who were interested. She advised Habiba to increase examples from the pupils’ own lives and surroundings. Habiba did this. She involved the pupils to share examples from their lives. The supervisor acknowledged that she had made her teaching more relevant and increased pupil interaction during the class.

In both her classes Habiba managed her class with ease and attention to detail. She interacted widely with her class, drawing out the shy, quiet pupils. She obtained regular feedback from her pupils to check that they understood. Her TLM, a chart, was well-prepared. Her teaching was controlled, not joyous, but the students were kept engaged, and stayed responsive. All learning was teacher directed and controlled and she rarely needed to discipline her pupils, who were all girls.

The reflective entry template during SEP1 was structured with three headings: ‘Teaching point’, ‘Reflection’ and ‘Non-teaching’.

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Habiba’s reflections under the section ‘Teaching point’ described what she taught and how. Like all the other student-teachers, she used a variety of teaching aids, strategies and techniques to create interest. For example, in English and Hindi she tended to use songs, stories, role plays, plays and puppets. In maths and environmental studies, she used games and flash cards. During art education the pupils drew, painted, did thread work, straw painting and clay work. Physical and health education was dominated by physical exercises and games, usually in class because of the lack of a playground.

In the ‘Reflection’ section of her reflective entries, Habiba commented on each of the techniques she used stating whether or not they worked. She mainly gauged this from her pupils’ reactions to her practice teaching, for example her comment: ‘In the English class, the children did not show much enthusiasm and I should have made it ... more beautiful’.

In her reflections, Habiba considered how she could improve her classes giving reasons for the changes. For example, in an entry, Habiba wrote about teaching two-unit multiplication: ‘Today I taught Class 5 about ... multiplication. In this I kept five books each in three places and asked the children how many books were there’. Then she told them if five books had to be kept in three piles, they would be written as ‘5x3=15’. She reflected on this in the same entry, saying, ‘In maths to teach the children about multiplication, I could have given more examples to explain things better’.

When Habiba discussed improvements, it was about the pupils getting a more direct experience of what they were learning about. For example: ‘To teach the children about means of transport one can show means of transport [and not flash cards]’. In another reflection, she said she felt group work could improve learning when her pupils made hats.

In the ‘Non-teaching’ part of the entry Habiba usually made a special mention about prayers, good behaviour and keeping good habits. For example:

Today prayers took place in school in which some children came to the front to say the prayers. Today I told the children about good habits ... and cleanliness.

For SEP2 classes, Habiba’s reflections were written in the new reflective entry template introduced by the DIET-Badapur principal (Table 19). Habiba interpreted the new fields differently from Zohra.
Table 19. Example of Habiba’s reflective entry in the new template during SEP2, DIET-Badapur.

<table>
<thead>
<tr>
<th>DAY 2</th>
<th>REFLECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning of self</td>
<td>I planned to observe the teaching by (school) teachers, in the classroom.</td>
</tr>
<tr>
<td>Students</td>
<td>Students behaved in a warm manner and were very glad to see me.</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Supervisors instructed us to talk to teachers and build a rapport with them.</td>
</tr>
<tr>
<td>Peer group</td>
<td>We talked on the problem of indiscipline created by the students.</td>
</tr>
<tr>
<td>Schoolteachers and staff</td>
<td>My subject teachers taught me ‘how to teach’.</td>
</tr>
<tr>
<td>Issues related to SEP Process</td>
<td>Main issue is the indiscipline I faced and the abusive language (among pupils).</td>
</tr>
<tr>
<td>Co-curricular</td>
<td>I conducted a small play with students in Class 7.</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>I had expected I would take an introduction of all students of all classes.</td>
</tr>
<tr>
<td>Students</td>
<td>To co-operate with me but they did not.</td>
</tr>
<tr>
<td>Supervisor</td>
<td>I expected she would give some instructions regarding maintenance of discipline in classes.</td>
</tr>
<tr>
<td>Peer group</td>
<td>I expected from them to talk to me calmly and try to diffuse my tension.</td>
</tr>
<tr>
<td>School teachers and staff</td>
<td>I expected they would all behave nicely with us which they did not.</td>
</tr>
<tr>
<td>WHAT HAPPENED TODAY</td>
<td></td>
</tr>
<tr>
<td>Planning of self</td>
<td>I planned to observe the teaching by (school) teachers, in the classroom.</td>
</tr>
<tr>
<td>Students</td>
<td>Students behaved in a warm manner and were very glad to see me.</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Supervisors instructed us to talk to teachers and build a rapport with them.</td>
</tr>
</tbody>
</table>

Each student-teacher was expected to write about 30 entries in their reflective journals. Habiba’s had 12 reflective entries during SEP1. During SEP2, Habiba showed that she did not gain value from her reflection. In learning to work ‘smart’ instead of ‘hard’, Habiba reflected for just 12 of the 40 required days. Until Day 12, each reflective entry was unique. For the remaining days Habiba simply repeated the same entries. Dr Dhar, the practice teacher-educator responsible for marking the reflective journals at DIET-Badapur had announced in class that it was not possible for her alone to read all the student-teachers’ reflective journal entries. This might have led Habiba to write a smaller number of reflective journal entries during SEP2 and repeat the remaining entries. There was no easy way to match the reflective entries with the corresponding lesson plan and practice classes because Habiba did not maintain dates, just Day 1, Day 2, and so forth. The lack of dates on
The reflective entries muddied the trail. This showed that Habiba did not find it valuable to maintain a reflective journal and reverted to routine reflection.

Of the four student-teachers studied, Habiba was probably the most complex. From her first class she showed clarity and detailed planning, with mainly technical reflection. Her classes during SEP1 were well planned. She tried out many different teaching techniques, paid close attention to pupils’ reactions, and many of the pupils participated in the teaching-learning process with questions and answers. She also showed a special interest in imparting moral education.

During SEP2 Habiba moved to a much larger all-boys private school and taught higher primary Classes 6–8. Zohra, her compatriot from DIET-Badapur, moved from a similar small junior primary school to another small all-girls government school. She did not have to face large classes of 40 boisterous boys Habiba and others in her group did.

Habiba, like the other student-teachers, used a variety of teaching aids, different strategies and techniques to make her classes engaging. Towards the end of SEP2 Habiba became conscious that TLM should be developed according to ‘the age of the children’. Habiba reflected in her journal that lectures worked better with older children but she did not think about what caused this, or why she thought this to be true.

During SEP2 Habiba followed the DIET-Badapur emphasis on TLMs and practised helping her pupils to construct knowledge through practical experiments in class. She successfully taught physics concepts about reflection of light to Class 7 pupils. Preparing the teaching aids for the demonstration took special effort because she was not confident. In an interview she admitted, ‘I am very bad in physics. Actually, I read thoroughly that topic, that’s why I was able to teach that chapter effectively’. Next, on Day 8 she wrote that she taught ‘the relation between high pitch and low frequency ... through straws. The sound produced by the straw was so humorous that it grabbed every student’s attention’. From this experience she concluded, ‘The best way of grabbing the students’ attention is to present something new’, and she emerged with a teaching belief that ‘the best method to teach science is by demonstration’.

When Habiba taught light in physics through an experiment, she planned the viewing of the experiment. Her class was large and difficult to manage. Habiba listened to their suggestions on how to show the experiment in batches. There was a palatable excitement and enthusiasm from her pupils. She first had the pupils sit at their desks. Then she called two rows of 20 pupils, ten to her left and ten to her right to view the experiment, quietly.
They literally piled on to each other. Some just gave up because they couldn’t see anything. This planning was not visible in her lesson plan and so it was reflection-in-action during her practice teaching. After demonstrating the experiment, Habiba allowed the boys to try the experiment themselves, which they did enthusiastically.

Habiba grappled with disciplining pupils in different ways. The first day when Habiba tried to conduct a small play with the pupils of Class 7 she wrote that ‘The main issue is the indiscipline I faced and the abusive language’. She expected to get ‘some instructions regarding maintenance of discipline in classes’ from the supervisor, and that her peer group would help ‘calm’ her and ‘try to diffuse ... tension’, or that the schoolteachers would ‘behave nicely’. None of these expectations were met. Keeping the pupils disciplined and preventing them from using abusive language was difficult.

On Day 2, still facing issues of indiscipline, Habiba acted on advice from the DIET supervisor: she tried to strike a rapport with the schoolteachers and learn from them how to deal with the indiscipline. Maybe it was this exposure to the practice school’s norms that led Habiba to become a very strict, threatening and an extremely restrictive disciplinarian, insisting on getting pin-drop silence with no movement in the class. There was a gradual process of change to this end.

During an ‘arrangement class in 7A’ Habiba talked about encountering pupils ‘who were behaving wildly’. She said in an interview at the end of SEP2,

> They were running here and there, and they were beating each other. And I entered the class, and yelled, ‘Statue’. They all became still like statues. I said, ‘Now if anyone speaks, I am feeling hungry, I have not eaten, I will beat you’. But I did not beat anybody. I just warned them, and they were like, ‘Ok Ma’am’.

Unlike Sabia, Habiba found that in a practical sense, fear worked: ‘It is necessary. Such behaviour is not good. I myself know this, but practically it works’. She explained further:

> See, there is not much difference between our age [the student-teachers] and the pupils. The pupils do not regard us as teachers. So, to overcome this thing, we must behave like this. I do not behave like this every time in class, just to get the class to settle down.

She said, ‘This school is very big ... A typical boys’ school ... and because of that we have problems. In each class there are about 40 pupils’. When asked if this made her feel powerful, she laughed and said, ‘We feel very weak before them’ All the student-teachers at the table joined in the laughter and agreed. Habiba learned from these experiences that...
when children are filled with fear, they tend to be more disciplined and obedient. This has been identified by Brinkmann (2015) as another cultural characteristic that varies greatly in teachers. In Brinkmann’s research, many teachers expressed a preference for hierarchical, disciplined, silent relationships rather than democratic teacher-pupil relationships. This is the point that Habiba seems to have reached during SEP2.

During the last observed class, Habiba created a presentation, using PowerPoint, about different animals and a popular story about a crocodile and monkey in the form of an animated film to be shown on a computer. In the D.El.Ed. syllabus, during SEP2, the student-teachers needed to demonstrate their ability to use ICT in teaching. In this class Habiba transformed into an oppressive disciplinarian. This class was controlled, punctured with repeated threats from Habiba. For example, she said, ‘I am repeating again and again in the class I want discipline and pin drop silence in the class’. At the end of this oppressive class, pupils were expressed their relief vocally as they filed out of the class. Habiba shot a practice video of this class for submission. After completing this recording, she allowed the pupils to crowd close to the laptop and view the film again and again. She translated the dialogues and kept asking questions to learn whether or not the students understood the story. A gentler side of her was visible for the first time in class. At the end she said, ‘Thank you for cooperating with me. Is there anyone left who has not understood? Anyone? Anyone left who wants to hear it?’ She left the film on for some time, during which many students crowded around the computer. At the end Habiba changed from routine reflection, before the camera, to dialogical reflection when the camera was off.

In her reflective entry on Day 7 she got the pupils to sing songs and was able in this way to discipline them. She continued learning. The next day she acknowledged in a reflective entry that ‘there are many ways to control students other than scolding’.

Habiba realised the importance of collaboration with her own peers. In her reflections on Day 6, Habiba collaborated with her peers to successfully organise a painting competition. This taught her the importance of cooperation in carrying out co-curricular activities, as well as in learning socially. Habiba reflected, ‘Today, I learnt that strength lies in unity, and everybody is supposed to help each other’.

Habiba assigned a special place for prayer and learning to live a morally sensitive life in her practice. The non-teaching part of the reflective entry, for Habiba, was concerned with prayer, and with imbibing morals, social skills and good behaviour. Habiba gave this special importance in her teaching practice. Her reflective entries during SEP1 had numerous
entries related to these aspects. She felt it was important to start each day with assembly or Morning Prayer time and she noted the days when this did not happen. Habiba reflected that ‘Prayer is very important for the children. Through this the children can make their minds peaceful for some time ... Today there was prayer time, but it happened very late because the cleaning of the school did not happen in time’. She ‘told the children the meaning of the prayers that were going to take place’. On another occasion she ‘told them a story about discipline. The children liked the story and they promised ... they would maintain discipline in the class’.

In the development of practice over two years, Habiba, through her reflections, showed that from the start she kept her content knowledge centre stage. She gradually showed a change from imparting content to gaining it through pupil participation in her science demonstrations and applying maths practically. This indicated a change in believing that knowledge is transmitted to believing that it can be constructed (Brinkmann, 2015). Habiba was able to change her practice to do this through her in-class demonstrations of science experiments, followed by a time to do-it-yourself, within the class time for her pupils. During SEP1 her classes were always disciplined. During SEP2, when she encountered fierce indiscipline, she started to learn from the schoolteachers and was observed to keep her class repressively controlled through fear. Alternatively, she was also observed managing a very difficult, large class of boys in Class 8, demonstrating the reflection of light, with the strategy of keeping the pupils engaged with the experiment through hands-on experience. She engaged them further by getting them to sing together as a class. She regularly maintained her reflective diaries during SEP1, but during SEP2 while changing her practice she seemed to have lost motivation to continue improving her practice in the way the DIET promoted with reflective entries. She expressed her need for support from the DIET teacher-educators, school supervisors and her peers in her reflective entry (Table 19) but felt she did not get it.

Holism, one of the four important cultural constructs Clarke (2003) describes and researches in her study, can be associated with Habiba’s practice during SEP2 to explain this intense feeling of lack of support and abandonment. Clarke (2003:29) states that in holism, ‘individuals are not [considered] autonomous but are linked together in an interdependent system, context and social relationships [which] drive the individual’. Habiba seems to have believed in ‘rules of interdependence which are context specific and particularistic’ (2003:29). The environment at the DIET and practice school did not support this, and Habiba struggled to manage her class. She writes about this (Table 19) how her
'expectation' was for the students ‘to cooperate’ with her, but they did not. The DIET supervisor did not ‘give some instruction regarding maintenance of discipline in the class’. Her peer group ‘did not talk to me calmly to diffuse my tensions’ and the schoolteacher and Habiba expected ‘the staff to behave nicely with us [the student-teachers], which ‘they did not’. Maybe this explains Habiba’s increase in routine reflection during her stimulated recall interview about the last class I observed.

6.6. KEY FINDINGS ABOUT HOW THE STUDENT-TEACHERS REFLECTED

Hatton and Smith (1995:40) described reflection as ‘deliberate thinking about action towards improvement of practice’. Vygotsky (1982) described reflection as a higher mental function that was dialogical in nature, developed in individuals during culturally mediated socially constructed human activity (in Lampert-Shepel, 2008:211). Reflection is also described to be an important activity through which people think, evaluate and learn from their experiences (Boud et al, 1998). Reflection is an inseparable part of human action (Vygotsky, 1982; Dewey, 1933; and Hatton and Smith, 1995) and was found to be inherent in the student-teachers studied.

The different student-teachers showed different capacities and levels for reflection and different motives for improving their teaching practice. Circumstances around them also influenced their ability to learn to teach. In accordance with the RPTv2, all the student-teachers were found to reflect at a technical level, sometimes at routine and dialogical levels, and on very few occasions, at the critical-transformative level (Appendix 6–9).

All the student-teachers worked hard to meet the lesson plan objectives and complete the SEP targets of classes for each subject which were stipulated in the D.El.Ed. syllabus. The practice classes were based on their lesson planning. All four student-teachers showed routine reflection and appeared to be tense during the first few practice classes because they were assigned marks based on the planning and observation of their practice classes. 20% of the marks were awarded when observed by the DIET supervisors and another 20% were awarded by their school supervisors. The student-teachers worked hard to please both and often applied constructivist or behaviourist pedagogy depending on who was observing them. Indications during interactions, complete answers written on the school classroom board, and concern about methods of teaching from the student-teachers, showed that the school often expected them to pursue a traditional, dominant, behaviourist pedagogy. This was possibly due to the school’s responsibility for ensuring coverage of content before examinations. On the other hand, DIET teacher-educators
expected to witness constructivism mediated by reflection. The differing views of the teacher-educators on what constitutes constructivist pedagogy also influenced the student-teachers’ practice.

The four student-teachers were observed to reflect technically. At both DIETs the four-participant student-teachers started with carefully planned lesson plans and practice teaching. Zohra taught about boxes and shapes, Habiba about verbs, Asha about pronouns and conducted pre-tests, Sabia taught language and poetry using a textbook.

The student-teachers at DIET-Chotapur showed that they became increasingly dialogical in their reflections from SEP1 to SEP2 and more dialogical in their teaching orientation. At DIET-Badapur, Zohra reflected mostly at the technical level during SEP1 and SEP2. Zohra showed some dialogical reflection with an increase in embodiment and interaction with the student-teachers over the two years, but during her stimulated recall interview she reflected strongly both dialogically and at the critical-transformative level. Habiba started with technical reflection during her first practice class, technically, dialogically and at the critical-transformative level in her reflective journal during SEP1. Her dialogical reflection reduced and she showed more routine reflection in her last practice class and her stimulated recall interview. The stimulated recall interview was held straight after her last practice class and that might have influenced it.

The critical-transformative level of reflection was observed, but it was lower than all the other reflective levels. For example, during SEP2 Asha’s social science classes were observed increasingly to involve the pupils in constructing their knowledge about gender discrimination from their own lives, encouraging discussions, learning by doing and behaviour change. Sabia showed this level of reflection when she innovatively used drawing to engage Raju, a pupil with special needs in her class. She also involved her other pupils to facilitate Raju’s learning making her class more inclusive. Zohra helped a recalcitrant child to become a responsible monitor.

6.7. HOW DID REFLECTIONS INFLUENCE THE STUDENT-TEACHERS’ TEACHING PRACTICES?

The implementation of the pedagogical policy reform studied in this thesis was aimed to change teacher-led behaviourist pedagogy to a more student-centred, process-based, constructivist pedagogy, mediated by reflection. This aim is common to many educational reforms which have been tried out in India. The DPEP, APPEP, and Sarva Shiksha Abhiyan (after the RTE law) all aimed to change traditional pedagogy by introducing more active,
constructivist pedagogy. In the current reform at the DIET, reflective practice is an important construct that has been introduced in the process-based teaching cycle.

This chapter explored how introducing reflection influenced student-teachers’ teaching practices in many ways. The findings reported here are important because though this soft reform was not attached to a massive project like the DPEP, it is part of a national policy. The results of this research are significant because of the lack of research about how reflection is introduced and accepted in an unprepared teacher education institute.

6.7.1. Motivating pupils by using different TLMs, strategies and techniques

All four student-teachers, to varying extents, realised the importance of motivating their pupils to learn by reflecting, and planning their lessons in ways which related to the pupils’ lives, ages and interests, and engaged them.

One of Asha’s earliest teaching beliefs was that ‘little children find it boring to be made to read, write, do maths or learn to sit at a desk, more so in the afternoon … they learned when they were motivated’. She reflected and moved more playful activities into the afternoons. Sabia declared ‘what’s the use of our lecture method where our 25 children sleep’. She reflected and embraced songs, stories, role-plays with masks and puppets instead, ‘methods that are good for every child’. When pupils told Zohra that they did not want to study, she empathised with them and started a word game, and drew them back into their studies. Habiba encouraged participation with questions during class and engaged her pupils with experiments.

Clarke (2003:33) reported that teachers, in her research at DEPEP, related demonstrations to seeing and activities to doing. They reported that children ‘understand when they see things themselves … even if the child does not know the language there won’t be a problem because they see the models’. A similar learning by seeing, doing, demonstrating, and discussing was also popular at the DIETs, probably learning that had come down from DPEP (Section 1.4).

As the student-teachers began to understand themselves and their pupils better, with more cycles of reflection, they developed newer strategies of teaching. To make teaching engaging, motivating, ‘joyful’ and participative, the four student-teachers at the DIETs increased activity-based learning through the use of more than just charts, flash cards and models. The student-teachers increased story telling both by themselves and by their pupils, as well as demonstrations, discussions and other interactions. Asha realised that each child understands differently and that learning with understanding enthuses a pupil to
learn. She also began to understand that it is difficult to teach large numbers of pupils together and started evolving strategies of teaching in groups and experientially. Sabia realised the importance of different strategies and methods. She applied the ‘project method’, ‘creative writing approach’ and other different approaches to teaching. At the end of SEP2 Zohra learned that pupils can be made to understand without TLMs, which were heavily used during SEP1. She learned she could choose from numerous different techniques and strategies. She wrote in her reflection that her pupils ‘get enthused by doing activities’, ‘have a lot of talent’ and ‘can learn to cooperate’, ‘have knowledge already’. She realised, and reported that children ‘learn by doing’, and ‘when children get excited, they can be taught anything’. Habiba also believed in the importance of using different strategies and techniques, chosen according to what interested pupils of a particular age. She continued to work on different ways of demonstrating science principles. Learning by doing, experiencing and collaborating became important to all four.

Among the other changes in practice due to reflection, Asha’s concept of evaluation moved from being marks-oriented about ‘the correct answer’ to looking for multiple views, and engagement and participation among her pupils. Games, role plays, debates and discussions entered her classroom lexicon. She started to practise self-evaluation based on her pupils’ ‘enthusiasm, attentiveness and interest’.

Dyer et al (2004:51) argue that

Teachers have clear views about what is ‘possible’ and while teachers who have developed a strong sense of professional agency find many more things possible, for others the possible is constrained by a ‘deficit’ interpretation of their context, which may also extend to themselves. (Dyer et al, 2004:51)

The four student-teachers showed in the second year of their training that they had a sense of agency; they found possibilities and they reflected to improve their practice. The ‘deficit’ interpretation had not yet set in.

6.7.2. The importance of not fearing the teacher

There was a growing realisation among the four student-teachers, as a result of reflection and slowly changing practice, that fear limits learning. Asha reflected about teachers being caring, appreciative and good listeners. Sabia realised the importance of being friendly with the child: ‘If the child is not afraid of the teacher you can rest assured that child’s life is made’. Zohra felt it was important for a teacher to understand her pupils and strike a rapport with them. As she progressed in her practice, she learned that her pupils ‘can be
explained things without inciting fear ... and peacefully’ and ‘lovingly’. Habiba believed rapport with the pupils, a relationship and bond, were important for learning.

As they changed their practices to increase activities, interactions, demonstrations and embodied activities, this realisation grew. Clarke (2003) reported a similar realisation from the teachers at the DPEP, who believed that demonstration and participative methods helped to dissipate pupils’ fear of the teacher and as a result improved their understanding. Asha, similarly, discovered that the ‘low’ child was scared of his teacher because he was constantly scolded by him for coming late to class. He started attending class more regularly once this fear was removed. Sabia taught maths through a puppet called Rangbirangi. She built Raju’s confidence by putting his drawings up in class and encouraged his peers to facilitate him to draw in class.

Yet, the student-teachers were not able to manage their classes by reflecting dialogically or in a critical-transformative way. They were observed, on occasion, to apply routine and technical reflection. For example, when pupils were inattentive, most student-teachers were observed to use their authority to manage the pupils. Sabia was found in class waving a steel ruler at a child. She reflected about it in a stimulated recall interview saying it was to keep students from bullying Raju, the child with special needs. Zohra allowed children to punish themselves or threatened her pupils into submission with tests. She said this was better than threatening to beat them into submission. Habiba demanded that she get pin-drop silence and conducted a very oppressive class. A few classes later she got her pupils to sing together and admitted in her reflective entry that there are other ways to discipline pupils.

Brinkmann (2015) explains that the traditional hierarchical relationship between a teacher and students tends to resist the development of a more equal relationship of mutual respect brought in by constructivism and reform in policy. Brinkmann found that teachers’ beliefs varied widely. Teachers, like student-teachers in this study, came from a more traditional experience where the teacher was a revered and respected figure, at least outwardly. Many teachers that Brinkmann interviewed believed that students should be kept distanced, disciplined and silent, in respect and fear, rather than in a friendly atmosphere. Teachers admitted to using fear-based disciplinary methods to control students, such as shouting, threatening, and hitting. There were fewer teachers, in Brinkmann’s research, who valued more democratic relationships and ‘used positive strategies such as love, respect and engagement to keep students on task’.
The student-teachers in this research seemed to be caught between maintaining a motivating environment and maintaining discipline. They seemed to need stronger support to deal successfully with the lack of discipline or disapproval that they had to contend with at the practice schools. Asha was remonstrated by the school supervisors when her pupils made more noise than was usual as pupils interacted and worked together. Habiba, in her reflection journal (Table 19), wrote about how she looked for support from the DIET supervisor and her peers on how to manage the discipline of her rowdy class, and did not get it.

6.7.3. Weariness in maintaining reflective journals

All four student-teachers showed weariness with maintaining a reflective journal during SEP2. Some less, like Asha and some more, like Habiba who wrote only 12 entries in SEP2. Reflection in the journal became routine, written mechanically, shorter for Sabia and Zohra, with regular repetitions across entries for Habiba.

Reflective journals have been the recognised way of recording reflections-after-action (van Manen, 1977; Killion and Todnem, 1991), and reporting and monitoring reflections in teacher education (Beaucamp, 2015; Lindroth, 2015; Hatton and Smith, 1995; Valli, 1997; Jay and Johnson, 2002; Mena-Marcos et al, 2013). In the D.El.Ed. programme teacher-educators did not facilitate the writing of reflective journals by student-teachers. Reflection in the syllabus was monitored and evaluated through reflective journals (Section 5.6). However, attempts towards more purposeful, structured reflections led to the creation of templates of reflective journal entries by the leaders at each DIET (Chapter 5). This was found initially to increase student-teachers’ reflections in the reflective entries, but with time the length and number of reflective entries decreased, as did student-teachers’ enthusiasm for structured, repetitive reflective entries. The 10 marks out of 150 marks every year allotted for reflective journals were probably too little for the effort required from student-teachers and teacher-educators. The quantum of marks allotted did not convey the importance of reflection as ‘the main pillar’ of teacher education according to the reform policy. Lindroth’s (2015) review of literature found that many student-teachers were not motivated to invest the time in writing reflective journals. Research by Black et al (2000) showed that ‘journal entries offer individuals the opportunity to think about and to articulate their thoughts as a means of refining their understanding to more complex levels’ (Black et al, 2000:86). However, they also found that ‘people incur difficulties articulating their thought processes adequately. Their written text, therefore, may not produce the same degree of reflective thought as verbal expression’ (ibid.).
The findings in this current research study at the DIETs is in agreement with Lindroth’s (2015) study. The student-teachers were more motivated to share their reflections dialogically and verbally than writing about them in their reflective journals. All four student-teachers grew weary with writing reflective journals, though they continued to reflect.

Vygotsky’s explanation of languaging helps to explain the student-teachers’ difficulties in generating more meaningful, reflective journals. Language mediates thinking and meaning making, and so mediates reflection. Language is a mental tool which gives form to a thought and helps to organise and structure thinking (See 2.5.4). What starts as a thought, a reflection, uses inner speech and then private speech to express it in the mind. Inner speech is stated by Vygotsky to be ‘pure meaning’ or ‘thoughts without speech’ (Swain et al, 2011:38). Reflections that start in the mind as thoughts, concentrated meanings of inner speech, are converted into private speech before they emerge as social dialogue to be shared. This dialogue needs to be further converted, through deliberation into abstract written expression into a reflective journal. This is a complex, cumbersome process. It becomes more complex when the thread starts in one language to be expressed in a second language as was the case with Habiba who maintained her reflective entries in English.

At the DIETs most teacher-educators admitted to thinking in Hindi. An experienced teacher-educator estimated that most student-teachers also thought in Hindi, since the mother tongue and state language of most student-teachers was Hindi. Most reflective journals were written in Hindi. Only one to two student-teachers in every cohort wrote their reflective journals in English. Expressing abstract thoughts in any language, writing about teaching practice and connecting theory to practice in a written reflective entry, is difficult, and especially so in a second language.

Writing a reflective entry requires motivation and discipline as well as time to do it well. Student-teachers received little support to write reflectively at the DIETs. These could be some of the reasons why student-teachers did not express more than short routine or technical descriptive accounts of their experiences in their reflective journals.

6.8. CHAPTER 6 CONCLUSION

This chapter established that embedding mediational tools and practices in the D.El.Ed. curriculum did foster reflection.
In their reflection, the student-teachers deliberated on their actions with the aim of improving their practice to become more constructivist and learner-centred so that pupils were engaged to learn with meaning. In doing this, without knowing it, they worked towards meeting the policy implemented at the DIETs.

The student-teachers brought underlying knowledge and beliefs to the DIET which influenced their teaching. Some of these traditional beliefs were open to change, like an openness to accept charts, demonstrations and teaching-learning materials. Other beliefs were less open to change, for example accepting hierarchy-related changes where the teacher could not accept being perceived as an equal to the pupils. The reflective practice emphasised in the process-based teaching cycle was essential to bring about changes to the student-teachers’ practices.

The student-teachers started checking their pupils’ reactions as feedback to guide them in developing their practice. The findings in the current study indicated that each student-teacher reflected differently, at different levels.

There was a weariness in maintaining reflective journals, especially when they became more structured and directed. The student-teachers were found to reflect less in their reflective journals and much more when asked questions, and recall was stimulated via video and audio recordings through interview questions. Responses to supervision reviews during practice teaching were found to be mixed.

Student-teachers were found initially to reflect routinely, later becoming more technical and sometimes more dialogic. A few times, they reflected in a critical way.

Student-teacher practices were found to change through reflections and to move towards motivating pupils to learn through demonstrations, discussions, games. The student-teachers practised with increased pupil participation, consultation, inclusiveness and reducing fear in the classroom.

Did these differences in reflective practices mean that each student-teacher also had different perceptions of reflection and reflective practice? The next chapter poses this question and explores the perceptions of reflection of the communities at the two DIETs.
7. PERCEPTIONS OF REFLECTION

7.1. INTRODUCTION
This chapter describes the findings of exploratory sub-research question 4 (Section 3.4), ‘What are the perceptions about reflection among experts, and in policy articulations, among the principals, teacher-educators and student-teachers, within the DIETs?’

Vygotsky states that definitions and explanations of concepts are dynamic (1986:98). This chapter shows that everyday and scientific concepts of reflection changed and developed from the time reflection was introduced, driven by policy, through the Diploma in Elementary Education (D.El.Ed.) syllabus and implemented at both DIETs over two years. The perceptions of reflection were expressed by teacher education experts in individual narratives and in Indian grey literature. The perceptions of reflection were also generated from the principals, teacher-educators and student-teachers through interviews, focus-group discussions. This research question has been answered last in the thesis so that the reader can understand the reasons for the continuing changes in perceptions over the two-year period of the research.

7.1.1. Chapter structure
Section 7.2 starts by analysing the statements about reflection and reflective practice from two teacher education experts and then in Section 7.3 analyses perspectives from the grey literature. This analysis is followed in Sections 7.4 and 7.5 by a presentation of perceptions from the principals and teacher-educators at DIET-Badapur and DIET-Chotapur, collected from interviews and focus-group discussions. Section 7.6 summarises the perceptions of the principals and teacher-educators. The perceptions of the student-teachers at each DIET are described in Sections 7.7 and 7.8. They are consolidated diagrammatically and summarised in Section 7.9. When concepts cross linguistic and cultural borders they are translated and often change meaning. In Section 7.10 the translated terms for reflection are viewed in greater detail. Section 7.11 concludes the chapter.

7.2. ANALYSING THE PERCEPTIONS OF TWO EXPERTS
Two experts and public officials, Dr Siddiqui and Dr Batra, were interviewed in order to understand their perceptions about reflection and reflective practice. Their actual names have been retained, with their permission, to add value and authenticity. As mentioned in Chapter 1, Dr Siddiqui was the chairperson at the National Council for Teacher Education (NCTE), 2008–10, leading to the development of the National Curriculum Framework for
Teacher Education (NCFTE) (NCTE, 2009). The second expert, Dr Batra, oversaw the improvements of the NCFTE (NCTE, 2009), based on committee members’ suggestions. She also chaired the committee of experts from SCERT and DIETs that initially prepared the draft state D.El.Ed. curriculum (SCERT, 2014).

Importantly, in an interview, Dr Batra perceived reflective practice to be interwoven into the curriculum.

> Our understanding of reflective practice or making reflective practitioners is ... integrated as an idea in the curriculum and in the practise of it. Students are put into learning situations which make them reflective, for example, practising observation, journaling, group work, ... theatre, etc. ... That is how reflective practice happens, not by talking about it or through action research alone. (Batra, 2015)

While Dr Batra described reflection being fostered and mediated through artefacts and activities embedded in the D.El.Ed. syllabus, Dr Siddiqui presented reflective practice as a scientific concept. He presented his systematically hierarchical explanation of reflective practice, consciously manipulating carefully chosen everyday words to explain what he perceived and built, layer by layer, as reflective practice in the Indian context. He said, emphasising the socio-cultural need for reflection:

> See, in my view, reflective practice would take place when the teacher is conscious and sensitive to the needs of a diverse class of students (pupils) ... (personal communication, Siddiqui, 2017)

At the same time, he recommended understanding pupils’ contextual needs, to understand how to develop the pupil’s capability to construct knowledge:

> What is their context? ... Keeping that in view, helping them acquire learning, ... facilitating them, and continuously trying to understand who are they, how are they able to construct knowledge? ... What are their difficulties? Helping them out, supporting them to construct their own learning.

> Reflective practice is about continuously revisiting and rethinking, continuously engaging themselves in understanding their students’ (pupils’) needs, difficulties, problems, so that they independently think, learn, and grow (personal communication, Siddiqui, 2017).

Dr Batra too believed that reflection should be more about the pupils’ socio-cultural context rather than concentrating on more technical issues. Like Dr Siddiqui, Dr Batra encouraged a more inquiry-based, dialogical reflection for inclusion over technical reflection:

> We are trying to enable [student-]teachers to become reflective in a manner that doesn’t only look at how to teach maths or what kind of errors children make, ... but which children
are being taught, which background do they come from, how does this impact their learning? How do I relate to them as learners that come from specific contexts, all this is reflection. (personal communication, Batra, 2015)

In this description of reflection, Dr Batra exhibited an intention to move teachers from a predominantly technical perception of reflection to a more dialogical level and a more social view of education. Dr Siddiqui put further emphasis on the pupil’s reflexivity bringing his perception of reflection closer to a critical-transformative reflective level described in the RPTv2. Again, this also emphasised the socio-cultural aspects of learning as explained by Vygotsky. Dr Siddiqui said:

> And in-built in this idea of reflective practice is that the [student-]teacher herself will continuously prove herself also, a kind of a self-guided, improvement where she needs to understand the students [pupils] more and help them. So, that is my view ... of reflective practice in the body of the teacher.

Very much in alignment with Vygotsky’s concept of mediation, but without articulating the word mediation, Dr Siddiqui talked about the importance of ‘devices’, or what could be surmised to be tools and signs used by student-teachers to become reflective:

> For this, a variety of devices, teaching devices, teaching methods have to be adopted, a lot of participation, lot of listening to the experiences of the students, understanding will have to be done on the part of the teachers. So, that is how I think.

The teacher-educators, according to Dr Siddiqui, had an important role to play as reflective practitioners in their own classroom. He mentioned this as the next layer in the process:

> Reflective practice is not only a kind of practice which is being followed by the student-teacher as a way of teaching. It is a kind of training that helps the learners also to become reflective. That is why I was saying that teacher-educators also will have to practise within their own classrooms. Only then can you impact the future [student-]teachers and make them reflective teachers.

The teacher-educators, as reflective practitioners would be better positioned to facilitate reflection in student-teachers and their pupils – starting a tradition of reflective practice.

On a different note, Dr Siddiqui translated reflective practice into Urdu as ‘gaur fikra’. ‘Gaur’ means to consider, concentrate, ‘fikra’ thoughts, worry and counsel. Re-explained literally in English, reflection is ‘concentrated worry’, introducing a strong presence of problem-perception into reflection.
Table 20 shows the experts’ reflective practice mapped to the RPTv2 framework represented as the technical, dialogic and critical-transformative levels of reflection.

Table 20. The experts’ views of reflective practice showing scientific perceptions

<table>
<thead>
<tr>
<th>Perceptions of reflection at different levels</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Transformative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experts’ perceptions of reflective practice</td>
<td>The teachers reflect about how to: Teach and achieve coverage, Complete the syllabus, Learn how to teach each subject, Track the errors the pupils make, Have the students acquire learning with understanding.</td>
<td>The teachers Are conscious and sensitive to the needs of diverse pupils, Understand the pupils’ context, Understand the pupils’ difficulties and facilitate their learning to construct knowledge. Continuously revisit, re-think and engage with their pupils.</td>
<td>The teachers Understand and improve themselves, Construct knowledge themselves, to be able to facilitate it in their pupils, Critically evaluates the textbook from different points of view.</td>
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</tbody>
</table>

The perceptions of the two experts were addressed to teachers and sometimes student-teachers and their pupils and teacher-educators. The perceptions of the experts interviewed along with other teacher education experts were also carried in the NCFTE (NCTE, 2009) and D.El.Ed. syllabus - discussed together in the following section.


The NCFTE (NCTE, 2009) firmly presents teacher education as a reflective undertaking. The NCFTE (NCTE, 2009) provides a curricular vision from the central government, authored by the National Council of Teacher Education (NCTE). The NCTE also developed this vision into a two-year pre-service Diploma for Elementary Education programme (D.El.Ed., NCTE, 2015). Each state in India created a localised version of this D.El.Ed. programme to meet their individual circumstances through their State Councils of Research and Training (SCERT), to train students. The state where the current study was carried out published their version of the D.El.Ed. programme in 2014, before the NCTE version which was published in 2015.

The NCTE (NCTE, 2009) and D.El.Ed. syllabi are described and mapped to the RPTv2 tool in Table 21, showing them at technical, dialogic and critical-transformative reflective levels.
Table 21. Perceptions of reflection expressed in the NCFTE (NCTE, 2009) and D.El.Ed. syllabi (SCERT, 2014; NCTE, 2015, summarised by the researcher)

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<tbody>
<tr>
<td><strong>Perception of reflective practice and reflection in the NCFTE (NCTE, 2009)</strong></td>
<td>The pre-service teacher education programmes should educate student-teachers to</td>
<td>Teacher education programmes should provide ample opportunities to:</td>
<td>Understand oneself and others,</td>
<td></td>
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<tr>
<td></td>
<td>- Keep learners sustainably engaged in school situations</td>
<td>- Learn to work collaboratively in groups</td>
<td>- Develop a capacity for self-analysis,</td>
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<td></td>
<td>- Gain regular school teaching experience</td>
<td>- Develop capacities in drama, craft, story-telling and reflective enquiry. (NCTE, 2009:54)</td>
<td>- Create opportunities to observe and engage with learners,</td>
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<td></td>
<td>- Maintain daily reflective journals</td>
<td>- Record participation in workshops, seminars, discussions, open-ended questionnaire and interviews, oral and written tests, cumulative records, profiles (NCTE, 2009:61-2)</td>
<td>- Reflect on one’s own experiences and assumptions and gain appropriate feedback at the opportune moment.</td>
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<tr>
<td></td>
<td>- Set realistic goals for curricula content learning and pedagogic practice</td>
<td>- Plan lesson plans, and maintain records</td>
<td>- Develop positive attitudes, values, and perspectives’</td>
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<tr>
<td></td>
<td></td>
<td>- Design, organize and conduct meaningful classroom activities</td>
<td>- Record formats for self-appraisal. (Summarised from NCTE, 2009:15, 61-2).</td>
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<td></td>
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<td>- Develop teaching-learning materials</td>
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<td></td>
<td></td>
<td>- Reflect upon their own and classroom practices through observations and records</td>
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<td></td>
<td></td>
<td>- Evaluate students’ learning, also for feedback into curriculum and pedagogic practice</td>
<td></td>
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<tr>
<td><strong>D.El.Ed. Syllabus (SCERT, 2014)</strong></td>
<td>To enable the student-teachers to Connect theory to practice</td>
<td>Encourage the students for creative and independent thinking and for constructing their own knowledge (SCERT, 2014:11-12)</td>
<td>Create their own pedagogical knowledge on the basis of observations, experimentation, analysis and reflection.</td>
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</tr>
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<td></td>
<td>Use and update their knowledge to teach effectively systematically and reflectively</td>
<td>Teacher-educators must engage in Dialogue and discussion with the student-teachers</td>
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<td></td>
<td>Maintain observation schedules and records, checklists, portfolio assessment, case study, project reports, (SCERT, 2014:11-12)</td>
<td>Minimize the traditional lecture mode and Incorporate tutorials, workshops, seminars.</td>
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</tbody>
</table>
7.3.1. The perceptions of reflective practice in the NCFTE (NCTE, 2009)

The NCFTE (NCTE, 2009) does not give a single perception of reflection but proposes a detailed set of activities and processes to be followed by teacher education programmes to develop the needed reflective capabilities in student-teachers which are also described (Table 21). The NCFTE (NCTE, 2009) emphasises teaching reflectively with engagement, through the internship. It outlines the teaching cycle on perceptions of reflective practice, proposes using collaborative and group activities, and strongly promotes self-reflection. These characteristics are broadly mapped to technical, dialogical and critical-transformative reflective levels as described in the RPTv2.

7.3.2. The perceptions of reflective practice in D.El.Ed. syllabus (SCERT, 2014; NCTE, 2015)

Reflection was described briefly in the SEP module which aimed to promote ‘a culture of reflective practice and research among teachers’ (SCERT, 2014:11). As a result, it was expected that student-teachers would teach pupils ‘to construct their own knowledge, becoming independent, critical, and creative thinkers’ (ibid.). In the D.El.Ed. syllabus, during the SEP module, it was recommended that teacher-educators have discussions with their student-teachers to analyse existing practices. This aligned with dialogical reflection in the RPTv2. The D.El.Ed. syllabus envisioned that the elementary schoolteachers would gain competencies ‘to reflect on the current pedagogical practices’, and that they would create
their own ‘pedagogical knowledge on the basis of observations, experimentation, analysis and reflection’ (2014:12). This aligned with reflection described as technical reflection in the RPTv2. The key difference between the two D.El.Ed. syllabi was the increased emphasis on self-reflection in the D.El.Ed. (NCTE, 2015) syllabus which created space for this through a small self-development module.

7.4. **PERCEPTIONS OF REFLECTION AT DIET-BADAPUR: PRINCIPAL AND TEACHER-EDUCATORS**

The principals and the teacher-educators at both the DIETs were expected to create the crucial connection between the policy and its implementation, mediated by the NCFTE (NCTE, 2009) and the D.El.Ed. syllabus. They were assigned the responsibility of introducing, monitoring and evaluating reflective practice through the reflective journals. The principals and teacher-educators received no training to help them understand reflection and reflective practice. Dr Pandey at DIET Chotapur pointed to this lack of training:

> Our [teacher-educators’] B.Ed. or our M.Ed. (degree) have not been done through ‘reflective [practice]’ ... When we have not studied it, ... before applying it [through policy], you will first [need] to sensitise us, orient us, or empower us with what is reflective teaching. Only with reading about it we will not learn what it is. There is no document about it ... It is not ready ... So, in the syllabus they have implemented it ... but not readied the ground for it, that is why it has not happened.

Because the teacher-educators were not academically exposed to reflection and reflective practice in their own lives, they tended to develop their perceptions of reflection around concepts they were familiar with in their own practice. The following sections show how this was evidenced in each DIET.

7.4.1. Reflecting for construction of knowledge at the DIET

Dr Bagga was the champion for reflection in DIET-Badapur. He pioneered reflective practice and prototyped reflective journals before they were introduced into the D.El.Ed. syllabus (SCERT, 2014) to all the DIETs in the state. Dr Bagga’s initial view of reflective practice was as reflective teaching and reflection aimed at achieving construction of knowledge. He outlined his conception of reflection as follows:

> My way of working is to try and have reflection from the students. My intention is that students should be given full freedom to construct their own knowledge ... For that reflection is needed. (Dr Bagga, 2015)

He emphasised construction:

> Reflective teaching by itself is limited. I find the term ‘constructive’ to be more powerful because reflection can also be destructive. Constructive expresses it better.
Dr Bagga also initiated the writing of reflective journals among the student-teachers. He commented:

The reflective journal is created during the SEP. I insist on getting reflections during SEP. They also prepare a reflective portfolio. In reflective teaching the student-teachers/pupils should be given the opportunity to reflect on ... what is being taught in class.

He realised the importance of reflection having a common larger outcome. For this, he realised his team needed to be in ideological agreement on teaching practices, talk the same language and develop their own reflectivity.

I had to do many things before reflection started in the way I wanted. While I was principal [at DIET-Badapur] I had to both teach and train faculty before being able to work on the student-teachers. I had to first build a team of faculty who did not contradict each other when they went into classrooms to teach. It is important that the faculty are in tune with each other.

Dr Bagga felt that research, sharing, guidance and control were important reflective activities for construction to take place and that teachers as facilitators in the process were extremely important. Bringing teaching together to be constructively aligned was complex. He demonstrated a hands-on style, personally leading while keeping things in control:

Research and sharing give an open forum for construction. So that reflection is not destructive, it must be guided and controlled. Teachers cannot be replaced in this process. They must know how to guide and help to construct. This is the big challenge. How to keep it constructive? Guidance is always needed. The student-teachers needed immediate guidance and I was available for them at all times and that is why it could be done.

Dr Bagga assigned Dr Sandeep Khanna to introduce, monitor and evaluate reflective journals when he was principal during 2014–15. When he was not principal during 2015–16 Dr Khanna continued in this role, followed by Dr Dhar in 2016–17.

7.4.2. Reflecting to evaluate the result of one’s actions

Dr Khanna had been responsible for developing reflective journals a year before these were introduced as an assignment in the D.El.Ed. (SCERT, 2014) syllabus and implemented with the SEP1 of Cohort 2015–17. He believed that reflection was done to assess the result of one’s teaching actions. He admitted that he did not have a clear conception of reflection and reflective practice and that he searched for the meaning of reflection on the internet. He also reached out to a professor in his alma mater across town.

An interview with Dr Khanna (Figure 30) showed that he understood reflection to be the recalling of actions and strategies used in a previous class and assessing for oneself whether it had helped the pupils to learn.
The interview shows that Dr Khanna’s perception of reflection did not extend to include problem solving carried out through action research.

### 7.4.3. Reflection as self-evaluation and reflexivity

Dr Bagga was reappointed as the principal of DIET-Badapur in Year 2. His perception of reflection changed from emphasising construction of knowledge to emphasising reflexivity and self-evaluation. He expressed this in everyday language, using metaphors to explain his perception:

“When I look in the mirror then I see my reflection. So, what is reflection? To know yourself ... to recognise yourself. Reflection is basically that process to me. ... The student-teachers look at themselves and say what is happening. ... (Reflection is) to let them think about themselves ... Self-evaluation is the most important aspect at every step. (Dr Bagga, 2016)

This time, he expressed reflection in Hindi to be ‘manobhav’. Literally translated this means ‘mind-thoughts’. Manobhav was about attitude, deep feelings, and beliefs. For Dr Bagga, the final goal was to develop into a compassionate, caring, and humane teacher:

“So, when you talk about manobhav we must develop as a ‘humane’ person. So ... without reflection we cannot move ahead. Self-evaluation is the most important aspect. At every step, the student-teacher is expected to evaluate herself. (Bagga, 2016)

He tried having the student-teachers evaluate themselves every day through a new, structured, reflective entry format, which he explained as follows:
During SEP, a reflective diary is maintained. What is the reflection about self and others’ (reflection) about you? Like what does the principal say about you? Note that down. What do your teachers say about you? … The reflections of everyone around you and your behaviour are very important … the feedback we take, critical thinking, continuous evaluation – all this is connected to reflection. How am I teaching? How much of it do the children understand? … Am I being able to explain to the students? These things are continuously evaluated. This is a part of the reflective process.

So, there are many things: Self-evaluation, feedback, observation (according to a schedule), peer observation … and then they ask pupils: ‘How was the teaching? What is left? Where are the drawbacks (in my teaching)? How well do you understand the topic taught?’ These are all a part of the reflection process.

All this was encapsulated in the fields in the new reflective entry form that Dr Bagga introduced during SEP2 (Figure 22, Section 5.6). The responsibility for reflective journals shifted from Dr Khanna during SEP1 to Dr Dhar, another teacher-educator during SEP2 (2016–17).

7.4.4. Reflecting on feedback towards improvement

During the SEP2 orientation in 2016–17, Dr Dhar held a class with the student-teachers from both cohorts about reflecting and writing in their reflective journals. She told me to attend her class instead of interviewing her. Her perceptions about reflection emerged from what she taught the two DIET cohorts.

She started the class by asking them what they thought reflection was. One said ‘Feedback’ and another student-teacher fumbled and said, ‘Ma’am, it might be like … the way we wanted to do, it did not happen that way, like it should have, that is …’. Dr Dhar explained reflection as feedback or thinking about improvement after observing and analysing feedback. Student-teachers carried out peer reviews, or underwent supervisor reviews, self-observation and improvement. Dr Dhar responded to what her student-teachers said, and built on it:

That is right ..., what you are saying ... Feedback with the children or the comments the supervisor gives, on those you do improvement. Like, if I say your lesson plan was not good. Or you did not frame the objectives well. Or you could have used another method. You do chintan (reflection) on what I say to you. (Dr Dhar, Class observation, SEP2)

Dr Dhar taught bilingually with a greater emphasis on Hindi. She referred to reflection mainly as ‘chintan’ and sometimes as ‘manan’. In everyday language Chintan means to consider, contemplate, focus and deliberate, usually by oneself in a quiet place. Everyday meaning of Manan means thinking, meditation, an inference arrived at by reasoning, considering problems to solve them. Dr Dhar went on to explain that reflection could be
done through peer and supervisor reviews. She differentiated between reflection due to others and self-reflection through reflexivity:

The second thing is when you are teaching in class, you observe yourself also. Sometimes you feel that ‘What I wanted to teach maybe I was not able to achieve that’. So, you can also do chintan on this. Maybe there was something lacking, and I will improve it in the next class. Reflection can be initiated by others or when you are reflecting on and by yourself. You can reflect on those things that you feel you lack or have left undone. Or something you have done positive. So, positive, or negative, so while focussing on both these things how can you improve things further?

The meaning of reflection in this explanation came close to the meaning adopted in this research, ‘Deliberate thinking about action with a view to its improvement’.

7.4.5. Reflection as setting a good example, a role model for the student-teacher to emulate

A second perception of reflection also emerged from Dr Dhar’s teaching. She talked about how getting a positive reaction from the pupil and reflects well on the teacher:

There are chapters, even though we are so much older, we find boring. So those pupils are very young, and we think of what we can do for them so that they feel the lesson is very interesting. So, from their reply you can estimate … that they are listening well and so that will reflect well on you, that your class was very good.

This explained reflection in a way that does not exist in English.

7.4.6. Reflection as dialogic reflection and self-reflection

Having taken responsibility for reflective journals, Dr Dhar introduced the new reflective entry format designed by Dr Bagga to student-teachers during SEP2 (2016–17).

She explained each field in the new reflective entry format. In explaining the first field, ‘Learning objective’, she advised the student-teachers to be open to discuss things among themselves, especially when they were having trouble framing objectives for a particular topic. Without realising it, she introduced dialogic reflection to her class. She told them,

When you take a new topic and try to frame it for teaching, you realise you don’t understand what objective to frame, or how to deliver it well in class, or [are] unable to identify a method to use. So, when you discuss it among yourselves, then it can happen that some point might emerge which you feel is a good way to deliver this lesson. (Dr Dhar, 2017)

One by one she tried to address all the guidelines given in the reflective journal entry format as a series of questions that the student-teachers could address. Here again,
probably without realising it, she introduced a method of inquiry to initiate self-reflection.

Some examples she gave were:

What have I learned about the students and their learning everyday? ... Is there any change required in my teaching strategy? ... When I teach what do I feel? What changes can I bring in that? If there is something that is negative, what can be changed?

For Dr Dhar, reflection was about improvement of practice.

7.5. PERCEPTIONS OF REFLECTION AT DIET-CHOTAPUR: PRINCIPALS AND TEACHER-EDUCATORS

Like at DIET-Badapur, the data analysed at DIET-Chotapur revealed rich variations of perceptions of reflection.

7.5.1. Reflecting daily through the SEP module

During my self-introduction with Dr Kiran Shastri, principal at DIET-Chotapur, he asked me what reflection was. I returned with a counter question, asking what he thought reflection was. Dr Shastri replied, giving an administrator’s point of view. He pointed to a copy of the D.El.Ed. syllabus (2014) lying on his desk:

What is in the syllabus is what we get done. In this, it is a part of the SEP. ... the reflective daily diary, action research documents, and achievement tests. These are the reflective things we are doing in the SEP.

In the [older] curriculum, before the new D.El.Ed. (SCERT, 2014) syllabus, reflective practice was done without a specific mention in the syllabus and no marks. The student-teachers wrote a reflective paragraph after each lesson plan they completed. The general supervisors would go through this paragraph and review it. Now, it is a part of the SEP introduced in 2014 and has been given marks ... There is nothing new in it. It has been happening from the beginning. (Dr Shastri, SEP1)

In contrast to the DIET-Badapur principal, Dr Shastri left the introduction and facilitation of reflection to Dr Bir and did not himself produce a definitive perception about reflection and reflective practice.

7.5.2. Reflecting to have pupils construct knowledge

Dr Shastri, during SEP2, when asked about how he understood reflective practice, accepted it was important. He did not spell out how or why, again giving an administrator’s view but did state that people needed to be trained in it:

Reflective practice, I feel, it is very important ... [but] they [the teacher-educators and student-teachers] need to be trained in it. We invited a resource person [for this]. (Dr Shastri, SEP2)
Later in the second year, during SEP2, Dr Shastri did invite an expert from NCERT to conduct a workshop on reflection and reflective practice. This was his style of managing conceptual areas where expertise or knowledge was lacking at the DIET. Any workshops were open to both the student-teachers and teacher-educators, but the teacher-educators rarely attended them. The principal felt that this workshop did not offer anything new or special. In contrast, Sabia, a student-teacher participant, reacted enthusiastically to the same workshop and was regretful that it had not taken place earlier. She said,

We liked it a lot ... Now we understood the main meaning of reflective teaching ... If we had been told of this earlier, we would have gained more benefit. ... We attended this after our SEP2.

First [during SEP1] we thought we had to write [in our reflective journals] what we taught in class, and we would write that only. ... So, earlier, in the first ten pages I wrote what happened to me. Afterwards, our seniors explained to us, ‘You should write how the students were in class, how much they understood’. ... I then started writing that.

And then we had the workshop and then I understood ... The main thing we learned from this workshop was that ... the best teacher is one who speaks less, where students speak more. Meaning the person who is teaching the children should be able to teach the child so well that the child herself constructs knowledge ..., meaning the participation of the child is very important. (Interview with Sabia, 2017)

Sabia comments suggest that the expert conducting the workshop developed reflection around construction of knowledge, the focus of the pedagogical change wanted.

7.5.3. Reflecting to fill the gap between theory and practice

To facilitate the student-teachers to connect theory to practice and to think constructively as they planned and practised their lesson Dr Bir created a lesson planning template and evaluation template built around constructivist principles. Reiterating what the principal said earlier in his interview, Dr Bir talked about having reflective practice, ‘unofficially’ in the older, earlier syllabus, before 2014 when a reflective paragraph was added to the lesson plan, after the practice teaching was completed.

At the end of the lesson, we used to ask the student-teachers to write a reflective paragraph about their lesson, about how it went. But then later, (in the recent curriculum) we are creating another habit ... writing a reflective journal ... as an assignment. So now, instead of writing it in the lesson plan, the student-teachers maintain a reflective journal. (Dr Bir, SEP1)

Dr Bir felt it was important to write reflections, either way. She pointed to the difference of emphasis in the aims of teaching between DIETs and practice schools. The DIETs
emphasised teaching constructively with meaning, and the practice schools emphasised coverage. To change the latter, the student-teachers needed to work reflectively:

Reflective practice is what keeps you observing on what needs to be changed. There is a gap between the requirements of teacher education, and ... the [practice] school where they teach [for coverage] according to the syllabus only. So, keeping all these in view, how can we train our teachers so that they [are able to] close the gap? They get trained in the real conditions in the schools .... Right .... So, reflection, at my teacher education level, is [the] number one priority.

During the interview Dr Bir admitted, at the end of SEP1, that the Evaluation Proforma for observation of practice was structured to evaluate constructivist teaching. She emphasised reflection on constructivist teaching, a process she was more familiar with as a scientific concept than reflection itself as a practice.

7.5.4. Reflecting to adjust teaching practice around pupil experience and own biases

Dr Pandey was a general supervisor of internships at DIET Chotapur, and responsible for facilitating work education, a practical subject offering work experiences within the D.El.Ed. programme. Dr Pandey’s perception of reflection and reflective practice involved her being able to adjust classroom teaching around pupil experiences and situations, and being attentive to biases in her own teaching practice.

Whenever we are in a situation, like a classroom situation, we prepare the content, TLMs and strategies before class. When we enter the classroom, we implement these in the classroom to deliver content. We try to teach the content, TLM and strategy as planned. But during implementation, we also introduce the experiences of the students, and we might have to modify some strategy based on the experiences. After hearing the student’s experiences, we are faced with, ‘should I stick to my strategy or not? (Dr Pandey, SEP2)

Dr Pandey’s reflection was both dialogical and critical. Her practice emphasised dialogical inquiry as part of the process of teaching: to consider the context of the learner, which might lead to new insights and changes of strategy (RPTv2).

After the class, I think back on whether I was able to implement the class in the exact manner I planned or not? And was I able to modify what I planned based on the responses I got from the students? This train and process of thought after class, we call this reflection in the context of teacher education.

What issues do I consider while reflecting? For example, gender issues: did I hurt the deprived children during the teaching-learning process? Did I bring my biases into the classroom? When I think about these and related issues, I call this reflective practice. (Dr Pandey, SEP2)
Dr Pandey emphasised self-inquiry and critical reflection by considering whether she herself had been an instrument for bringing her own biases into the classroom, and similarly whether she had introduced a change in thinking (RPTv2).

7.5.5. Reflecting as thinking back to improve practice

Dr Mehta was responsible for introducing, monitoring and evaluating reflective journals during SEP2. She emphasised reflection for recalling a day’s events, identifying weaknesses and strengths in practice, and thinking to improve practice. When asked what she thought reflection was, after a long pause she replied,

According to me, reflection is whatever activities we do in the day, today, all day from morning I have done so much work, when I go back home and I recall all the things at night, it is all a part of reflection. I feel, in our life, what reflection spreads on the experiences of the day. That, maybe, is what reflection is. (Dr Mehta, 2017)

She expressed reflecting back on the day as ‘reflection spreads on the experiences of the day’. Elaborating, she talked about reflection as recall of a day’s activity and thinking about how to improve it. She said,

Today whatever is our strength or weakness, that we do not repeat it, we improve on it, which is reflection.

This came very close to the definition adopted in this research that reflection is ‘deliberate thinking about action towards improvement of practice’ (Hatton and Smith, 1995:40).

7.6. SUMMARY OF THE PERCEPTIONS OF ALL THE PRINCIPALS AND TEACHER-EDUCATORS

The evidence from this collection of the principals’ and teacher-educators’ perceptions of reflection shows that since the DIET principals and teacher-educators were not academically exposed to a uniform perception of reflection, they developed different perceptions, all aiming towards improvement of different aspects of practice. At both DIETs the principals and teacher-educators seemed to perceive reflection in relation to scientific concepts they pursued in teacher education, such as constructivism (Dr Bagga, Dr Bir), self-evaluation (Dr Bagga, Dr Dhar) and outcomes of teaching (Dr Khanna). These were concepts in teaching practice that they pursued and reflected upon to a greater extent. They probably understood these concepts better than reflection or reflective practice. The perceptions among principals and teacher-educators are outlined in Tables 22 and 23.
Table 22. The principal’s and teacher-educators’ perceptions of reflection at DIET-Badapur.

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Principal and Teacher-educators</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Dr Shastri</td>
<td>Daily reflection through the SEP Module.</td>
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<td></td>
<td>Dr Bir</td>
<td>Reflection is aimed to have pupils participate and construct knowledge, between understanding with meaning and coverage, fill gap between theory and practice.</td>
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<tr>
<td></td>
<td>Dr Mehta</td>
<td>Reflection is to recall, practise and think and act towards constant improvement.</td>
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<tr>
<td></td>
<td>Dr Mehta</td>
<td>Reflection is about creating a good impression on the pupils through demonstration so that pupils learn from it and emulate the teacher’s exemplary behaviour and change their own behaviour.</td>
<td></td>
<td></td>
<td>Reflection is comparing planned and actual practice; recalling if reflection-in-action took place appropriately; if social justice issues were considered and what were my own biases while teaching.</td>
</tr>
<tr>
<td></td>
<td>Dr Pandey</td>
<td>Reflection is comparing planned and actual practice; recalling if reflection-in-action took place appropriately; if social justice issues were considered and what were my own biases while teaching.</td>
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Table 23. The principal’s and teacher-educators’ perceptions of reflection at DIET- Chotapur.

<table>
<thead>
<tr>
<th>Perceptions of reflection at different levels</th>
<th>Principal and Teacher-educators</th>
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<tbody>
<tr>
<td></td>
<td>Dr Bagga</td>
<td>Reflecting on ways to enable construction of knowledge.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Khanna</td>
<td>Reflecting on the result of teaching actions towards improved strategies.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Bagga, Dr Dhar</td>
<td>Reflecting is self-evaluation, towards improvement of practice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Dhar</td>
<td>Reflecting on feedback from pupils for improvement of practice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Dhar</td>
<td>Reflection is setting an example creates an impression on pupils, ‘reflects’ on them and influences their behaviour. Pupils learn by emulating the same.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Dhar</td>
<td>Reflection is done dialogically, with inquiry.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The aims and perceptions of reflection of the teacher-educators at both DIETs were coloured by their individual experiences and beliefs. Thematically they came together, as
shown in Figure 31, to start with technical reflection at the DIETs in accordance with the D.El.Ed. syllabus. Gradually reflection gained a more dialogical and even a self-reflective and critical character. Reflection took on the meaning to gain feedback from pupils and have them participate in their own learning to construct knowledge. At the same time perception of reflection was also perceived as pursuing coverage and linking theory with practice.

Figure 31. Perceptions of reflections of the faculty at DIET-Badapur and DIET-Chotapur.

<table>
<thead>
<tr>
<th>Perceptions of reflections of the principals and faculty at DIET-Badapur and DIET-Chotapur</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reflect routinely in accordance with the syllabus</strong></td>
</tr>
<tr>
<td>• Reflection is as it has been described in the D.El.Ed. syllabus. The reflective daily diary, action research and achievement tests show reflection, according to the syllabus.</td>
</tr>
<tr>
<td><strong>Change teaching and learning to finally transform pupil behaviour by reflecting on...</strong></td>
</tr>
<tr>
<td>• Practice for constant improvement</td>
</tr>
<tr>
<td>• The result of teacher actions towards improved strategies.</td>
</tr>
<tr>
<td>• Ways to enable construction of knowledge.</td>
</tr>
<tr>
<td>• Practice dialogically and with inquiry.</td>
</tr>
<tr>
<td>• Feedback from pupils for improvement of practice.</td>
</tr>
<tr>
<td>• Pupil participation for construction of knowledge with meaning, coverage and to fill the gap between theory and practice.</td>
</tr>
<tr>
<td>• Leading by setting an example. This ‘reflects’ on students and influences their behaviour</td>
</tr>
<tr>
<td><strong>Self-evaluation</strong></td>
</tr>
<tr>
<td>• Towards constant improvement of practice</td>
</tr>
<tr>
<td>• Of strengths and weaknesses, positives and negatives aiming for constant improvement. What was lacking is not repeated</td>
</tr>
<tr>
<td><strong>Self-reflection and critical reflection</strong></td>
</tr>
<tr>
<td>• On planned and actual practice. (Ask) did reflection-in-action take place? Did I consider social justice issues and my own biases while teaching?</td>
</tr>
</tbody>
</table>

During SEP2, an emphasis on reflecting through self-evaluation was introduced into student-teacher practices, especially by Dr Bagga at DIET-Badapur. There was one traditionally influenced perceptions of reflection of ‘learning by example’ that was shared at both DIETs - suggesting reflection in which the student-teachers simply followed the way a teacher-educator they admired, practised. This will be discussed further later in this chapter.

The emphasis was on ‘constant improvement’ as supported and propagated by the DIETs and this varied among the teacher-educators based on their individual perceptions.

7.7. **PERCEPTIONS OF REFLECTION WITH STUDENT-TEACHERS FROM DIET-BADAPUR**

Viewing the concepts through Vygotsky’s SCT reveals that the student-teachers tended to build their perceptions of reflection by constructing ‘working explanations’ in a way
described by Vygotsky: ‘Spontaneously, intuitively, unsystematically, from their individual contexts and experiences’ (Vygotsky, 1986:145). They were observed to start from an initial culturally intertwined meaning of reflection with everyday concepts, taken from their indigenous environments, sometimes related to similar concepts in their own language, Hindi, or Urdu, or developed from the metaphor inherent in the word that expressed reflection. At the end of SEP2, some student-teachers neared a well-worked-out scientific explanation of reflection. Vygotsky (1886) wrote, ‘The strength of scientific concepts lies in their conscious and deliberate character’ (1886:194).

The perceptions collected from the student-teachers have been sequenced to illustrate the development of everyday perceptions towards more scientific perceptions.

7.7.1. Reflection as feedback from pupils on teaching effectiveness

Habiba firmly perceived reflection as a form of feedback from the pupil. She said,

Taking feedback, in other words, is reflection. When we teach, we observe a student while teaching, the response that comes from the pupil that is the reflection of our teaching.

(Habiba, SEP2)

What was important for Habiba was observing student feedback and how her pupils behaved because of her teaching, because this showed Habiba where she needed to improve her practice.

She referred to the fields in the changed reflective diary format, saying,

Just to see the reflection [we observe and write about] what did we do for the whole day, how did we teach and how was our teaching? Was it effective or not? Should we improve or not?

7.7.2. Reflection as an impression left on pupils which provides feedback from pupils

Zohra explained reflection as ‘Chhavi’ (which translates to ‘image’ or ‘impression’ in English), and further explained how it related to the entry in a reflective diary:

The meaning of reflection is ‘impression’ [chhavi, in Hindi]. ... If I am going to class, and I have taught in class and come away, then I reflected in front of the pupils by teaching like this. So, I have left the reflection and come away, in a way. (Zohra, SEP2)

Zohra tried to relate this homegrown perception of reflection to her practice of writing reflections in a reflective diary:

So, we write our reflection in our diary, ... we write [about] what we have done in the day ... [and] how we have done it. We left this ‘impression’ in front of the children, we taught like this or that and the children thought of us like this.
During SEP2, the format of recording the reflection changed to:

In my reflective diary, I will then write, ‘What that first expectation was – that I will do this’. But ‘What happened?’ And then ... ‘What did I learn today?’

When asked to explain this further, she slowly and thoughtfully gave an example from her own life:

There was a teacher who taught me political science in class twelve. I used to tell her that she has taught us so well that even today I remember her ... and study in the way she taught ... Her reflection can be still seen in us. ... her good chhavi is still there.

‘Good chhavi’ can be translated to ‘good impression’, ‘a copy of what she did’, ‘leading by example’, ‘setting an example’, ‘an impression or change’ or ‘her influence [as she taught] is still there’. This comes close to the Indian model of Guru-Shishya where the Guru, the teacher, leads or teaches by example or demonstration, or provides an example of behaviour/skill/values/thinking that the pupil emulates. This meaning of reflection is quite far from the English meaning of reflection. It is a little closer to a scientific interpretation as a strategy for improved practice, learning or change in behaviour.

7.8. PERCEPTIONS OF REFLECTION WITH STUDENT-TEACHERS FROM DIET-CHOTAPUR

7.8.1. Reflection as achieving the change wanted in pupils
Asha translated reflection in Hindi as ‘Pratibimb’, the reflected image. The metaphor she used to explain reflection was, ‘When a ray from the sun bumps into something like a mirror and returns that is called reflection or pratibimb’ (SEP2).

During SEP2, Asha’s class activities became transformative when she began to evaluate her own ability to ensure learning and change in her pupils. After classes on gender sensitivity, she began to check for behaviour change in her pupils, asking them how they had helped their mothers at home or helped them to relax. This change in practice showed alignment with her perception of reflection as ‘achieving the change wanted in pupils’. Instead of aiming for her pupils to get good marks only, she started considering changes in behaviour, too.

7.8.2. Reflection as ‘answerability’ and as a process of thinking-doing-observing-doing-improving-taking feedback
Sabia had three perceptions of reflection. For one, reflection had a process. Reflection was thinking-doing-thinking-improving and doing-evidencing (Figure 32). She said,

Reflection starts with what I am thinking ... but it is not only about what I am sitting and thinking. It is [also] about the class I conducted. I think and [plan and] write about it. But
this alone is not reflection. Reflection is how I will connect it with my class in future ... how I will overcome those problems that were there, in the next class? What is it that children did not understand in this class? How will I teach the pupils (in the next class?). That is what reflection is according to me. (Sabia, DIET-Chotapur, 2017)

Reflection, at the end of two years, had become embedded in Sabia’s teaching cycle.

Figure 32. Sabia’s process of reflection.

<table>
<thead>
<tr>
<th>Process of reflection according to Sabia</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image-url" alt="Diagram of Sabia’s process of reflection" /></td>
</tr>
</tbody>
</table>

Sabia expressed her second view in English and Urdu, saying, ‘If I ask them anything then they [my pupils] are ‘answerable’ or ‘javabda’ which means ‘capable of giving an answer’ in Urdu. She continued in Hindi, relating reflection to remaining active in class, saying,

In teaching-learning ... your children should be answerable ... not sleeping but attentive ... that is their reflection. The content taught, the objectives fulfilled, what was the result achieved? That is what reflection is.

This echoed Dewey (1933), who conceived reflection for improvement of educational practice. He also identified a process for reflection: identification of a problem, data observed, analysis, hypothesis formation, action, validation. Sabia was in the process of changing her everyday conception to a more abstract, scientific one. The process she described had emerged from her practice. The final validation Dewey sought in the cycle of reflection that he proposed, Sabia sought from her pupils, to evaluate her own practice through ‘javabda’ or ‘answerability’. Sabia reflected on her perception of reflection in her journal entries through ‘Inquiry’ an aspect of reflection as described in the RPTv2, Sabia said,

Reflection is ... how do pupils reflect on any one of our actions ... but the pupils do not articulate this. This reflection is what we write ourselves. If we have taken a class and taught some content, then what is the reflection of that on the children. What did we feel
about how the class was? And on asking the children, ‘Did you understand the content today or not? I write [in the reflective entry] about my whole class – ‘How did it go? How did I deliver the content? How were the children? How was their activity? What did the teacher do? All that comes in reflection.

Here Sabia touched on a third perception of reflection which emerges from a tradition of teaching as demonstration, in India, by setting a good example. This perception was clearly related to results in pupil learning. Sabia related reflection not only to her pupils’ learning but also to the outcomes of learning received as feedback. She queried this with ‘How do pupils reflect on any one of our actions?’, ‘What is the reflection of (what and how we taught) on the children?’. Sabia said she was able to gauge from her pupils’ answers how she influenced her pupils. From this she evaluated herself as a teacher. To express this, she said,

When I ask the children something, or teach something or speak, then children would give its reflection. The children’s answer reflects me [my capability].

Sabia described reflection as being javabda or ‘answerable. She abstracted this into a process when she said, ‘But the pupils do not give this’, in effect saying the pupils do not tell the student-teacher about their reflection but she had to surmise this from her own observations of them and their responses in class at different times. What she observed and remembered she wrote about in the latest reflective journal entry format. Here she recalled her own delivery of content, what she herself did in class, and the pupils’ reactions and activities to gauge the ‘answerability’ of her pupils.

Zohra, from DIET-Badapur, carried a similar perception of reflection as Sabia, though the two were in different institutes and had not met. This had also been expressed by teacher-educators Dr Bagga and Dr Dhar from DIET-Badapur and Dr Mehta from DIET-Chotapur as a perception of reflection. Reflection was also traditionally perceived at the DIETS by these participants as the impression the teachers made on their students or how the teachers influenced their students. When they referred to reflection as positive and negative reflection, they may have referred to making a positive impression of having a positive influence or negative influence on their students.

It was difficult for Sabia to express clearly her perception of reflection. A process of abstraction seemed to have been initiated. Part of this seemed to come from her own everyday experience, and part of it from what she had absorbed at the DIET. This is what, as a researcher, I assume, Vygotsky referred to as the process of development from everyday concepts to more scientific concepts. Here Sabia moved from an everyday
perception of reflection to a more abstract, systemised, process-driven one; also influenced by traditions from her own background.

During SEP2, Sabia started to move from an intense marks orientation to a more transformative orientation for herself and her pupils. She took responsibility for her own situation when she was able to include a pupil with special into her class. She was able to gauge the ‘answerability’ in her pupils, when she found to her gratification that the transformation she seeded in her pupils continued for a whole year after she left them, during which they continued to help and look after Raju, their special needs peer.

7.9. SUMMARY OF STUDENT-TEACHERS’ PERCEPTIONS OF REFLECTION

In summary, the student-teachers’ different perceptions of reflection across technical to dialogical to critical-transformative perceptions of reflection offered many levels of improving practice. These are consolidated together in Tables 24 and 25 for each DIET.

Table 24. The student-teachers’ perceptions of reflection from the routine to critical-transformative reflective levels at DIET-Chotapur (Source: Researcher)

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student-teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asha</td>
<td>As achieving the change wanted in pupils.</td>
<td></td>
<td></td>
<td>As motivating a pupil to attend school regularly through kindness. (observation)</td>
</tr>
<tr>
<td>Sabia</td>
<td>As ‘answerability’ or a response from pupils to whole class teaching.</td>
<td></td>
<td>As a process of Thinking-Observing-Doing-Improving-Feedback Towards inclusivity in class – Paying attention to individual learning, including the weaker pupils.</td>
<td>As change in behaviour, as collaboration to together work to change Raju’s experience of education. (observation)</td>
</tr>
</tbody>
</table>
Table 25. The student-teachers’ perceptions of reflection from routine to critical-transformative reflective levels at DIET-Badapur

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Student-teachers</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Habiba</td>
<td></td>
<td>As feedback on teaching.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zohra</td>
<td></td>
<td>As the change initiated on pupils.</td>
<td>As embodied, experiential reflection</td>
<td>As changing behaviour from being rebellious to eager to learn. Motivating a recalcitrant pupil to own her actions by taking on responsibility as a monitor. (observation)</td>
<td></td>
</tr>
</tbody>
</table>

The perceptions were aimed at routinely achieving the change wanted in pupils, to observing pupil results and feedback, and as a result improving teaching technically. Dialogically, Zohra perceived and practised a more embodied, experiential reflection, and Sabia moved to perceiving a systematic process of reflection. Reflection was observed to take on a more critical-transformative perception when Asha was observed to bring about a change of behaviour in a pupil to attend school regularly, Sabia motivated pupils in her class to help a child with special needs, and Zohra was able to motivate a recalcitrant pupil to become more interested in learning and to take on responsibility. The critical-transformative perceptions were gathered during practice class observations and from stimulated recall interviews.

Vygotsky (1987) divided concepts into everyday concepts and scientific concepts. He proposed that learners construct working explanations of different phenomena they experience through everyday ‘intuitive, situated, empirical and practical concepts’ (Vygotsky, 1987:145). The student-teachers at both DIETs reflected to improve practice. These perceptions are consolidated together in Figure 33.
The student-teachers at the DIETs began with changes initiated in pupils. Sabia moved this perception systematically, from observing her pupils to gaining feedback on her teaching, and further to perceiving reflection as a more abstract process of ‘Thinking-Observing-Doing-Improving-Feedback’ towards a more scientific concept of reflection. Both everyday and scientific perception of reflection developed together as predicted by Vygotsky (1987). For some, reflection took place to increase inclusivity in the classroom, increase class collaboration and change the experience of learning. Others began to perceive reflection as self-reflection to improve themselves and their practice.

### 7.9.1. Culture-related widening of the perception of reflection through multilingualism

The translated words for reflection used by principals, teacher-educators and student-teachers at the DIETs, in Hindi and Urdu, were rich metaphors (Table 26) and shifted the meaning and what is theorised for reflection in teacher education.

Translated into Hindi, by the participants, the words used to express reflection carried different perceptions of reflection, as mentioned earlier, often related to concepts in teaching practice. Reflection was referred to as ‘manobhav’ or ‘mind-thoughts’. This represented a compassionate, caring, and humane teacher who evaluated her practice. Dr Dhar and Dr Pandey, two teacher-educators from different DIETs, both referred to reflection as pratimbimb (meaning ‘reflected image’) referring to the context of methods used to teach in class. During a group discussion, Dr Pandey referred to reflection as ‘vimarsha’. Again both, Dr Dhar and Dr Pandey referred to reflection in Hindi as ‘chintan’ and ‘manan’. Chintan means deep individual or group thinking or discussion of an issue. These renderings of reflection in Hindi resembled situations which described technical (pratibimb), dialogic (vimarsha or chintan) and critical levels of reflection (chintan and

<table>
<thead>
<tr>
<th>Reflection was perceived as</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>… improvement of practice</td>
<td></td>
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<tr>
<td>… initiating a change in pupils</td>
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<tr>
<td>… achieving the change wanted in pupils</td>
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<tr>
<td>… gaining feedback on teaching</td>
<td></td>
</tr>
<tr>
<td>… getting a response from pupils to whole class teaching, getting answerability</td>
<td></td>
</tr>
<tr>
<td>… a process of Thinking-Observing-Doing-Improving-Feedback/answerability</td>
<td></td>
</tr>
<tr>
<td>… inclusivity in class – Paying attention to individual learning, including the weaker pupils</td>
<td></td>
</tr>
<tr>
<td>… change in behaviour, collaboration to work together to change a pupil’s experience of education</td>
<td></td>
</tr>
<tr>
<td>… self-reflection and reflexivity to improve themselves and practice</td>
<td></td>
</tr>
</tbody>
</table>

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**Figure 33. Perceptions of reflection of the student-teachers at both DIETs**

Perceptions of reflection of the student-teachers at DIET-Badapur and DIET-Chotapur

- Reflection was perceived as
- … improvement of practice
- … initiating a change in pupils
- … achieving the change wanted in pupils
- … gaining feedback on teaching
- … getting a response from pupils to whole class teaching, getting answerability
- … a process of Thinking-Observing-Doing-Improving-Feedback/answerability
- … inclusivity in class – Paying attention to individual learning, including the weaker pupils
- … change in behaviour, collaboration to work together to change a pupil’s experience of education
- … self-reflection and reflexivity to improve themselves and practice
Table 26. Words used for reflection in English, Hindi and Urdu at both DIETs.

<table>
<thead>
<tr>
<th>Source of perception</th>
<th>Translations of reflection</th>
<th>Meaning and brief etymology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy documents DIETs</td>
<td>Reflection (English)</td>
<td>The act of bending back: a calm, lengthy, intended consideration; the phenomenon of propagating a wave (...) being thrown back from a surface; the image of something as reflected from a mirror. Reflexio - the act of bending back which originates from the Latin verb reflectere. Language: Latin</td>
</tr>
<tr>
<td>Dr Pandey, Dr Dhar, Asha</td>
<td>Pratibimb (Hindi)</td>
<td>Reflected image, reflection or a picture, mirrored form, a resemblance or counterpart of real forms, shadow; reflectivity, reflex, shadow. Religious texts: Hindu, Buddhist. Languages: Sanskrit, Pali, Prakrit, Marathi, Hindi.</td>
</tr>
<tr>
<td>Zohra</td>
<td>Chhavi (Hindi)</td>
<td>Image, impression, or self-image; the quality, condition, or fact of shining by reflected light; radiance; brilliance.</td>
</tr>
<tr>
<td>Dr Pandey</td>
<td>Vimarsh (Hindi)</td>
<td>Discussion, deliberation (in group); reflective awareness (in individual), consideration or investigation; exercising of judgement or reason; a pause. Languages: Sanskrit, Marathi, Kannada. Associated with Hindu texts.</td>
</tr>
<tr>
<td>Dr Bagga, Dr Dhar, Dr Pandey</td>
<td>Manan (Hindi)</td>
<td>Thinking, reflection, consideration, meditation, cogitation, an inference arrived at by reasoning, when you think about ideas or problems, and you make a mental effort to consider them or solve them. In Hindi: Dhyan, soch, vichar. Origin in Sanskrit: Man + ana = Mind + food. Associated with Hindu, Buddhist, and Jain religious texts. Languages: Pali, Marathi, Prakrit, Hindi, Kannada, Urdu, Arabic, Bangla. Shravana and Manan: Listening and deliberation. These are two concepts used together in ancient education.</td>
</tr>
<tr>
<td>Dr. Dhar, Dr Pandey</td>
<td>Chintan (Hindi)</td>
<td>Contemplation, think deeply, consider, ponder, reflect, plan or devise, muse or meditate, concerns. Languages: Pali, Marathi, Prakrit, Hindi, Kannada.</td>
</tr>
<tr>
<td>Dr Bagga</td>
<td>Manobhav (Hindi)</td>
<td>Born of the mind and heart; passion, attitude, concept, sentiment.</td>
</tr>
<tr>
<td>Sabia</td>
<td>Javabda (Urdu)</td>
<td>Answerability, capable of answering; accountability; care; responsibility; undertaking.</td>
</tr>
<tr>
<td>Dr Siddiqui</td>
<td>Gaur Fikra (Urdu)</td>
<td>Concentrated worry, reflecting on problems encountered, deep consideration and thinking. In Hindi: Soch, chintan, vichar (deep thinking), dhyan (contemplation).</td>
</tr>
</tbody>
</table>

*manan*, with specific words for each level of reflection. In Urdu, *javabda* introduces the pupils’ feedback into the ambit of reflection and *gaur fikra* includes focussed thinking and relates reflection to problem-solving.

One description of reflection, as ‘impression’, suggested improvement through demonstration or influence of the teacher. According to this description, reflection was presented as a concept in which the teacher reflected the good values she embodied for her pupils. This conception of reflection was mentioned by two teacher-educators, one
from each DIET, and by two student-teachers, again one from each DIET, without any interaction between them.

This perception of reflection did not seem to fit in with the Western conception of reflection.Rather it pointed to teaching and leading by example, very much in keeping with the Guru-shishya tradition discussed earlier. Reflection was interpreted as the pupil learning from or getting influenced by the Guru’s or teacher’s example.

The variances in translated meanings of the words used by this study’s participants when expressing reflection highlights the importance this holds for teacher-educators and student-teachers as well as any researcher investigating this topic in a multilingual context. Translated words, such as manan and chintan, or gaur fikr, are developed constructs in their own languages. They carry these meanings to the student-teachers and influence their perceptions of reflection.

The goals of teaching are influenced by the perceptions of reflection which direct the teacher-educators’ and student-teachers’ practices, influencing the final learning outcomes. The perceptions of reflection built from the translation of the word reflection into different languages, for example, Hindi and Urdu, result in a culturally widened, perception of reflection that is different from the original English meaning.

7.10. CHAPTER 7 CONCLUSION
In this chapter I have compared and situated the perceptions of reflection in an Indian context. The findings about the perceptions of reflection further our understanding of how pedagogical policy articulations can differ and be translated differently by practitioners at various levels. The experts, the NCFTE (NCTE, 2009), the D.El.Ed. Syllabi and the SEP Module articulated reflection in gradually decreasing scientific conceptualisations, detail and also commitment. The principals and teacher-educators lacked knowledge about reflection. They perceived reflection to mediate constructs they pursued in their teaching, for example, constructivism and self-evaluation. Perceptions were also influenced by Indian constructs, for example manan and chintan, and everyday concepts translated from Hindi, for example, pratibimb. The student-teachers started with everyday perceptions of reflection, taken from their own contexts, experience and languages. This research also highlighted the changes in meaning from different translated terms showing that it is important to understand the indigenous, situated, context which continues to speak to its practitioners, especially in a multilingual country like India. Policy formulation must involve the practitioners before preparing it for implementation.
The next chapter brings the thesis to a close. It highlights the methodological, conceptual and original contributions of the research and its strengths and limitations. It reflects on the implication of the findings for improving the fostering of reflection in primary student-teachers and reflects on directions for policy and practice changes.
8. DISCUSSION AND CONCLUSION

8.1. INTRODUCTION: THE PROBLEM AND PURPOSE OF THIS RESEARCH

The final chapter of this thesis discusses the research findings’ significance and their implications for the implementation of reflective practice amongst educators in India and beyond. The study’s limitations are outlined, and recommendations are made for future research building on the current study.

As a reminder, my research addresses a specific problem in Indian education. In 2010 India declared the Right to Education (RTE) as legal right for all children. This led to an increase in primary school enrollments nationally. Low learning levels and low attendance figures reported from the primary schools, especially for pupils from marginalised communities, showed that while high enrolment was important, the quality of what is learnt and how it is learnt are equally relevant (see Chapter 1). It became vital to have teachers who could make learning engaging, and to have pupils construct their own knowledge in diverse circumstances. The Government of India introduced a policy into teacher education which was intended to change the existing dominant, transmissive form of pedagogy to a constructivist, process-based, more student-centred pedagogy, and crucially, one that was mediated by reflective practice. This policy was articulated at different levels starting with the National Curriculum Framework of Teacher Education (NCTE, 2009).

My thesis presents research evidence generated at two DIETs around the introduction of this pedagogical policy. The policy was introduced to foster, implement and develop the perceptions of reflective practice in existing, unprepared, initial teacher education institutes through a two-year Diploma in Elementary Education (D.El.Ed.) programme. The thesis suggests that policy makers need to go beyond articulating policy in texts like the NCTE, 2009, which in turn guides policy in the D.El.Ed. syllabus. While articulating policy, experts – top bureaucrats – should consider consulting with mid-level bureaucrats and the professional community in teacher education about resources, social and cultural conditions, and the knowledge, skills and motivation of the community of implementers on the ground. If these aspects are not considered, then policy formulation can get implemented in a way that is not fruitful or intended.
8.1.1. The research design

Since empirical research around the subject of reflective practice in initial teacher education institutes in India is lacking, I set out to design a study that would help redress this knowledge gap and generate findings that would inform teacher education professionals, researchers and educational policy-makers on aspects of reflective typology, and the facilitation, translation and adoption of reflective practice in an Indian context.

I decided to work with two naturalistic case studies longitudinally over two years with the aim of generating detailed, empirical insights into the development of reflective practice in two initial teacher education institutes (Chapter 3). The aim of this research was not to generalise but to present a context-specific understanding, made possible by qualitative research. The study used an ethnographically led, participant-centred, interpretive methodology with a socio-cultural focus. The two-year longitudinal study offered a prolonged engagement with the two DIETs and supported understanding the changes in reflection that occurred during that period. All these elements combined to make the study methodologically strong and a basis for trustworthy findings, in a situation where there is a lack of research. The Stutchbury and Fox framework (2009) provided clear, logical guidelines for systematically identifying and managing culture and context-related ethical considerations (Chapter 3). This, in turn, made it possible to incorporate The Open University’s code of ethical practice and the BERA ethics guidelines, as well as to address ethical issues specific to India.

8.1.2. Chapter structure

Section 8.2 outlines the original aspects of this study in respect of methodological and conceptual knowledge. Section 8.3 describes the empirical contributions of this study, by drawing together the research findings and the extent to which they answer related research questions - how reflection is fostered, implemented and perceived at the two DIETS and how the meaning of reflection showed the possibility of an expansion emerging from the Indian cultural, multilingual and metaphoric interpretation of reflection. Section 8.4. touches on the opportunities to change the fostering of reflection as a result of the findings from the research. Section 8.5 discusses some strengths and limitations of the study and Section 8.6 presents possibilities for future research. Section 8.7 concludes the study.
8.2. ORIGINAL ASPECTS OF THE RESEARCH

Though reflective practice is widely researched globally (Moon, 2005), in India it is not. As a result, I was faced with investigating and researching a little-understood, complex, situational, social construct imported into teacher education primarily from the West. The situation was made more complex as India has one of the longest educational histories in the world. The long history introduced many different teacher orientations and beliefs, cultural, linguistic, social and economic diversities embedded in its teachers’ minds and in its classrooms. Since reflection is a complex construct the research was carefully planned such that the reflections were clear and visible to the audience. The next section describes the resulting conceptual and methodological innovations that shaped the research design.

8.2.1. Conceptual and methodological innovations

A major contribution of this thesis is in presenting a context-appropriate, longitudinal case-study methodology, and a detailed practically applicable conceptual tool that can be adapted by others wishing to research reflective practice in teacher education settings.

In each of two DIETs, reflective data was collected and generated during two teaching cycles at the beginning of School Experience Practice 1 (SEP1) and at the end of the SEP2. This included lesson plans, observations of practice classes, supervisor comments and evaluation, reflective journals, interviews, focus group discussions and stimulated recall interviews (Chapter 4, Table 9).

This study makes a significant and unique contribution to the field by collecting and generating a rich mix of data sources about student-teachers’ reflections. This allowed for triangulation and prepared the way for an in-depth analysis of fostering of reflection at the DIETs, individual reflective practice, and perceptions of reflection, all of which changed over the two years of the study. This, in turn offers a transferable model for others to adopt either in India, or in contexts beyond India.

The development of the reflective practice tool (RPTv2) adapted from Ward and McCotter’s reflective framework (WMF, 2004) is another significant contribution made by this research study. The tool thematises reflections into four reflective levels relating to different forms of knowledge and teaching orientations (Chapter 2).

Globally, there are many studies which have conceptualised reflection as comprising several distinct levels in reflective thinking and teacher education (Mezirow, 1990; Zeichner and Liston, 1996; Hatton and Smith, 1995; Ward and McCotter, 2004; Fund et al, 2002; Marcos et al, 2009; Poom, Valickis and Mathews, 2013) but such empirical studies are few
in India (Mathew, 2014; Ramchand, 2013). The typology proposed by van Maanen (1977) in Canada was applied by Hatton and Smith (1995), and Ward and McCotter (2004) in their research in the US. I adapted Ward and McCotter’s framework into a rubric-based tool and applied it to my research in India. I used the tool to analyse how individual student-teachers reflected and improved their practice over two years. During development, the tool went through two iterations. From the first iteration, a Reflective Practice Tool v1 was developed with the same rubric descriptions of teaching practice as Ward and McCotter’s framework (WMF). Testing of this tool showed a lack of consistency across reflective levels and did not do justice to the Indian context. A second iteration (Section 3.9.2) of the tool drew on Indian teacher educational discourse, grey literature and global literature to create Reflective Practice Tool version 2 (See RPTv2 in Appendix 1).

As explained in Chapter 3, when used, this tool contributed to empirical knowledge about reflective practice in teacher education in India. Student-teachers’ reflections collected from multiple sources were matched and mapped on the RPTv2 framework, making reflections visible at different levels. The mapped templates were converted to thumbnails (Chapter 3, Figure 11 and 12). This original conceptual and methodological contribution added much needed clarity to researching reflective practice and the perceptions of reflection in initial teacher education. The RPTv2 thumbnails viewed together not only make visible the reflective practice of each student-teacher, but also indicate changes in reflection over two years (See Appendices 6–9). The RPTv2 could also be used to analyse the perceptions of experts, DIET principals and teacher-educators, extending its value.

Though the participants were not aware of the different levels of reflection and so did not write about them, the thumbnails showed that student-teachers reflected at different levels. They usually started with routine reflection, moving to technical and dialogical reflection. The latter tended to increase as their teaching showed greater constructivism. The thumbnails also provided an overview of student-teachers individual reflective practices. Comparison across thumbnails showed differences in the methods of reflection e.g. during lesson planning, practice teaching, supervision reviews, reflective journals and stimulated recall interviews. The student-teachers talked about reflection and reflective practice in sophisticated, nuanced terms. They reflected verbally in ways that they weren’t able to reflect in writing.

The tool could be used by teacher-educators to interpret, monitor and evaluate their own and student-teachers’ reflective practices and professional development.
Analysis of the reflective data thematised and grouped as elements using the RPTv2 and generated in accordance with activity theory (AT) (see Appendices 6–9), provided a meta-picture of issues that might limit or show opportunities for the development of reflective practice at the two DIETs (see Chapter 5). Principles of Vygotsky’s socio-cultural theory (SCT), like genetic analysis, was applied to the reflective data. It showed the development of reflection and changes in individual student-teachers’ practices over two years (Chapter 6). Based on review of the research literature on reflective practice in India and globally, it is clear that the methods used in this study are unique as a means of examining the development of reflection in teacher education. They also have the potential to be applied to other contexts in India and similar situations globally.

8.3. EMPIRICAL CONTRIBUTIONS
The overarching research question for this study was – ‘How is reflective practice fostered, implemented and perceived to support the professional development of student-teachers during the two-year D.El.Ed. programme at two DIETs?’ This complex inquiry was addressed by dividing the question into four sub-research questions (see Section 3.4). The empirical findings of this study will be of interest to other scholars of education in countries with complex histories, particularly in light of recent attention given to anti-colonial discourses in education research. The findings revealed a nuanced positive beginning to bring in changes in teacher thinking. This research closely followed a policy-mandated process which had reflection embedded in the different stages of the teaching cycle. An account of this follows.

8.3.1. Insights for fostering reflection at the DIETs, according to policy
Since Independence, numerous changes in policies have been implemented. Many of these aimed to change pedagogy in primary classrooms so that pupils were engaged to learn meaningfully in a child-friendly manner, for instance during the DPEP in the 1990s. For teachers to change pedagogy it was believed that they must understand educational theory and convert it into practice. Another set of policies favoured an emphasis on real-life experiences in school and action research for teacher development. Many such recommendations were absorbed into national educational policies over the years (MHRD, 1962; NCERT, 1970; MHRD, 1968; MHRD 1992; NCERT, 2005; NCTE, 2009).

Relevant to the current study, according to policy, a change in pedagogy from behaviourism to constructivism was introduced into schools through the NCF (2005). There was a great need for teachers who were trained to teach constructively with reflection. As has been
described in Chapters 1 and 2, this led to the development of the NCFTE (NCTE, 2009) and its widespread implementation in DIETs through the D.El.Ed. programme (see Chapter 2). The pedagogical change policy being studied in this research is important because it has been embedded in the national teacher education change framework, to be implemented in all teacher education institutes nationally. Constructivism and reflection have been built into the NCFTE (NCTE, 2009) and following the NCFTE guidelines into the D.El.Ed. syllabus (SCERT, 2014). Reflection was initiated among individual student-teachers through the embedding of tools and signs in the teaching cycle. The school experience module (Chapter 4) was designed to mediate reflection (Figure 4.6). The current study was carried out one year after implementation of the policy at the DIETs in 2014.

The insights for fostering reflection at the DIETs according to policy were empirically arrived at in response to sub-research question 1: ‘How is reflection fostered to support the professional development of student-teachers, during the two-year long D.El.Ed. programme, at the two DIETs?’ The insights revealed that student-teachers learned to teach with reflection when it was embedded in stages of the process-based teaching cycle recommended by policy. Their practice showed changes towards greater application of constructivist pedagogy, responding to pupils’ needs. This was shown to be limited by the lack of teacher-educators with knowledge of reflective practice. They missed supervising the student-teachers at the practice schools because they were busy elsewhere at the same time, especially at one of the DIETs. They admitted to and showed a lack of knowledge about reflective practice and how it related to reform policy goals. The teacher-educators needed professional development to become reflective practitioners themselves and gain a greater understanding of reflection, its typology and how to foster it.

The findings described next were observed following the student-teachers’ process-based teaching cycle at the DIETs.

In their practice, student-teachers were observed to reflect and develop lesson plans with reflection-before-action (Greenwood, 1993) to different degrees at both the DIETs. To understand their pupils’ existing levels of knowledge, student-teachers at both DIETs started their teaching with pre-tests, reflecting at the technical level before planning their classes, as directed by the syllabus. As they planned their classes, the student-teachers developed teaching-learning material and learning strategies to engage their pupils in ways that would enable them to experience, understand and learn with relevance to their lives.
Tools like lesson plan templates were observed to enhance these reflections-before-action at both the DIETs (Section 5.3).

Reflection-for-action (Grushka et al, 2005) was observed to take place during teaching when student-teachers were faced with problems, such as looking after a child with special needs. Student-teachers were found to improvise and think on their feet with reflection-in-action (van Manen, 1977; Schön, 1983) especially during practice teaching (Section 5.4), to keep pupils engaged so that they did not lose interest in the class and to bring learning closer to real life. The research showed that it was important for the student-teachers to be sensitive to pupils’ responses and to recalibrate the class with an immediate change in action, such as by starting the class with a game when the pupils did not want to study.

At the next stage of the teaching cycle, during supervision reviews, the student-teachers had discussions with their supervisors, when they reflected on action (Schön, 1983). Supervisors orally discussed issues and strategies with the student-teachers, as laid down in the syllabus, and also gave them written feedback.

When sharing their reflections dialogically and verbally the student-teachers in the current study were able to reflect more deeply and to express themselves both with greater ease and in more detail than through writing in a reflective journal. When speaking about their experiences to a more knowledgeable other or peer(s) during stimulated recall interviews and general interviews, they could easily recall their reasons for their teaching decisions. supported by research by Lindroth (2015) and Black et al (2000), which found some student-teachers did not like writing reflective journals, some gained deeper understanding by writing them and others found that it was difficult to express themselves with writing and were better able to do so verbally through speech.

All four student-teachers studied were found to grow weary with writing reflective journals and gradually the number and density of reflective entries came down by the end of SEP2. Vygotsky’s principle of languaging provides a more detailed explanation about the weariness of writing reflective entries and the ease in talking about reflections (Chapter 6).

Dialogic reflection showed the way for deeper, more lively reflection, but its potential at the DIETs seemed to be under-utilised (Section 5.7 and 5.8). This maybe because very few teacher-educators appeared consciously aware of the four levels of reflection and different teacher orientations proposed by van Manen (1977). No one included this in their perceptions of reflection. Gaining this knowledge might give the participants the conceptual terminology to engage in more dialogic reflection.
A unique addition at one of the DIETs was a public, collective reflection during assembly which was conducted every morning before class. This participatory experience provided an opportunity to the student-teachers and teacher-educators to re-examine personal conceptions, and to acknowledge and share self-learning through institutional public reflection (Section 5.8). Vince and Reynolds’s research (2004) on group reflection in teacher education has also shown that groups discussed common concerns focused on personal and social aims. The group reflection at the DIET assembly suggests an additional avenue for enriching reflection in DIETs that is not considered in other studies on teacher reflection.

There were, however, a few indications, that the student-teachers managed their class discipline through more behaviourist means, when the pupils became restive in class. When the same student-teachers gain employment at schools, similar situations would lead them to follow their senior colleagues, and behaviourist, teacher-led ways. The teacher-educators had the responsibility to deeply embed and internalise a process-led, critically reflective teaching practice in the student-teachers, to counter these systemic contradictions. The teacher-educators also needed to be critically reflective practitioners themselves and be given the space to become strongly self-reflexive. Publicly organized group discussions about how such problems are tackled would also be essential.

8.3.2. Insights into how student-teachers reflected and how their reflections influenced their personal beliefs and practices

This section of the conclusion considers the significance of the findings related to the second and third sub-research questions: ‘How do the student-teachers reflect?’ and ‘How does reflection change their practices over two years in the D.El.Ed. programme?’

The rubric tool developed in this study played a crucial role in making reflections visible in different ways by differentiating reflective levels and sources of reflection. An enormous amount of data was collected, generated, transcribed, and translated (Section 3.8) for the current study. This detailed a study of student-teachers reflective practice has not been conducted before in India (Appendices 6–9).

An original contribution of this research for the Indian context was to counter the deficit view that there would be no reflection at the DIETs. Instead, the reflective data analysed in this research from the student-teachers confirmed, as in Hatton and Smith’s (1995) research from the US, and Mathew’s (2014) research from India, that the student-teachers reflected at different reflective levels, on different issues, and showed different capacities.
for reflection with different methods for reflection, for example, lesson plans, reflective journals, discussions (Chapter 6). Initially all four student-teachers were found to reflect at a routine level, then mostly at a technical level and dialogical level, and a very few times at the critical-transformative level. This influenced their ability to learn to teach as is shown in the AT heuristics (Chapter 6, Appendices 6–9). Valli (1997) arrived at similar findings in her research. Student-teachers, in this research, showed that reflection was essential for them to make learning engaging, relevant and meaningful for their pupils. In short, they needed to reflect to become more constructivist (Chapter 6). Similarly, Knapp (2012) showed that reflection enhanced constructivist practice.

Another unique contribution of this research is that the student-teachers’ practices were found to improve when they reflected to motivate pupils by using different teaching-learning materials, strategies and techniques in ways which related to their lives and ages, and which were more activity-based and engaging. The student-teachers achieved this in a variety of ways. They applied different strategies and methods such as creative writing, learning by doing, and demonstrations of science principles. They increased pupil participation through games, activities, and discussions. All four student-teachers understood in different ways that their pupils learn better without threats or fear of punishment. Self-expression, street plays and street processions to voice social issues were also carried out. In their reflective journals, the student-teachers reported realisation that each child’s way of learning is unique, that children can be facilitated to create their own questions and answers, and to express their own views. They also reflected on the importance of teachers becoming more caring, appreciative and good listeners, of building pupil confidence and rapport.

Another contribution of this research, revealed through genetic analysis, were the gradual changes in reflections identified. Each student-teacher’s practice and beliefs were found to change incrementally and in different ways. I will summarise an example here.

Through her reflective entries, Asha showed that she changed her beliefs about evaluation to become more constructivist. She started with technical reflection. She assessed the initial level of learning of each of her pupils. She developed and conducted pre-tests in which each question had a single correct answer. Realising the importance of formative evaluation, she gradually moved to self-evaluation by observing pupil participation and understanding how they met their learning objectives. She reflected about how well she was able to keep her pupils ‘engrossed and attentive, understanding concepts’. Slowly she
learned to enthuse her pupils and dialogically reflected to evaluate her own teaching practice in terms of pupil ‘enthusiasm, attentiveness, interest and participation’. Her reflections became more transformative as she evaluated her own ability to ensure learning and even behaviour change in her pupils.

Asha did not express an awareness of the nature of changes in her practice. If she understood the changes in herself she may own them and be in a position to improve them further independently.

My study revealed a huge gap in the implementation of policy at the DIETs. While the policy articulated in the NCFTE (NCTE, 2009) vision is more detailed, the D.El.Ed. lacks both contextual and specific detail about reflective practice. Including more details about reflective practice in the D.El.Ed. syllabus would be very helpful to both the teacher-educators and student-teachers. It would also increase self-regulation and self-learning.

The next two sections consider insights that emerged from the exploration of the fourth research question, ‘What are the perceptions about reflection among experts and in policy articulations, and among the principals, teacher-educators and student-teachers, within the DIETs?’ These insights are twofold:

The perceptions kept changing over the two years. They showed:

- How policy was implemented through its articulation, translation and enactment by the experts and the DIET community
- How language and culture expanded the meaning of reflection.

8.3.3. A layered translation and implementation of policy

The current study gives an insight into why the process of policy adaptation and implementation has not been entirely effective at the studied DIETs. The perceptions of reflection, in connection with sub-research question 4, revealed a path of translation and implementation of policy.

This study shows that, as part of the reform policy, reflection was introduced in the DIETs through the D.El.Ed. syllabus. Ball et al (2011:2) observe that though policies are introduced through the syllabus in restricted ways, they are actively ‘translated and complexly enacted into practice’. This was the case in the current study. Each policy document such as the NCFTE (NCTE, 2009), the D.El.Ed. syllabus and the SEP module was designed to address different levels of policy goals, catering to its audience’s requirements.
At the national level, the policy was articulated in the NCFTE (NCTE, 2009) by several experts. I asked the participants, ‘What is reflection?’ The findings with two experts (Section 7.2) revealed well-developed scientific perceptions of reflective practice. The experts are senior professors with many years of experience in designing, implementing, and facilitating teacher education courses which aim to produce reflective practitioners. Reflective practice was given the importance of being ‘the central aim of teacher education’ in the NCFTE (2009:19). While the perception of reflection was embedded in the process-based and recommended teacher education, there was no clear definition and articulation about reflection. There was a lack of access to the NCFTE (NCTE, 2009) for teacher-educators who were non-English-language users as it was not translated beyond English into any other Indian languages. Nor were teacher-educators trained about policy reform and the importance of reflective practice.

As described in Section 2.2, from the NCFTE (NCTE, 2009) a nationally shared version was developed – a guideline D.El.Ed. syllabus, which was also developed by the NCTE. From this guideline syllabus, each state in India developed a localised version of the D.El.Ed syllabus, to be implemented through a two-year programme at each DIET in the state.

This policy reform proposal reached each DIET in the state encoded in the SCERT D.El.Ed. syllabus, especially in the SEP module, again in English only except for the language modules which were described in Punjabi, Hindi, and Urdu scripts.9 The construct of reflection at the DIETs was seen to be dynamic. It was differently translated, perceived, and enacted in the different layers of the community, and was constantly developing. There was no one clear perception of it. It was enacted through borrowing, sharing and translation of concepts.

At the DIETs, after introducing reflective practice as a matter of administration and mainly ensuring fostering of reflection as laid down in the D.El.Ed. syllabus, the DIET principals and head teacher-educators shared their personal interpretations with the teacher-educators, leaving them to pursue it with the student-teachers. The champion teacher-educators of reflection at each DIET did not scientifically understand reflection and reflective practice in the same way as the experts, and so did not accord it the immense significance that the NCFTE (NCTE, 2009) did. They lacked the requisite knowledge, a common terminology, and

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9 There are other states in India, however, which have translated the D.El.Ed. syllabus into their state languages, for example, Kerala.
understanding of reflective practice to be able to foster it in the student-teachers they taught. They perceived reflection to support their personal teaching orientations and directed reflection at each DIET to achieve academic concepts that were pursued to ensure good teaching practices, such as constructivism or self-evaluation. For example, one headteacher followed constructivism and tended to be dialogical in her approach, while another pursued a critical orientation. There were many teacher-educators who tended to encourage a safer technical or behaviouristic orientation historically coded into DIET norms of good teaching.

The student-teachers on the ground were trying to set down their roots in their new profession. Their perceptions of reflection started from their everyday interpretations, their own beliefs and experiences, expressing reflection in their own ways and languages, in written or spoken form. The student-teachers could be observed to graduate from their everyday perceptions of reflection to more meaningful perceptions in the context of their own teaching practices, making use of learning from supervisors or peers to do so. Reflection was aimed at improving overall practice and strategies of teaching, and at encouraging learners to construct knowledge. Some student-teachers also included learner response in their perceptions of reflection.

Student-teachers began to consider and reflect on their pupils’ reactions to the student-teachers’ own teaching. Still others reflected on how to achieve inclusion in class, answerability and changes in behaviour from pupils. For some student-teachers reflection was broadened to include reflexivity and self-appraisal, to improve their own practice. This included the recognition of the student-teacher’s own biases and behaviours, reflection for self-evaluation and for critical-transformation (Sections 7.7 – 7.8). In addition, this research found that the perceptions of reflection changed over two years of the D.El.Ed. programme. As the knowledge and experience of the principals, teacher-educators and student-teachers developed, the everyday concepts became more scientific. A few student-teachers talked about a process of reflection, as a cycle of Thinking and Action-Improving-Reporting-Collecting Feedback-Improvements (Figure 31 in Section 7.8.2). The SEP exposure set them on a path of reflection to become more dialogical, and sensitive to pupils’ needs, with changing perceptions of becoming more scientific.

These findings were scattered among the different participants. This situation calls for a change in the way reflection is introduced to the teacher-educators and the student-teachers. More knowledge about reflection needs to be built into the syllabus and shared.
at the DIETs. This could include existing knowledge about reflection and the encouragement to construct it from personal and group experiences through planned, interactive, educational events face to face or online.

8.3.4. Insights into culturally widened perceptions of reflection through multilingualism

The perceptions of reflection shared by the DIET principals, teacher-educators and student-teachers (Section 7.9.1), are built from the translation of the word reflection into different languages, for example, Hindi and Urdu, resulting in a culturally widened, perception of reflection and a change from the original English meaning.

I asked participants ‘How would you express reflection in your language?’ they translated ‘reflection’ into Hindi or Urdu. The word used for ‘reflection’ tended to carry connotations that are different from those in English. Translations in Hindi and Urdu into words such as vimarsh, manan and chintan culturally expanded the meaning of reflection beyond the meaning with which it was introduced in English, through the NCFTE (NCTE, 2009) and the D.El.Ed. syllabus.

In a multilingual context like India, it is important to understand these because their colloquial meanings stay in the minds of the users and might develop a different and culturally influenced conceptual space for reflection.

The translated words might carry mixed conceptual connections, such as manan and chintan, are developed constructs with practices in their own languages which might impact the student-teachers’ and teacher-educators’ teaching practice.

The teacher education institutes and policy formulators must become attentive to perceptions that emerge from translated words and understand these constructs. There is need to research and explore the nature of reflection in Indian culture and its relationship to perceptions of reflection in teacher education in the Indian context and across the globe. Communication, sharing and discussion must take place to develop a map of words and concepts in different Indian languages around reflection. Different experiences of applying them to improve practice in teacher education. Implementation can also be shared within and across DIETs and teacher education institutes. This will bring the construct culturally alive to meaningfully expand activities surrounding in a way which is culturally closer.

8.4. Reflections on opportunities for improving the fostering of reflection at the DIETs

By applying an Activity Theory (AT) lens to the study’s findings, this research identifies contradictions that have accumulated historically in working at the DIETs. The
contradictions explain both the limitations and potential opportunities to drive change to foster reflection in India’s teacher-education system, as evidenced at each element of the activity system in the two studied DIETs (Chapter 4, Figure 15). This section also suggests opportunities for change that arose from the findings of the research questions viewed through other lenses used in the research.

8.4.1. Professional development for principals and teacher-educators to understand reflective practice and how it relates to the pedagogical change policy

Most teacher-educators and principals lacked the necessary knowledge and understanding about the importance of reflection and reflective practice in the NCFTE (NCTE, 2009). A few teacher-educators acknowledged this lack of preparedness, gap in knowledge and experience to foster reflective practice in student-teachers. The head teacher-educators at the larger DIET did not know about the NCFTE (NCTE, 2009). Most teacher-educators worked in Hindi, making it difficult for them to access the policy reform because the NCFTE (NCTE, 2009) and the D.El.Ed. syllabus were available only in English. This put the teacher-educators in a weak position to provide the necessary guidance to the student-teachers and posed a serious challenge to fostering reflection deeply at the DIETs (Section 5.10) to achieve changes in student-teacher thinking to fulfil the policy reform planned. The urgent need to make classes more engaging and meaningful for primary school pupils was lost in these contradictions.

Another contradiction emerged from the D.El.Ed. syllabus (2014). The syllabus described a minimal narrow, individualist perception of reflection with reflection being seen to be done only through writing in reflective journals. This prevented the realisation of the tremendous potential of reflective practice as a culturally and socially mediated construct, embedded in activities of the teaching cycle. As a result, at each DIET studied, only one teacher-educator was assigned the responsibility for fostering, implementing, and monitoring reflection.

Notably, teacher-educators in the DIETS studied had received no professional training in developing the abilities to foster reflection according to policy and systemically. It is important that teacher-educators need to be trained and become confident of developing reflection in student-teachers. Studies suggest that reflection depends on the quality of implementation by teacher-educators, who can help student-teachers to become aware of their own teacher beliefs and teaching orientations, ‘useful as a self-centred activity that provides opportunities for self-education’ (Lindroth, 2015:70). My research indicates that before the teacher-educators try to nurture reflective practice in their student-teachers,
they need to become reflexive and reflective practitioners themselves. For this development to be possible it is essential for teacher-educators to

a. Understand their own beliefs and biases and develop through self-regulation and
b. Share a common terminology

It is with this experience and self-understanding that they will be able to supervise student-teachers to reflect more deeply, independently, with social responsibility. Moore (2003) indicates, in her research, that teacher-educators need to create reflective experiences and spaces, perhaps to guide student-teachers to reflect more purposefully, to help them bridge the gap between theory and practice. This points to an opportunity for the policy to consider strategies and lay down guidelines which will, institutionally and individually, deeply embed reflective practice at the DIETs with the aim of bringing about pedagogical change in primary classroom teaching. Again, the findings of this research need to be shared at the SCERT which gave access for this research, and the NCERT responsible for national teacher-educator professional development.

8.4.2. A common terminology and language for improving communication

Having a common scientific terminology is important in teacher education so that all practitioners use the same language to share their experiences even while they develop their own reflectivity. Manning and Payne (1993) argue for a clearly articulated theoretical framework in teacher education. This could extend to include education and reflection. Vygotsky’s principles, as used in this research, would be a place to start. The framework would need to be facilitated by key institutional policy makers who would translate the different policy aspects coherently for the practitioners, and in a language with which practitioners are comfortable. This thinking would need to include Indian languages. The two DIETS studied were bilingual but veered more towards Hindi. The DIETs in Kerala, another state in India, uses only Malayalam for instruction. There are 18 languages that are offered as media of instruction at the higher secondary level (Menon, Vishwanatha and Sahi, 2014). One of the reasons given for the lack of translation of the NCFTE (NCTE, 2009) from English was the difficulty in translating education-related technical terms like reflection and reflective practice. This is a serious, frequently recurring issue in a multi-lingual country like India and must be tackled on an urgent basis at the level of the creation of the necessary institutional structures which are needed to be made responsible for translation of teacher education material nationally.
8.4.3. Generation and application of tools and signs

The study showed mechanical application of supervision reviews and templates during the process-based teaching cycle. During supervisor reviews at one DIET the same set of comments were applied by all teacher-educators. At the second DIET, the levels of reflection suggested by the supervision comments varied depending on the teacher-educator’s own teaching orientations, beliefs and understanding of teaching goals. In addition to the mediation provided by the teacher-educators, the research also showed that one DIET had single fixed, unchanging lesson planning templates used for all classes. This led to a high level of routine reflection. The internalisation of mediation as a result of the application of the tools and signs is key to bringing about a change in thinking. In this research, knowledgeable, reflective application of templates was observed to result in student-teachers’ practices beginning to change from being routine and technical to becoming more student-centred and dialogical. Appropriate guidance and scaffolding from the teacher-educators is important for internalisation to occur. The advice some teacher-educators often gave contributed to a continuation of traditional, teacher-led teaching because the teacher-educators were weakly conversant with the policy reform and did not realise the importance of reflection or mediation through signs and tools. Again, this points to the need for teacher-educator professional development.

All four student-teacher participants showed weariness with maintaining reflective journals during SEP2. Representing reflection through structured, written reflections resulted in reflections which became shorter, routine and repeated. It is recommended that the DIETs adopt a more varied approach to developing the activity of reflection, to include paired and group discussion, viewing video recordings of practice teaching, and public sharing of reflection outputs. This could also include the use of RPTv2-like rubric templates to initiate self-evaluation among the student-teachers.

Many findings in this research were arrived at through the intervention of the RPTv2 tool, Vygotsky’s SCT and the AT heuristics. This knowledge is not available to the teacher-educators and student-teachers, because the community at each DIET did not share a common theoretical understanding of the key constructs: learning, reflection and teacher education. The D.El.Ed. syllabus needs to explicitly address reflection through the application of theoretical lenses and framework, as has been done in this study. Especially so as the study findings indicate that reflective practice is better supported when teacher-educators and student-teachers develop tools and signs thoughtfully to mediate learning and reflection. In doing this, the practitioners will become conscious of their own
reflections, and how they can use tools and signs to self-regulate and improve their own practices as well as the student-teachers.

The DIETs I studied were used to developing templates and tools. I have successfully implemented similar exercises, for example, rubric based evaluation, for several years in my previous experience as a headteacher in a UK based undergraduate programme in India with other educators.

8.4.4. **Fostering reflection to change student-teachers’ thinking about teaching**

The findings in this research showed that student-teachers entered the DIETs with differing teaching beliefs, levels of knowledge and motivations. What the student-teachers reflected upon in this research influenced the outcome they sought to achieve in their practices. Several traditional cultural and social constructs Clarke (2003) and Brinkmann (2015) studied were observed to be common to those observed in the DIET student-teachers’ teaching (Chapter 6). Some of these constructs, such as holism, were found to be amenable to change in accordance with the educational reform policy of moving to a constructivist pedagogy. In line with holism in which the student-teachers shared a common worldview of living life by following karma and dharma, the student-teachers developed a defined sense of duty based on their individual circumstances and age. This sense of duty extended to their role as a teacher and positively allowed student-teachers to be open to regulation.

The student-teachers slowly increased the use of teaching-learning materials, charts, demonstrations, and other activities to improve their teaching practice with the aim of engaging their pupils to learn.

A less positive cultural construct shared by many teacher-educators and student-teachers which impacted reflection and teaching, was a hierarchical view of the social structure. This view does not accept equality between teachers (Guru) and students (Shishya) (Clarke, 2003; Brinkmann, 2015). Evidence collected in this research suggests the presence of this construct initially influenced both student-teachers and teacher-educators. Student-teachers followed their teacher-educators and accepted their view, which they received through supervision reviews and marks during practice teaching during the SEPs. Gradually the student-teachers became exposed to new ways and methods at the DIETs, for example, they began appreciating multiple points of view in a classroom - a belief which is aligned with constructivism and accepts diversity. At the same time, the student-teachers also realised that the teacher-educators can differ in their methods and beliefs. Supervision reviews seemed to be guided by each teacher-educator’s individual and unique teaching
beliefs, resulting in emphasising reflection on specific aspects of teaching practice only. The student-teachers began to show more agency and started developing new ways and thoughts and changes in practice. They expressed their differences from what some teacher-educators advised in stimulated recall interviews and reflective journals, but rarely to the supervisors concerned. The supervision reviews often showed that teacher-educators lacked an overall theoretical and practical understanding about reflection and constructivism (Chapter 5) and believed in hierarchism (Chapter 6).

The current study has shown that reflection can play an important role in helping student-teachers to begin changing their practices. To ensure meaningful learning and reflection the implemented policy must help student-teachers to change the traditional teaching constructs that come in the way of change.

Another route to change, but at a more institutional level, is from identifying contradictions and issues which limit the fostering of reflection. For the contradictions to be changed into opportunities that drive change to foster reflection, the DIET community members are required collectively to reflect, discuss, debate and attempt to improve the situation through expansive thinking, through compromise and through critique which is directed at tasks and not at community members (Bonneau, 2013, Chapter 2). This need for greater personal and institutional reflection can be done at different levels and can take many forms - maybe scheduled, expanded morning assemblies, internal and inter-DIET meetings, collaborative events organised by the SCERT, trainings at the NCERT, and not the least, online synchronous and asynchronous forums.

8.4.5. Learning as a method of organisational analysis and change

DIETs, as any organisations, need to adopt methods to assess the health of their own systems and performance against annually laid-down goals. Each institute needs to have methods to identify contradictions, dilemmas or problems which prevent its articulated aim from being achieved. Each DIET needs to develop different methods of learning, ways to overcome or live with contradictions while achieving the object or outcome envisioned, in this case, the fostering of reflective practice. One way of doing this could be by debating and discussing how these can be tackled in the system. Adopting a conceptual framework to tackle what prevents reflection from taking place would create a space which empowers the teacher-educators and student-teachers to discuss different processes which inhibit reflection and allow for greater agency and changes.
8.4.6. Implications of this study for teacher education policy in India and similar contexts

This study showed that reflection is a significant feature of practice. The varied reflections about problems in classroom practice resulted in small innovations and changes in building student-teacher confidence and motivated them to continue to reflect to improve practice. By giving voice to student-teachers’ experiences of reflection the research reshaped the student-teachers’ meaning of learning and practice and made the concept of reflective practice more focused and achievable for practitioners. It is important for policy to include this viewpoint and value of reflection and it calls for a rethink about how reflective practice is developed in the D.El.Ed. programme.

The study also showed that reflection is tangible, visible and largely intuitive. The student-teachers did not need to understand the theory of reflection in order to begin applying it in their practice. This research confirmed an improvement in teaching practice of the student-teacher participants as a result of following the process-based teaching cycle recommended by policy.

However, to build reflective capacity more explicitly, with greater understanding, the study revealed that guidance from reflective teacher-educators was required. To be able to do this, teacher-educators need to be knowledgeable and experienced about reflection and reflective practice themselves. This is acknowledged by policy when the NCTE (2009) states that ‘the quality of pedagogical inputs in teacher education programmes and the manner in which they are transacted to realize their intended objectives depend largely on the professional competence of teacher-educators. This study showed that though the DIET teacher-educators were handed the baton, by policy, to develop reflection, they did not understand reflection and its practice in the programme beyond what is stipulated in the D.El.Ed. syllabus. Teacher-educators had little time to develop themselves and keep updated by engaging in ongoing education and self-development throughout their careers. This effort needs to be strengthened and become an essential part of the teacher education programme.

One way to do this would be through ongoing practice-based learning through ‘authentic tasks, collaboration, contextualisation, and reflective practice’ (Hutchinson and Wolfenden, 2006:2). Policy needs to lay down guidelines for classroom improvement as well as commit to high calibre teacher-educator support (ibid.). SCERTs and DIETs need to develop and deliver coherent policies for the professional learning of their faculty.
Another contribution of the study was that reflective practice was made more visible by supporting student-teachers to reflect more efficiently, constructively and even critically through the use of the RPTv2 reflective rubric-based tool, the AT heuristic, and Vygotsky’s principles. This knowledge can be included in policy guiding practitioners towards self-analysis, monitoring and regulation.

Though the study showed that reflection started intuitively, it developed gradually, systematically, in stages, in the student-teachers over two years. In addition, the perception of reflection kept changing. The research showed up several examples of how the language and context of the participants shaped the concept of reflection. This is an important finding to be considered when introducing the policy, and more specifically, reflective practice.

The perception of reflection was also found to be translated, perceived, and enacted in different hierarchical layers of the community. This learning pointed to the development of another essential community space for improving practice through policy. A space where ideas, experiences and critiques are shared publicly was found to be essential for the perception of reflection to mature and gain following in the community of practice. In this same space a deeper familiarity and understanding of reflective practice could be developed by sharing theoretical and higher education literature, conduct and share research, learning and experiences through paper writing, publishing and participating in peer reviews.

This research showed that though little is known about the history of reflection and related practices from India, the words used to translate and carry perceptions of reflection have a long and rich history in different languages, religions and philosophies which inhabit India. To gain a greater following and traction for reflective practice is important. To achieve this it would be beneficial to build into policy a search for a greater understanding of the history of reflection in India.

8.5. STRENGTHS AND LIMITATIONS
This is a small, qualitative, PhD study led by a single researcher. It is necessarily constrained by the available time and resources connected with doctoral research, and by the challenges of conducting fieldwork in India. Nevertheless, the use of qualitative methodology and triangulation of multiple sources of data has allowed for a rich picture of participants’ attitudes, beliefs and practices, especially those of the four featured student-teachers (Chapter 3). Prolonged engagement was ensured by a longitudinal study carried
out during the two-year D.El.Ed. programme, allowing practice and attitude changes to be identified. Two theoretical frameworks were applied to view and analyse the large corpus of participant-related data, increasing the robustness of the study.

The study was intended not to be generalisable but, instead to feature transferability (Lincoln and Guba, 1985:290), allowing other researchers reasonably to reflect on the relevance of my study’s findings to their own contexts. Accordingly, by adopting a case study approach, I have been able to include rich contextual detail to allow for a detailed understanding of the complex situations so that strengths can be built upon and challenges better understood, allowing more fitting solutions to be developed. The detailed account of my methodology and methods in Chapter 3 should contribute to the work of other researchers who may wish to apply these methods in their own situations, ensuring transferability.

In the study, there were various limitations. While I overcame many of these through the careful design of the study, some limitations remain. For example, the study was limited in the number and levels of the key student-teachers studied. Reflections of four student-teachers was possible with great difficulty and long hours of work during their SEP1 and SEP2 modules.

Access to practice settings and to additional, potentially relevant data, also posed a challenge, as outlined at various points in the thesis. I was allowed to observe practice classes only with the DIET teacher-educators, as part of the DIET team. I was not permitted, by the state school authorities, to observe the practice classes supervised by the practice schoolteachers, though I tried hard to gain this access. Consequently, this research lacks a more comprehensive comparison of supervision between the DIET teacher-educators and school supervisors to build a complete view of the student-teachers’ practice experiences. This limited the findings of this research to the DIETs.

8.6. POSSIBILITIES FOR FUTURE RESEARCH
This study is a preliminary, foundational study about reflection in India which has given rise to many ideas for future research. These possibilities are presented as questions. What is the impact of different kinds of reflection on children’s engagement and learning? How was reflection perceived and practised traditionally in India? How can indigenous forms of reflection be applied in teacher education? What role does reflection play in the creation of particular Indian crafts? How does reflection in student-teachers at DIETs change when they become practicing teachers? How is process-based reflection practised in different
professions? How does reflection change over time in a teacher? How is reflection fostered across DIETs in different contexts/states in India? How do male and female teachers develop their personalised understanding of reflection?

8.7. THESIS CONCLUSION

The recently released New Education Policy (Kasturirangan, 2020), highlights the huge problem of children dropping out of school in India. It introduces the problem in the Preamble and then devotes Chapter 3 to it, raising the question ‘What can be done to reverse this crisis, and urgently?’ (2019:61, the original text is bold). It recommends that ‘Teachers, parents, students, community members, and the public must and will be made aware of this urgent national mission to end the learning crisis’ (2019:64). It diagnoses many causes for children dropping out and states that one of the reasons they do so is ‘because they do not find school interesting or useful’ (NEP, 2019:66). This is in agreement with the premise that started this research (see Section 1.1):

... traditionally deep-seated socio-cultural issues ... negatively impact teaching and learning in Indian schools. ... These problems manifest in classrooms as lack of comprehension, disinterest, boredom, and inability to cope with both schoolwork and homework.

The NEP acknowledges that ‘teacher capacity ... plays a central role in the attainment of foundational skills’ (Kasturirangan, 2020:56), requiring teachers who ‘have had the opportunity to be trained in a multilevel, play-based, student-centred style of learning’ (2019:56).

Of course, this 2019 policy was released, and this study was carried out, before the COVID-19 pandemic. The pandemic has further exacerbated and deepened the crises in learning leading to school closures, bringing schooling to a stop for more than 168 million children globally. There were already 6 million girls and boys out of school in India before the pandemic. With 1.5 million schools closed due to the pandemic lockdown in 2020, in India, another 247 million children who were enrolled in elementary and secondary schools joined the out-of-school children, leading to an even more acute and greater learning crisis than before the pandemic (UNICEF, 2021). As and when children return to school, UNICEF (2021) emphasises that teachers need to be able ‘to support children to readjust and catch up on their learning’. Teachers are facing greater challenges and are looking again at ways to design effective lessons, quickly responding to fast-changing, difficult to predict circumstances, in the changed situation. The current study gains even more relevance in this context, as reflection can support innovation and help individuals adapt to unanticipated change.
The student-teachers in this research show that reflection is an essential part of deliberate human action. Their practice gradually changed to increasingly engage their pupils and enthusiastically tackle issues of foundational literacy and numeracy in imaginative ways. Sabia, early in her training, in trying to help her pupils to read with meaning, created a library in a classroom corner. She simply involved her pupils and people around her to contribute books to it. Zohra improved the English of her weaker students by playing word games with them. She encouraged them to form simple sentences, to speak with gestures, to help each other and to play in teams, increasing learning together. Another student-teacher, Asha expanded on developing hand-eye-mind coordination. She playfully demonstrated and facilitated an engaging mask-making class. Asha divided the class into groups, through which they developed their ability to make independent decisions, work together, and develop their creativity and communication. Habiba innovatively brought to life science principles of sound through TLMs made from straws. The pupils made humorous sounds and learned with fun. They learned by doing. They placed mirrors on their desktops and created reflected and incident rays of light. Zohra’s pupils learned to create angles playfully with arms and body. These are just a few everyday chanced-upon, examples of teaching with engagement, activity and meaning. Through these, student-teachers established their ability to reflect and apply learning about teaching in practical, playful and innovative ways. They also showed capability to reflect at a critical-transformational level on their own. Asha persuaded a child to attend school more regularly. Sabia involved her pupils to adjust and aid Raju, a child with special needs, in his learning and coping with bullying at school. Zohra was able to free the potential of an aggressive, recalcitrant girl to shoulder responsibility and to transform into an eager learner.

Developing reflective practice is an excellent, fitting strategic response to the problem. However, this research shows that reflective practice needs to be systemically strengthened. This, in turn, requires the development of more knowledgeable teacher-educators to support creating a more enabling environment at the DIETS and schools and to strengthen the ability of student-teachers to reflect more frequently, consistently and consciously, encouraging them to develop their reflections to more critical-transformative levels.

The activity theoretical framework offers a powerful way to identify and (see Chapter 5) work with contradictions in the system (see Chapter 5). It requires the community to apply expansive learning collaboratively and actively. This could develop systemic learning to teach with reflection so that the children in the country’s pre-primary and primary
classrooms experience inclusive, reflective teaching which keeps them engaged, participative, learning meaningfully and independently. It also develops their abilities and confidence to construct their own knowledge. The student-teachers have already shown themselves to be ready for this challenge by demonstrating that reflection is an essential part of their deliberate teaching actions, and the principals and teacher-educators have shown they are keen to learn how to better support them. With improved systemic support, reflection has the potential to change the learning and life of, literally, millions of children.
REFERENCES


Bean, M., Banks, F., & Hutchinson, S. (2010). Open learning for open societies: The role British institutions can play in the Indian human resources revolution. FICCI publication. The Open University.


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### APPENDIX 1: REFLECTIVE PRACTICE TOOL V2 (RPTv2)

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Teaching Practice</th>
<th>Focus (What is the focus of concerns about practice?) on aims of practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR Routine Reflection</td>
<td>Self-disengaged from change</td>
<td><strong>RRFocus1</strong> Focus on aims of practice: Focuses on the immediate demands of the group or the task to survive and maintain a pleasant experience. Reflection is focused on applying best possible practice while maintaining the status quo to achieve success, so that the teacher gets personally recognised (including good marks). Teaching is teacher-directed keeping a control over the learners, time and workload. The teacher tends to ignore low achievers or differences in student learning.</td>
</tr>
<tr>
<td>TR Technical Reflection</td>
<td>Instrumental response to specific situations without changing perspective</td>
<td><strong>TRFocus1</strong> Focus on aims of practice: Reflection is focused on directing and controlling practice by actively meeting specific externally defined curricular outcomes of learning through specific, narrow teaching tasks. Especially concerned with low marks and tries improving them through whole class teaching or individually. The teacher usually seeks to solve the problems in class without questioning the nature of the problem itself, the learner’s context, or any other teaching issue.</td>
</tr>
<tr>
<td>DR Dialogic Reflection</td>
<td>Inquiry is part of the process, involving cycles of situated questions and action and consideration for others’ perspectives. Gains new insights</td>
<td><strong>DRFocus1</strong> Focus on aims of practice: Reflection is focused on the process of learning and learners and their context rather than concentrating only on learning outcomes. The teacher uses interactions and assessments to understand how and in what ways learners learn. Aims to develop concepts in learning among the diversity of students in the classroom. The teacher facilitates, supports, encourages students’ own capacity to construct knowledge, shows special concern for struggling students, special needs and takes actions for improvement centred on learning tasks achieved holistically. Designed to promote individual learning (Ward and Mc Cotter, 2004). The teacher’s orientation is to give importance to personal meaning in education.</td>
</tr>
<tr>
<td>CR Critical-Transformative Reflection</td>
<td>Fundamental questions and change</td>
<td><strong>CRFocus1</strong> Focus on aims of practice: To improve the quality of life of the socially and economically disadvantaged, critical reflection is focused to equip teachers to overcome their biases and develop a personal involvement which seeks to challenge existing moral, ethical, political and social and historical conditions and facilitate students to be responsible for their own learning. The teacher’s orientation is based on the beliefs that schools and schooling are based on political constructs that replicate the dominant culture, often continuing to produce injustice and inequities in society. The teacher’s orientation is to change the status quo to become more democratic, promote values of peace, equality, justice, liberty, fraternity, secularism and zeal for social...</td>
</tr>
<tr>
<td>Focus2: Knowledge perspective</td>
<td>RRFocus2 Knowledge perspective: The teacher at this level believes that knowledge is a 'given', external to the learner, something to be acquired. The teacher considers own perspective as correct.</td>
<td>TRFocus2 Knowledge perspective: The teacher believes knowledge is external, fixed, emanating from a single reality. The teacher tries to follow external standards set by experts. The teacher does not examine students' conceptions in different subjects.</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Example</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus3: Teaching-learning processes and strategies: (learning choices, linkage of content, contexts and learners)</td>
<td>RRFocus3 Teaching-learning processes and strategies: Teaching is primarily teacher-led information transmission with little time for self-study or opportunity to examine their own biases and beliefs and reflect on their own experiences as part of classroom discourse and enquiry (NCTE, 2009:22). The teacher controls and monitors practice and learning, without connecting with the pupils or responding to their needs in imaginative ways. There is a lack of engagement with the curriculum though the teacher keeps a disciplinary focus and does not consider either her own or the learner's</td>
<td>TRFocus3 Teaching-learning processes and strategies: The teacher works on classroom-related problems, with a focus on effective teaching for efficient delivery through strong technical skills. The teacher uses established, proven, teaching techniques, guidelines and skills drawn from a researched theory base for example, student engagement, active learning, prior knowledge, homework review, discovery and exploration, maintaining order in class and so forth. Pedagogy typically has a behaviourist approach. The teacher tends to give pupils useful feedback, knows when to reteach topics or correct pupil responses. The teacher rarely considers connections between</td>
</tr>
</tbody>
</table>

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assumptions about social realities, the learner's context, or process of learning. Instead, the teacher tends to tackle the immediate tasks and demands of the class. The teacher is likely to apply any methodology that seems to work in a situation with no thought given to theoretical appropriateness with other methodologies in use. Disciplinary knowledge is viewed as independent of professional training in pedagogy. Practice teaching is done through isolated lessons.

The teacher facilitates shared learning, self-discipline, self-study, critical thinking, collaboration, cooperation, observation, group work and consensus building.

Reflective methods used during internships for example, lesson planning, practice teaching, reflective assignments, reflective journals, group discussions play a key role in developing new insights by reorganising and reconstructing experience. Learners can gain new insights into self-as-teacher, practice situations and assumptions about teaching.
The teacher, while accepting an authorised, organisational structure and its rules, might be uncomfortable at times. This may lead the teacher to negotiate with authorities to make changes in academic content or rules.

| Example | RRInquiry: | TRInquiry: Questions come up when a teacher encounters either specific problems in the classroom, unexpected or exciting results or when there is frustration, or analysis that points to a complex issue. For example, 'How do I efficiently achieve my goals? What pleases or concerns me? How does this relate to the stated goals? Are they being met?' Once the problem is resolved, there is no deeper questioning of practice. The teacher's commitment is limited to improvement of practice, not gaining any new insights from reflection. Learning outcomes are linked with teaching behaviour. | DRInquiry: Reflections take place through situated, contextually located questions. For example, 'How can I make learning meaningful and relevant to my pupils? Why do my pupils behave the way they do? How can I make learning more meaningful through improved communication?' How do others see and explain what is happening? How do I improve what does not work? Questions are generated through open interaction with perspectives sought from students, peers and others. Qualitative observational research and applied action research techniques exemplify this perspective. Questions and research change the learning content generating contextually sensitive, alternative, responsive, teaching strategies. | CRInquiry: Tough questions which challenge personally held assumptions emerge throwing up questions for the larger social good. For example, 'How is status quo maintained in institutions? How can institutes be made more democratic? How can pupils gain values of social justice?' These might involve student learning, mentors, critical peers, texts and critical incidents. The teacher tends to question educational content, means and ends, focusing on political and social issues. The pedagogy involves continuous questioning, revision and internal validation. Research generally emphasises the moral and ethical aspects of education. |
| Change: (What is the process of change?) | RRChange: The teacher takes no responsibility to achieve change in practice, perspective, or new learning. The analysis is done for its own sake, keeping a distance from the problem situation. | TRChange: The teacher personally responds to problems in the classroom. The teacher works to improve learning in a specific area of student performance usually through whole-class teaching. The teacher is satisfied once changes are made to the triggering problem is settled. There is usually no change in perspective or generation of new insights. | DRChange: Synthesises situated inquiry to develop new insights about teaching or learners or about personal teaching strengths and weaknesses leading to improvement of practice. Finally, this reflection reveals new insights and change stemming from the process. | CRChange: Constantly challenges ways of thinking and acting to lead to ‘a transformative reframing of perspective leading to fundamental change in practice’, both systemically and individually. Continues to learn from critical incidents, student learning and changed situations to improve practice. |

**Example**

APPENDIX 2: PLANNED AND ACTUAL SCHEDULES FOLLOWED DURING SEP1 AND SEP2 AT THE DIETS

<table>
<thead>
<tr>
<th></th>
<th>JULY</th>
<th>AUGUST</th>
<th>SEPTEMBER</th>
<th>OCTOBER</th>
<th>NOVEMBER</th>
<th>DECEMBER</th>
<th>JANUARY</th>
<th>FEBRUARY</th>
<th>MARCH</th>
<th>APRIL</th>
<th>MAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANNED YEAR 1 and 2 SEP</td>
<td>Admissions</td>
<td>Regular classes</td>
<td>SEP Orientation</td>
<td>SEP planned for 40 days</td>
<td>Break</td>
<td>SEP Submission</td>
<td>Regular classes</td>
<td>Pre-final and final exams.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTUAL SCHEDULE DIET-CHOTAPUR (YEAR 1)</td>
<td>Admissions</td>
<td>SEP Orient.</td>
<td>SEP1, Year 1</td>
<td>Break and strike</td>
<td>SEP Submission</td>
<td>Regular classes</td>
<td>Pre-final and final exams.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTUAL SCHEDULE DIET-BADAPUR (YEAR 1)</td>
<td>Admissions</td>
<td>SEP Orient.</td>
<td>SEP1, Year 1</td>
<td>Break and strike</td>
<td>SEP Riots</td>
<td>SEP Regular classes</td>
<td>Pre-final and final exams.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FIELD WORK YEAR 1

<table>
<thead>
<tr>
<th></th>
<th>JULY</th>
<th>AUGUST</th>
<th>SEPTEMBER</th>
<th>OCTOBER</th>
<th>NOVEMBER</th>
<th>DECEMBER</th>
<th>JANUARY</th>
<th>FEBRUARY</th>
<th>MARCH</th>
<th>APRIL</th>
<th>MAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTUAL SCHEDULE DIET-CHOTAPUR (YEAR 2)</td>
<td>Admissions</td>
<td>SEP Orient.</td>
<td>Break</td>
<td>SEP2, Year 2</td>
<td>Break, Fog, and Cold wave</td>
<td>SEP Submission</td>
<td>Regular classes</td>
<td>Pre-final and final exams.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTUAL SCHEDULE DIET-BADAPUR (YEAR 2)</td>
<td>Admissions</td>
<td>SEP Orient. + Break</td>
<td>SEP2, Year 2</td>
<td>Break, Fog, and Cold wave</td>
<td>SEP Submission</td>
<td>Regular classes</td>
<td>Pre-final and final exams.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 3: FORMATS AND EXAMPLES OF DATA COLLECTION METHODS
Interviews, Lesson plans, Practice teaching observations, Supervision reviews, Reflective entries, Stimulated recall interviews and Focus group discussion

Reflective data was collected to form a ‘research portfolio’ for each student-teacher.

The research portfolio for each participant student-teacher consisted of two data sets:

**DATA SET 1** in Year 1
A. Introductory interview
B. Lesson plan 1
C. Observation of practice teaching
D. Supervisor review
E. Reflective journal entry

**DATA SET 2** in Year 2
A. NIL
B. Lesson plan 2
C. Observation of practice teaching
D. Supervisor review
E. Reflective journey entry
F. Focus group discussion with teacher-educators (end of year 2).
G. Stimulated recall interviews (end of year 2)
H. Experts’ interview

For more details, please refer to Section 3.5.

Additional data was generated through interviews with experts, principals and teacher-educators and two focus group discussions, one each with participant teacher-educators from each DIET.

**ADDITIONAL DATA GENERATED FROM INTERVIEWS AND FOCUS GROUP DISCUSSIONS**
A. Introductory interview with TEs and Principals
B. Interview with two experts
C. Focus group discussion with participant TEs from DIET Badapur
D. Focus group discussion with participant TEs from DIET Chotapur
### APPENDIX 3A: RESEARCH PLAN FOR DATA COLLECTION DURING PROBATION

Each aspect of this plan was further developed before the research event took place. Example of individual formats with examples follow in the appendices which follow.

<table>
<thead>
<tr>
<th>No.</th>
<th>RQs and Sub-RQs</th>
<th>Data collection and Data Analysis in year one during Internship 1 in Phase 1</th>
<th>Data Collection and Data Analysis in year two during Internship 2 in Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How is reflective practice understood by key stakeholders in the context of teacher education?</td>
<td>DOCUMENTATION NCFTE2009; NCFTE2005; NCTE, etc. grey literature; programme literature</td>
<td>INTERVIEWS EDUCATION &amp; CURRICULUM EXPERTS</td>
</tr>
</tbody>
</table>
|     | - Education and curriculum experts  
|     | - Teacher-educators  
|     | - Student-teachers | **INTERVIEWS**  
|     | **EDUCATION & CURRICULUM EXPERTS** | • TE INTERVIEW (END OF INTERNSHIP2) | • TE INTERVIEW (END OF INTERNSHIP2) |
|     | | - Vision of education and a professional teacher  
|     | | - Conceptions of reflective practice  
|     | | - The value of reflective practice in teacher education  
|     | | - The personal histories of reflective practice—where, when and how  
|     | | - Their views on how it can be developed in a teacher education programme  
|     | | - Their experience of the past year of developing reflective practice in the D.El.Ed. Year 1 and Year 2  
|     | | - Key findings about student-teacher reflections in Year 2, different from Year 1.  
|     | **ST1 INTERVIEW2 (END OF INTERNSHIP2 in Year 2)** | - Reasons for becoming a teacher  
|     | | - Vision for education  
|     | | - Conceptions of good teaching  
|     | | - Conceptions of reflective practice  
|     | | - Aim of reflective practice  
|     | | - Influence of reflective practice  
|     | | - Change in conception of reflective practice over the past two years  
<p>|     | <strong>FOCUS GROUP DISCUSSIONS</strong> | WITH TEs AND STs (END OF INTERNSHIP2) | WITH TEs AND STs (END OF INTERNSHIP2) |
|     | | About their conception of reflective practice and experience of internship and reflective practice in Year 1 &amp; 2 | |</p>
<table>
<thead>
<tr>
<th>How is reflective practice developed through the Internship modules over two years?</th>
<th>DOCUMENTATION</th>
<th>NCFTE2009; NCFTE2005; NCTE, etc. grey literature; programme literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What are the strategies used in the module to develop reflective abilities in student-teachers?</td>
<td>INTERVIEWS</td>
<td>EXPERTS</td>
</tr>
<tr>
<td>• What triggers reflection in student-teachers?</td>
<td>• Opinions on kinds of reflection essential in teacher education</td>
<td></td>
</tr>
<tr>
<td>• What are the different ways student-teachers reflect?</td>
<td>• How this can be developed in a teacher education programme</td>
<td></td>
</tr>
<tr>
<td>• What influences student-teachers’ reflective abilities?</td>
<td>OBSERVATIONS</td>
<td>Observations of teacher educator and student-teacher interactions in preparing lesson plans, after practice teaching, and over reflective journals in Ward &amp; McCotter’s framework (2004) to look at reflective practice. All differences will be noted.</td>
</tr>
<tr>
<td></td>
<td>REFLECTIVE JOURNALS YEAR 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REFLECTIVE JOURNALS YEAR 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REFLECTIVE ASSIGNMENTS YEAR 1&amp;2 (If possible)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RESEARCH DOCUMENTS (If possible)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERVIEWS</td>
<td>• TE INTERVIEW (END OF PHASE 2 Data collection)</td>
</tr>
<tr>
<td></td>
<td>• About student-teacher reflections</td>
<td>• What is needed to improve development of reflective practice in the programme and the DIET</td>
</tr>
<tr>
<td></td>
<td>• On strategies used in fostering reflective practice</td>
<td>• Importance of developing reflective practice in a teacher education programme</td>
</tr>
<tr>
<td></td>
<td>• Experiences and learning from student-teacher reflections</td>
<td>• Ways to foster reflective practice in a teacher education programme.</td>
</tr>
<tr>
<td></td>
<td>• Strengths and areas of improvement for developing reflective practice in the D.El.Ed. Year 1&amp;2</td>
<td>• On strategies used in fostering reflective practice</td>
</tr>
<tr>
<td></td>
<td>• About supervision of reflective practice</td>
<td>• On factors that influence on reflective practice</td>
</tr>
<tr>
<td></td>
<td>ST2 INTERVIEW (END OF INTERNSHIP)</td>
<td>• On effectiveness of strategies to foster reflective practice</td>
</tr>
<tr>
<td></td>
<td>• On situations that trigger reflection</td>
<td>• On experiences that trigger reflection as a result of reflective practice</td>
</tr>
<tr>
<td></td>
<td>• On experiences and learning as a result of reflective practice</td>
<td>• Strengths and areas of improvement for developing reflective practice in the D.El.Ed. Year 1&amp;2</td>
</tr>
<tr>
<td></td>
<td>• About supervision and evaluation of reflective practice</td>
<td>• About supervision and evaluation of reflective practice</td>
</tr>
<tr>
<td></td>
<td>On factors that influence on reflective practice</td>
<td>On factors that influence on reflective practice</td>
</tr>
<tr>
<td></td>
<td>FOCUS GROUP DISCUSSIONS WITH TEs AND STs (END OF INTERNSHIP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceptions of stages in reflective practice in the programme</td>
<td>• About their conception and application of reflective practice</td>
</tr>
<tr>
<td>4</td>
<td>How does the ability of student-teachers to reflect on their practice change during the internship modules over two years?</td>
<td>REFLECTIVE JOURNALS YEAR1</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
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<tr>
<td></td>
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<tr>
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<td></td>
</tr>
</tbody>
</table>
APPENDIX 3B: INTRODUCTORY INTERVIEW FORMAT (Beginning of Year 1)
The introductory interview was designed to gather information at the beginning of the study from each student-teacher and teacher-educators who had consented to participate in the research. I tried to understand the student-teachers’ backgrounds and some beliefs at the beginning of the study as these were likely to influence how they reflected. I was careful not to ask any questions about reflection or reflective practice as these might have influenced the participants’ behaviour and views during the study.

Related to the background about the ST or TE:
- Tell me a little about yourself.
- Where are you originally from?
- How long have you been in Delhi?
- What is your educational background?

Related to conceptions about education and schooling:
- What is the aim of education for you?
- What should primary education do for your pupils?

Reasons for becoming a teacher, conceptions about teaching:
- Why did you choose to become a teacher?
- Who was your favourite teacher and why?
- What are three important traits of a good teacher?
- What subjects you would like to specialize in for teaching?

Experience at the DIETs:
- What are three things like about the DIET?
- What do you find most rewarding about being a teacher?
- Have you encountered a problem during the School Experience Programme? What did you do?
- Have you ever made a mistake in teaching? What did you do?
**APPENDIX 3C: LESSON PLAN FORMATS**

Each DIET had different lesson planning formats. Samples from each DIET follow.

**DIET BADAPUR**

<table>
<thead>
<tr>
<th>Practical Objectives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing knowledge</td>
</tr>
</tbody>
</table>

**Established pre-existing knowledge**

<table>
<thead>
<tr>
<th></th>
<th>Student-teacher question</th>
<th>Pupil reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teaching and learning aids (TLMs):

**Aim of the class:**

**Presentation**

<table>
<thead>
<tr>
<th></th>
<th>Student-teacher interaction</th>
<th>Pupil reaction</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Introduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concept</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Definition</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion**

**Homework (Experience enhancing work)**

*In-text example available in section 5.3.1., Figure 19.*
APPENDIX 3D. LESSON PLAN TEMPLATE AT DIET CHOTAPUR

The formats at DIET Chotapur were developed as is discussed in the thesis (Section 5.3.2).

In-text example available in Section 5.3.2., Figure 20.

<table>
<thead>
<tr>
<th>Lesson plan Template 1 in SEP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definite and indefinite pronouns</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class:</th>
<th>Subject:</th>
<th>Topic:</th>
<th>Duration:</th>
</tr>
</thead>
</table>

Aim of the lesson: 
Teaching aids: 
Introduction: 
for example, 1: 
for example, 2: 

Student-teacher’s question: 
Pupils' answer: 
Student-teacher's question: 

<table>
<thead>
<tr>
<th>Engage</th>
<th>Explore</th>
<th>Explain</th>
<th>Elaborate</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extension (Homework) 

In-text example available in Section 5.3.2., Figure 20.
APPENDIX 3E: PRACTICE TEACHING CLASS OBSERVATION FIELD NOTES
from DIET Chotapur (with example)

The researcher’s field notes during Sabia’s class observation
There was repetition of activities. Like teaching a topic through a poem which she would read with
great vigour and expression the first time. The next time the pupils would repeat the poem after
Sabia, line by line, with actions. The third time Sabia would explain the poem – read it in English and
explain it in Hindi (if it was an English poem), again line by line. Sabia would then identify the
familiar words on the board, followed by the new words. The children would be asked to read the
words, sometimes one by one, or spell the words publicly after writing them in their books. A
variation to this routine was to draw things that were mentioned or related to the lesson or enacted
as a play. Always there was a TLM to help learning or establish previous knowledge or new
knowledge.

Any completion of work by a pupil was appreciated and the class was asked to applaud the effort.
The loudness of the applauses gradually tapered off as the class proceeded. The numbers of pupils
and gusto of recitation of the poem was high at the beginning of the class, gradually going down
with repeated recitations. Initially, the pupils followed Sabia with zest. Gradually, the pupils started
tiring out and noise levels started rising and Sabia had to resort to controlling the class by marking A,
B, C and D with marks on the board, or asking the pupils to respond louder

(Sabia, SEP1, 27.11.15, Researcher’s notes of class observation of practice teaching of lesson plan7).
APPENDIX 3F: SUPERVISION REVIEW FORMAT FROM DIET BADAPUR

These varied at each DIET. An example of each format with examples are shown here.

<table>
<thead>
<tr>
<th>Class observation review comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of student-teacher............. Name of teacher-educator.......................... on date.......................</td>
</tr>
</tbody>
</table>

In-text example available in section

APPENDIX 3G: SUPERVISION REVIEW FORMAT FROM DIET CHOTAPUR

```
District Institute of Education and Training
Address (Removed to make it anonymous)

Evaluation Performa for Teaching practice
(School Experience Programme: From date............To date............)

Name of school: Senior Secondary School, ......., .....(Address anonymised)
Name of Trainee: Year:
Class: Subject:
Topic: Date:

Instructions: The following evaluation performa is in two parts Viz. Preparation of Lesson Plan and presentation of Lesson Plan in the classroom. Kindly encircle the rating indicated in front of each statement.

<table>
<thead>
<tr>
<th></th>
<th>Rating (From 1-5, 5 is good)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of Lesson Plan</td>
<td></td>
</tr>
<tr>
<td>1 Framing of learning objectives using action verbs</td>
<td></td>
</tr>
<tr>
<td>2 Degree of Constructivist based Learner Centred Lesson Plan</td>
<td></td>
</tr>
<tr>
<td>(From Engage to Evaluation)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation of Lesson Plan</td>
<td></td>
</tr>
<tr>
<td>3 Linking Previous Knowledge to introductory appropriately</td>
<td></td>
</tr>
<tr>
<td>4 Organizing relevant activity in ‘Engaging’ the student</td>
<td></td>
</tr>
<tr>
<td>5 Helping students in constructing / ‘Exploring’ knowledge</td>
<td></td>
</tr>
<tr>
<td>6 ‘Exploring’ the concept appropriately using a Demonstration Approach/Strategy/ TLM/ Video Clipping</td>
<td></td>
</tr>
<tr>
<td>7 Proficiency in handling TLM/ICT</td>
<td></td>
</tr>
<tr>
<td>8 Ability to ‘Elaborate’ and solidify students understanding of the concept</td>
<td></td>
</tr>
<tr>
<td>9 Using different techniques of evaluation to assess student understanding</td>
<td></td>
</tr>
<tr>
<td>10 Providing relevant HW/CW/Follow up activity applying knowledge of the concept to the real-life situation</td>
<td></td>
</tr>
</tbody>
</table>

Suggestions/ Observation/ Remarks

Marks: ........../50
Signed ...........................(Teacher-educator, date............)
```

In-text example available in section 5.5., Figure 22
APPENDIX 3H: FACE-TO-FACE SUPERVISION FIELD NOTES AT DIET CHOTAPUR (with example)

Dr. Pandey’s face to face review with Asha at the beginning of SEP1 on 15.11.15

‘Asha asked her supervisor, Dr. Pandey, at the beginning of SEP1, on 15.11.15, about how to teach ‘Do’ and ‘Does’ in an English language class with Class 4 students. Asha found that the schoolteacher taught the children differently with individual sentences, and without an explanation of the meaning. This seemed to be different from the DIET’s recommended practice. For example, Asha asked a pupil, ‘Do you play?’ and the pupil replied, ‘You are playing.’ The schoolteacher had not taught the pupil the interrogative form of the sentence. The pupil was unable to answer correctly. On the black board Asha had written:

15/11/2015
In Hindi: Kya/Kaun + subject + verb + object
1. “Kya vah kheiti hai”
2. “Kya vah sota hai?”
   Does he sleep?
3. “Kya vah hansti hai?”
   Does she laugh?
4. “Kya tum rote ho?”
   Do you weep?
5. “Kya vah hansti hai?”

Asha’s Blackboard work

Dr. Pandey indicated to Asha and me (the observer of the interchange) how to tackle ‘do and does’. ‘These are interrogative sentences. The teaching of language says, that we should teach grammar in context. But they (STs) have been not oriented at all this year. Due to some administrative reasons, they have taken admission in the month of October instead of July. This year, the admissions were delayed...And immediately they have been asked to come to school experience programme. They do not know how to deliver a language plan. Grammar-in-action and there are many other concepts that we orient them before sending them to school, could not be done. So, she (the school class teacher) is teaching ‘do and does’ in the old manner. And the new concept is to always teach grammar in context while teaching the lesson. While teaching a story, while teaching an essay, maybe any other genre. They should also deal with the grammar part. But, (turning towards the board and writing on the board) this is the old style the way we have been taught (indicating herself). And it is not their mistake..... Maybe we can discuss with our Principal and ask them to come to the institute for a day or maybe two days, we should orient them, but I am not sure that our orientation will make a miracle. Because one or two days cannot bring any kind of change.

(Reported in field notes by the researcher)
APPENDIX 3I: REFLECTIVE JOURNAL ENTRY FORMATS AT DIET BADAPUR (YEAR 1)
These varied at each DIET and changed at both DIETs over Year 1 and 2. A sample of each format is shown here.

<table>
<thead>
<tr>
<th>Date</th>
<th>TEACHING POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REFLECTION</td>
</tr>
</tbody>
</table>

In-text example available in section 5.6., Figure 23.

APPENDIX 3J. REFLECTIVE JOURNAL ENTRY FORMATS AT DIET BADAPUR (YEAR 2)

<table>
<thead>
<tr>
<th>Date</th>
<th>Aims</th>
<th>Reflection point</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>What happened</td>
</tr>
</tbody>
</table>

Learning of today

Teaching strategies

<table>
<thead>
<tr>
<th>Expectation</th>
<th>What happened</th>
<th>Learning of today</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Supervisor

Peer Group

<table>
<thead>
<tr>
<th>Expectation</th>
<th>What happened</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School teacher and staff

<table>
<thead>
<tr>
<th>Expectation</th>
<th>What happened</th>
<th>Learning of today</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Issue related to SEP Process

Co-curriculum activity

<table>
<thead>
<tr>
<th>What happened today</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

In-text example available in section 5.6., Figure 24.
APPENDIX 3K: REFLECTIVE ENTRY FORMAT AT DIET CHOTAPUR (YEAR 1)

**REFLECTION:**

After this I went to class 4b where I taught environment studies ‘Pani kahin jyada, kahin kam’ (Water, somewhere there is an excess of it and somewhere there is lack of it) then after 12:30 the children started going home. Studies do not take place after lunch, but verbally studies continue till 2:10 pm.

APPENDIX 3L: REFLECTIVE ENTRY FORMAT AT DIET CHOTAPUR (YEAR 2)

<table>
<thead>
<tr>
<th>REFLECTIVE ENTRY ON DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros and cons</td>
</tr>
<tr>
<td>Strengths and weaknesses</td>
</tr>
<tr>
<td>Academic strength and weaknesses</td>
</tr>
<tr>
<td>Individual responses</td>
</tr>
<tr>
<td>Discuss thinking and ideas</td>
</tr>
<tr>
<td>Thinking strategies and sample student answers</td>
</tr>
<tr>
<td>Evaluation of lesson plan</td>
</tr>
<tr>
<td>Fulfilled and unfulfilled expectations</td>
</tr>
<tr>
<td>Modification of lesson plan</td>
</tr>
</tbody>
</table>

*In-text example available in section 5.6., Figure 25*
APPENDIX 3M: STIMULATED RECALL INTERVIEW FORMAT (END OF YEAR 2)

An extract, in the form of a video clip or audio clip from a class observation, is used as a base to interview the participant with the aim of understanding the reasons behind a participants' actions in class. This would lead to identifying the participants’ reflection-for-action/ reflection-on-action/ reflection-in-action and routine, technical, dialogical and critical levels of reflection.

An outline for a semi-structured interview with areas to be probed, questions and prompts follows.

1. **Briefly describe the situation being viewed or heard on a video clip, audio clip or text** (*identification of reflective event*).
   - What are you teaching/doing here?

2. **Knowledge about the teaching situation**: What were you trying to achieve here? Why?
   - Other prompts:
     - What's the background of this?
     - What change did you make?
     - What are the internal and external factors or knowledge that influenced your actions in this situation?

3. **Whether the aim was achieved** (*Student-teachers’ response to the situation*):
   - Did the pupils learn what you tried to teach them?
   - Other prompts: What were you trying to achieve here?

4. **Facilitating the student-teacher to probe own practice further** (*Discussion on the reasons for the student-teacher’s response and feelings*):
   - What are the issues you kept in mind when you are planning?
   - Do you often teach this way? Why?
   - What does this experience demonstrate about your teaching practice?
   - What did the pupils learn from this?
   - Have you used the same strategy to teach another subject?

5. **Understanding the student-teachers’ self-evaluation**:
   - How did you think the class was conducted? Why?
   - How do you think your pupil(s) feel when you teach them like this?

6. **Probing ways of dealing with problems during teaching**:
   - When you have a problem during teaching what do you do?
   - Further prompts:
     - What did you do to tackle the problem?
     - Have you made changes in the way you teach? Why?
     - What alternatives and choices did you have?

7. **Critical and transformative intent**:
   - Describe a situation when you introduced an innovative way of teaching in your class or school.
   - Did this help you change your pupils? How?
   - How did you introduce a change in your class?
   - In the school?
   - At the DIET?
   - In society?

8. **About the changes from year one to year two in you as a teacher**:
   - (Facilitating the student-teacher to be reflexive about her practice).
   - At the end of the two years of SEP, have you noticed changes in your teaching?
   - Give two examples of these.
   - Prompts:
     - Where have you seen the biggest change in yourself?
     - What are your strengths as a teacher?
     - Did the SEP change you in any way?
     - What or who influenced the changes?
     - What are the areas you think you want to improve? Why?
APPENDIX 3N: FOCUS GROUP DISCUSSION FORMAT WITH TEACHER-EDUCATORS

Discussion on the D.El.Ed. curriculum:
- A new curriculum has been introduced in the DIET. Have you been trained in it?
- What is the difference between the new curriculum and the old curriculum?
- Are there any changes in the assignments to the student-teachers?
- Did you have a reflective diary as an assignment in the earlier curriculum?

Discussion on the different teacher education colleges the teacher-educators attended:
- For example, Master of Education (M.Ed.), Bachelor of Education (B.Ed.), Bachelor of Elementary Education (B.El.Ed) and Diploma in Elementary Education (D.El.Ed.).

Discussion on the DIETs:
- How are student-teachers admitted to the DIET?
- How do you start the SEP module?
- What happens during the SEP orientation?

Discussion on student-teacher supervision:
- Have you been trained for supervision?
- What do you do during supervision?

Discussion on reflection, reflective practice and reflective journals:
- What is reflection?
- What do you understand by reflective practice?
- What is a reflective journal?
- How do you teach student-teachers to write in their reflective journal?
APPENDIX 3O: INTERVIEW FORMAT WITH EXPERTS

The following areas were planned to be discussed with each expert. Prompts as planned are indicated in the bulleted list. Not all the prompts were discussed with each expert.

About the conception of the DIETs
• What is your opinion about the idea of having DIETs?
• What are the drawbacks?
• How are teacher-educators recruited for DIETs?

Discussion about aims of schooling
• What is the ultimate aim of primary education for you?

Discussion about reflective practice (The main pillar of teacher education)
• When you developed NCFTE 2009 and declared reflective practice as the central pillar of teacher education, how did you envision it happening at the institutes?
• What are your recommendations for implementing the policy?
• How did you envisage the teacher-educators to be sensitized to reflective practice?
• Is reflective practice influenced by culture and the environment?
• What is reflective practice specifically for India?
• How important do you think reflective practice is for a teacher?

Discussion about reflection:
• What is the aim or the change you envisioned, as a result, of reflection?
• Is reflection limited to an assignment like a reflective entry journal?
• How does reflection develop?
• How does reflection become visible in a student-teacher’s practice?
• What is the word for reflection in your mother tongue?
• Can you elaborate the meaning of reflection through this word?
• What is reflective practice in your mother tongue?
• What is the aim of critical reflection?
APPENDIX 4: PROCESS OF ANALYSIS

Once transcription and translated of the collected and generated data was done, the data was thematically categorised. Reflective chunks were collected from each participant’s research portfolio. These were mapped to the RPTv2 tool, the activity theory diagram and categorised according to principles of Vygotsky’s SCT and then analysed. The mapping is shown in the appendices which follow.

APPENDIX 4A: TRANSCRIPTION AND TRANSLATION FORMAT

<table>
<thead>
<tr>
<th></th>
<th>Final Stimulated interview</th>
<th>(Translation of recorded audio)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Transcription of recorded audio)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transcription of the audio as it happened (Bilingual in English and Hindi, transliterated with English, synonyms have been used)</td>
<td>Text translated into English</td>
</tr>
<tr>
<td>Researcher</td>
<td>Good morning Sabia.</td>
<td>Good morning, Sabia.</td>
</tr>
<tr>
<td>Asha</td>
<td>Good morning madam</td>
<td>Good morning, madam</td>
</tr>
<tr>
<td>Researcher</td>
<td>This is going to be the final time we meet I think aann I am feeling sad but it is nice being with you hmm</td>
<td>This is going to be the final time we meet, I think, aann. I am feeling sad but it is nice being with you, hmm.</td>
</tr>
<tr>
<td>Asha</td>
<td>Yes madam</td>
<td>Yes, Madam.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Aur mere mein isme kya karungi mein isme aapko teen classes dikhaungi</td>
<td>And, mine, what I will do is show you three classes</td>
</tr>
<tr>
<td>Asha</td>
<td>Yes madam</td>
<td>Yes, madam.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Aur mein question poochoongi uske bare mein</td>
<td>And I will ask you questions about it.</td>
</tr>
<tr>
<td>Asha</td>
<td>Ok madam</td>
<td>Ok, madam.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Aap ko jobhi yaad aata hai ya jobhi soch rahin voh batadein</td>
<td>Whatever you remember or whatever you are thinking, please tell me that.</td>
</tr>
<tr>
<td>Asha</td>
<td>Yes madam</td>
<td>Yes, Madam.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Dhik hai?</td>
<td>OK?</td>
</tr>
<tr>
<td></td>
<td>Toh yeh mein pehla class observe kiya tha meine aapka voh ye tha jahan aapne pehle aapne pronouns and adjectives ke bare mein I think pronouns ke baare mein bataya tha and then aapne ek chota sa test liya tha and phir mask making ki thi</td>
<td>So, here I observed your first class. It was this when you first taught about pronouns or adjectives. I think you had told them about pronouns, and then you had taken a small test, and then you did mask making.</td>
</tr>
</tbody>
</table>
APPENDIX 5: REFLECTIONS MAPPED TO RPTV2
Appendix 5a: Example of Sabia’s Routine Reflections focussed on aims

Sabia’s Routine Reflection, Focus on Aims

The situation

In a stimulated recall interview towards the end of SEP2 in January 2016, Sabia reflected about her learning to ‘manage’ in the initial days by maintaining the status quo and remaining disengaged from change. She learned to meet the immediate demands in the school. To illustrate this, she talked about two different situations she experienced. According to her schedule, Sabia had planned to conduct three practice classes. On reaching the practice school, she found she was assigned an additional three classes in place of absentee schoolteachers. On another occasion, she missed scheduled classes to undertake examination invigilation. She learned to manage these situations by learning to maintain the status quo and surviving as pleasantly as possible and ignoring learner needs in missed classes.

Sabia’s reflections:

‘From school, it was like this: Ma’am, I learned how to do management, with ourselves and everyone else. [...] Like we have been given 6 periods in one day, (Ma’am told us) ‘These are your classes. Three are your classes and three in arrangements’ (replacement teaching for classes when the schoolteacher is absent). Then, we have to do it. We cannot refuse. Don’t refuse [...] How to talk to the teacher, how to handle anyone, how to take a class. If you are missing a class, then leave it. If you have a duty in examinations, then go for the examination’.

(Sabia, Interview 2015-17, 31.1.2017)
Appendix 5b: Sabia’s Routine Reflections focussed on knowledge perspective

**Sabia’s Routine Reflection, Focus on Knowledge perspective**

**The situation**

*In an interview with the researcher, Sabia is proud of her mastery of the content, external to her pupils, delivered by her.*

**Sabia’s reflection:**

Researcher: So, what are your strengths as a teacher?

Sabia: Ma’am, according to me I believe, a teacher should be confident. She should have a command over her content, and I feel I have that in me. [...] Yes, I am confident, I am able. When I teach children my content, my topic, my subject – I can teach other than my content, then I can easily deliver in front of them. [...] We have content command from the beginning. [...] And when the lesson plan is made, then everything is covered, so we are not scared that if the children ask about this, then how we will give the answer.

(Sabia, Interview 2015-17, 31.1.2017)

This reflection matched the following rubric description in the tool:

**RRFocus2 Knowledge perspective**: The teacher at this level believes that knowledge is a ‘given’, external to the learner, something to be acquired. The teacher considers own perspective as correct.
Appendix 5c: Example of Sabia’s Technical Reflections focussed on aims

Sabia’s Technical Reflection, Focus on Aims

The situation

A portion of Sabia’s lesson plan in SEP1.

Sabia’s reflection:

Purpose of the lesson: Through the medium of this poem, ‘Sun, please come early’, the student learnt about the relationship of the person (unclear) and the sun.

Learning objectives: The students, through this poem will learn:

1. New words in the poem.

2. Through the poem the children will be able to understand the poem’s main subject and the message of the poem, in brief.

3. According to the poem, the children will be able to get happiness in a time of sadness.

(Lesson plan1 SEP1, 2.11.2015)

The matching rubric description in RPTv2:

TRFocus1Focus on Aims: Reflection is focused on directing and controlling practice by actively meeting specific externally defined curricular outcomes of learning through specific, narrow teaching tasks. Especially concerned with low marks and tries improving them through whole class teaching or individually. The teacher usually seeks to solve the problems in class without questioning the nature of the problem itself, the learner’s context, or any other teaching issue.
Appendix 5d: Example of Sabia’s Technical Reflections focussed on knowledge perspective

**Sabia’s Technical Reflection on Knowledge perspective**

**The situation**  
*Sabia is guided by her learning objectives from the Syllabus and practises whole class teaching from the textbook which contains example of words.*

**Sabia’s reflection:**

> Today I taught the children diacriticals in Hindi and got them to do the example words also, and after this I took a test. And most children obtained good marks.

*(Sabia, Reflective Journal1 SEP1, 15.12.2015)*

**The matching rubric description in RPTv2:**

**TRFocus2 Knowledge perspective**: The teacher believes knowledge is external, fixed, emanating from a single reality. The teacher tries to follow external standards set by experts. The teacher does not examine students’ conceptions in different subjects.
Appendix 5e: Example of Sabia’s Technical Reflections on inquiry

Sabia’s Technical Reflection on Inquiry

The situation

This is Sabia’s reflection on her teaching practice. In brackets are questions which approximate the questions she probably asks herself to meet her aims.

Sabia’s reflection:

When I gave the pupils cut-outs to give the answers to the questions then by their own thought, they resolved the fractions in the form of cut outs and did this with interest.

(The action above answers the question: ‘How can I efficiently achieve my goals?)

Together the pupils took interest in the activity where they coloured the figures. And they did that with due thought and understanding. E.g. 2/8

(‘Who is this working for? Does this relate [...] to my stated goals, and [...] are they being met?’)

The children asked me to tell them the puppet story everyday and bring the puppet everyday. The pupils were interested in learning with puppets and they asked me to teach them through activities and play.

(Once the problem is resolved, there is no deeper questioning of practice. The teacher’s commitment is limited to improvement of practice, not gaining any new insights from reflection.)

(Sabia, Reflective Journal2 SEP2, 3.11.2016)

The matching rubric description in RPTv2:

**TR Inquiry:** Questions come up when a teacher encounters either specific problems in the classroom, unexpected or exciting results or when there is frustration, or analysis that points to a complex issue. For example, ‘How do I efficiently achieve my goals? What pleases or concerns me? How does this relate to the stated goals? Are they being met?’ Once the problem is resolved, there is no deeper questioning of practice. The teacher’s commitment is limited to improvement of practice, not gaining any new insights from reflection. Learning outcomes are linked with teaching behaviour.
Appendix 5f: Example of Sabia’s Dialogical Reflections focused on aims

Sabia’s Dialogical Reflections: Focus on Aims

The situation

_Sabia evaluates her own circumstance when she enters practice teaching in year 1._

_In the next reflection, a year later, she reflects about a more learner-centred approach to teaching and how she aims to do this._

Sabia's reflection:

_Evaluation of own circumstance: After the test I got to know that there were only two or three children that do not have much trouble with their studies but in the class about 80% of children would need a lot of hard work. And with this, there were some children who would need to be taught from the beginning. After the test I started telling the children a story and I tried to understand the meaning of the story from the children, and I mixed with the children quite quickly._

(Sabia, Reflective Journal1 SEP1, 4.11.2015)

_Ma'am, because if you see the lecture method, it is useful at the later senior level. [...] But children [...] are such that their span of attention is very small, they cannot give more than 5 minutes [...] so there what is the use of our lecture method where our 25 children sleep in class? So, there we must use a method that is good for everyone. We do not have to teach only those children who are listening in class._

(Sabia, Interview 2015-17, 31.1.2017)

Like they said, it should be a constructivist approach. So, in our teaching we try to use it. OK, we know the content, we have done the reading once, we will tell the children and they will understand. Not like this. We will now have (to prepare) the whole lesson plan (so) that (for) all 30 minutes our children are engaged, during this time, the children remain active. We should have good activities. The children should be answerable themselves. The children should understand things. They should not be bored in class. All these things we must see. So, our complete lesson plan gets changed.

(Sabia, Interview 2015-17, 31.1.2017)

The matching rubric description in RPTv2:

**DRFocus1 Focus on Aims:** Reflection is focused on the process of learning and learners and their context rather than concentrating only on learning outcomes.

The teacher uses interactions and assessments to understand how and in what ways learners learn. Aims to develop concepts in learning among the diversity of students in the class.
Appendix 5f: Example of Sabia’s Critical-Transformative Reflections on knowledge perspective

Sabia’s Critical-Transformative Reflections on Knowledge perspective

The situation

During an interview, Sabia talks to the researcher about how her questions have changed the way she looks at her own practice.

Sabia’s reflection:

Ma’am, like the questions you are asking, ‘what you did, why did you do it, how were you helped, what are the changes you have seen in yourself’. Like when one sits, in free time, we see how we should do the project, how we should make the file, what are the classes left what we have to learn ahead, our attention stays on these things. We rarely think what the changes we have seen in ourselves are. Now like you are asking so here I have time to think about myself and that has been good.

(Sabia Interview 2015-17, 31.1.2017)

The matching rubric description in RPTv2:

**CRFocus3Knowledge perspective:** Knowledge is generated from multiple sources and diverse perspectives but aims at using these for transformation of practice and continually evolving and generating new insights.
Appendix 5g: Example of Sabia’s Critical-Transformative Reflections on teaching and learning

Sabia’s Critical-Transformative Reflections on Teaching-Learning processes and strategies:

The situation

In an interview, Sabia talks about being able to include a special needs child, referred to here as Raju, into her regular classes. She can include the class to help, too.

Sabia’s reflection:

Researcher: Did the difficult situations you found in teaching change you in any way? Did any change happen inside you, as a result?

Sabia: Yes, Ma’am. It was that I got special children now and I got them in first year, too. [...] We were taught that inclusive education is being discussed and you will get such children and you will deal with them in this way [...] Basically, here it was that there is a child with an ear impairment, or who has problems with eyes, or has a handicap. [...] No one told us that mentally challenged ones will be there. [...] So here I experienced something completely new. [...] I was so scared at the beginning that when I am teaching, Ma’am said to maintain the discipline.

Raju came out and stood in the middle, so that would create a problem, it would affect my marks. [...] I told Ma’am, ‘Ma’am what I should do?’ The Head mistress said, ‘You make him sit with me when you have supervision’. So that was OK, I did this for one day when the supervisor came on the first day.

Then afterwards I went home, I thought about it all night that what is the fault of that child, if he is not well, so this is my situation, I must handle it. For my marks, for my own purpose, for my greed, why should I do this to him? If he wants to stay in class, then he will stay in class. I will give him some other work.

So, next day when the principal came for him [...] I said, ‘No Ma’am, I will handle him, you leave him in class’. So, I gave him drawing to do separately [...] I planned many activities for him, kept toffees also. I told him, ‘Do your drawing, fill it with colours). So, as he would fill it with colours, even if it went bad, I would put his drawings up on the board, on the bulletin board, so he would see it daily and feel happy. And when he would stand up, so I took out this solution that as he would stand up, [...] the whole second class and me would take his name and we will clap with his name. And we will say ‘Raju’ and he will sit down. So, we did these activities once, twice and he then got into a habit. As soon as we would start clapping, he would immediately sit down. He wouldn’t get up.

Then we would give him drawings and then he would see his drawing daily on the bulletin board, ‘Wow, my drawing is up’. He would show it to me daily saying, ‘Ma’am, I have made this’. He could not speak properly. He would say, ‘Ma’am, aa, aa’. He would bring a new drawing daily from home also, and we would put up his drawings everyday. I gave him different kinds of lines to make – slanting or standing [...] Then, the children who had completed their own work, I would have them sit near him and ask them to hold his hand and do the lines with him.’
(...continued) Sabia’s Critical-Transformative Reflections on Teaching-Learning processes and strategies

She developed on this insight, with the pupils taking on an increasing responsibility to look after Raju. They looked after him in and out of class, protected him from bullies and helped him to pack his bag and drop him to the crèche daily. A year later, on a visit to the school she was proud to see that this caring had continued.

(Sabia Interview 2015-17, 31.1.2017)

The matching rubric description in the tool:

**CRFocus3 Teaching and learning processes and strategies**: Develops new connections between the learner, context, content, and external agencies, by designing learning experiences which lead to new insights and understandings. The teacher, at this level, grapples with practical ways to create justice and equity in education.

The methodology is flexible, learner centric and involves continual questioning, revision, and internal validation. It stresses learner empowerment, personal responsibility, autonomy, contextual sensitivity, and responsiveness. The teacher facilitates shared learning, self-discipline, self-study, critical thinking, collaboration, cooperation, observation, group work and consensus building.

Reflective methods used during internships, for example, lesson planning, practice teaching, reflective assignments, reflective journals, group discussions play a key role in developing new insights by reorganising and reconstructing experience. Learners could gain new insights into self-as-teacher, practice situations and assumptions about teaching.
Appendix 5h: Example of Sabia’s Critical-Transformative Reflections on change

Sabia’s Critical-Transformative Reflection on Change

The situation
Earlier in the interview, Sabia had talked about being able to include a special needs child, referred to as Raju here, in her class during which the rest of the class also helped her. She now refers to this work as she talks about how she felt she introduced changes in the practice school.

Sabia’s reflection:

Researcher: Is anything you did that you think could have changed the school?

Sabia: Yes, Ma’am. I saw one very good thing. The work we did here was done only within 40 days and in the first year. And now in the 2nd year, when I go to those children’s class even now, they still care the same way for Raju. […] I feel so proud of the children. When did I teach them this? One year ago. They still remember it. So, if Raju is standing in the wrong place, they take him away from there. I noticed this recently that his bag is still taken, they still go to leave him at the crèche. They did not do this for fear of me. They had thought this is their duty to do. And it is not that only one child will do this. When anyone had time, they would give him time.

(Sabia Interview 2015-17, 31.1.2017)

The matching rubric description in the tool:

**CRChange** Constantly challenges ways of thinking and acting to lead to 'a transformative reframing of perspective leading to fundamental change in practice', both systemically and individually. Continues to learn from critical incidents, student learning and changed situations to improve practice.
**APPENDICES (6-9) SHOWING REFLECTIONS MAPPED TO THUMBNAILS OF RPTV2 AND ACTIVITY THEORY HEURISTIC**
(for each student-teacher participant)

**Appendix 6. Asha’s levels of reflections and changes in practice**

### Appendix 6A.a. Thumbnail of Asha’s reflections during planning and practice teaching (SEP1)

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus1 Aims and planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus2 Knowledge perspective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus3 Teaching learning strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus4 Learning environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inquiry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflections on content taught in class</td>
<td>Pronouns, social science test</td>
<td>Mask-making</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student-teacher: Asha Mediational tool: Planning and Practice teaching 1 (SEP 1) Date 27.11.15**

### Appendix 6A.b. Thumbnail of Asha’s reflections in her reflective journal during SEP1

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus1 Aims and planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus2 Knowledge perspective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus3 Teaching learning strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus4 Learning environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inquiry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily reflections on Miscellaneous topics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student-teacher: Asha Mediational tool: Reflective journal 1 SEP 1 Period 2015-16**

### Appendix 6A.c. Thumbnail of Asha’s reflections during planning and practice teaching during SEP2

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
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<tr>
<td>Focus1 Aims and planning</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Focus2 Knowledge perspective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus3 Teaching learning strategies</td>
<td></td>
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<tr>
<td>Focus4 Learning environment</td>
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<td></td>
</tr>
<tr>
<td>Inquiry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflections on content taught in class</td>
<td>Social science</td>
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</tbody>
</table>

**Student-teacher: Asha Mediational tool: Planning and Practice teaching 2 SEP 2 Date: 4.11.2016**

### Appendix 6A.d. Thumbnail of Asha’s reflections in her reflective journal during SEP2

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus1 Aims and planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus2 Knowledge perspective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus3 Teaching learning strategies</td>
<td></td>
<td></td>
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<td>Focus4 Learning environment</td>
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</tr>
<tr>
<td>Inquiry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily reflections on Miscellaneous topics</td>
<td></td>
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</tbody>
</table>

**Student-teacher: Asha Mediational tool: Reflective journal 2 SEP 2 Period 2016-2017**

### Appendix 6A.e. Thumbnail of Asha’s reflections during her stimulated recall interview SEP2

<table>
<thead>
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<tr>
<td>Focus2 Knowledge perspective</td>
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<td>Change</td>
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<td>Reflections on SEP1 and SEP2 on Miscellaneous topics</td>
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**Student-teacher: Asha Mediational tool: Stimulated recall interview SEP 2 Period: 2015-16 Date: 00.1.2016**

Sumita Sarkar, The Open University, PhD Thesis 293
APPENDIX 6 (CONT.)

Appendix 6B.a. The CAS heuristic from Asha’s perspective during SEP1

Tools and Signs
DIET templates for lesson planning, evaluation, and reflection. Different pedagogies, TLMs, strategies: Tests, lectures, examples related to the pupils’ lives, games, activities like mask making.

Subject:
Asha
(A good teacher is regular, methodical, caring, appreciative and a good listener)

Object
Learning to teach with deliberate thinking to improve practice (Asha reflected to motivate pupils with play, listening, and caring)

Outcome:
Pupils who learn with equity, meaning and construction of knowledge

Appendix 6B.b. The CAS heuristic from Asha’s perspective during SEP2

Tools and Signs
DIET templates. New strategies (like activities, problem solving, case studies, discussions that are relevant to pupils’ lives like tackling real issues of gender, inequality).

Subject:
Asha
(A good teacher is dialogical, critical, reflexive and allows pupils greater participation in their own learning)

Object/Goal
Learning to teach with deliberate thinking to improve practice (Asha reflected to have relevant activities, aimed to change pupil behaviour, and be able to teach large numbers of pupils.)

Outcome:
Pupils who learn with equity, meaning and construction of knowledge
## APPENDIX 7: SABIA’S LEVELS OF REFLECTIONS AND CHANGES IN PRACTICE

### Appendix 7A.a. Thumbnail of Sabia’s reflections during planning and practice teaching SEP1

<table>
<thead>
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<th>Levels of reflection</th>
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<th>Technical</th>
<th>Dialogic</th>
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<td>Focus4 Learning environment</td>
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<tr>
<td>Change</td>
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<td>Reflections on content taught in class</td>
<td>Maths + English</td>
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### Appendix 7A.b. Thumbnail of Sabia’s reflections in her reflective journal during SEP1

<table>
<thead>
<tr>
<th>Levels of reflection</th>
<th>Routine</th>
<th>Technical</th>
<th>Dialogic</th>
<th>Critical Trans.</th>
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### Appendix 7A.c. Thumbnail of Sabia’s reflections in her reflective journal during SEP2

<table>
<thead>
<tr>
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### Appendix 7A.d. Thumbnail of Sabia’s reflections during her stimulated recall interview during SEP2

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Appendix 7B.a. The CAS heuristic from Sabia’s perspective during SEP1

**Tools and Signs**
- DIET templates for lesson planning, evaluation, and reflection
- Different pedagogies, TLMs, new strategies: discussing ideas and writing individual takes about them, decreasing use of textbooks, more open-ended questions, increased experiential activities, and inclusion through more individually directed activities.

**Subject:** Sabia  
(A good teacher is committed, honest, friendly, teaches to real life)

**Object/Goal**
- Learning to teach with deliberate thinking to improve practice
- (Sabia reflected to create own stories, puppets, to reach pupils individually through relevant activities, for inclusion.)

**Outcome:** Pupils who learn with equity, meaning and construction of knowledge

Appendix 7B.b. The CAS heuristic from Sabia’s perspective during SEP2

**Tools and Signs**
- DIET templates for lesson planning, evaluation, and reflection
- Different pedagogies, TLMs, new strategies: discussing ideas and writing individual takes about them, decreasing use of textbooks, more open-ended questions, increased experiential activities, and inclusion through more individually directed activities.

**Subject:** Sabia  
(A good teacher is committed, honest, friendly, teaches to real life)

**Object/Goal**
- Learning to teach with deliberate thinking to improve practice
- (Sabia reflected to create own stories, puppets, to reach pupils individually through relevant activities, for inclusion.)

**Outcome:** Pupils who learn with equity, meaning and construction of knowledge

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Sumita Sarkar, The Open University, PhD Thesis 296
## APPENDIX 8: ZOHRA’S LEVELS OF REFLECTIONS AND CHANGES IN PRACTICE

### Appendix 7A.a. A thumbnail of Zohra’s reflections during planning and practice teaching during SEP1

<table>
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### Appendix 7A.b. A thumbnail of Zohra’s reflections in her reflective journal during SEP1

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### Appendix 8A.c. A thumbnail of Zohra’s reflections planning and practice teaching during SEP2

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### Appendix 8A.d. A thumbnail of Zohra’s reflections during her stimulated recall interview during SEP2

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</table>
APPENDIX 8 (CONT'D.)

Appendix 8B.a. The CAS heuristic from Zohra’s perspective during SEP1

Tools and Signs
DIET templates for lesson planning, evaluation, and reflection
Different pedagogies, TLMs, strategies: role plays, stories with morals, lectures, role plays; charts, discussions, games

Subject
Zohra
(A good teacher is a good citizen, sensitive to her pupil’s moods, keeps their attention)

Object
Learning to teach with deliberate thinking to improve practice
(Zohra reflected to develop more social and embodied activities, understand her pupils, and achieve a change in their behaviour)

Rules
D.El.Ed. Syll. NCFTE

Community
Principals, TEs, Student-teachers

Division of labour
Principals or HODs
Teacher educator who monitors reflection
Teacher-educators who are general supervisors

Outcome:
Pupils who learn with equity, meaning and construction of knowledge

Appendix 8B.b. The CAS heuristic from Zohra’s perspective during SEP2

Tools and Signs
DIET templates for lesson planning, evaluation, and reflection
Different pedagogies, TLMs, new strategies like more experiential activities like creating and participating in a rally, public events, working in groups, developing and performing a street play

Subject
Zohra
(A good teacher open-minded, innovative, with good people participation, able to engage pupils attention)

Object
Learning to teach with deliberate thinking to improve practice
(Zohra reflected to motivate and involve her pupils with contextually connected teaching, which was thorough in content, asks questions and maintains discipline.)

Rules
D.El.Ed. Syll. NCFTE

Community
Principals, TEs, student-teachers

Division of labour
Principals or HODs
Teacher educator who monitors reflection
Teacher-educators who are general supervisors

Outcome:
Pupils who learn with equity, meaning and construction of knowledge
APPENDIX 9: HABIBA’S LEVELS OF REFLECTIONS AND CHANGES IN PRACTICE

Appendix 9A.a. A thumbnail of Habiba’s reflections during planning and practice teaching during SEP1

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Reflection on subject taught: English verbs

Appendix 9A.b. A thumbnail of Habiba’s reflections in her reflective journal during SEP1

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Daily reflections on: Miscellaneous topics

Appendix 9A.c. A thumbnail of Habiba’s reflections during planning and practice teaching during SEP2

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Reflection on subjects taught: ICT

Appendix 9A.d. A thumbnail of Habiba’s reflections in her reflective journal during SEP2

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Daily reflections on: Miscellaneous topics

Appendix 9A.e. A thumbnail of Habiba’s reflections during her stimulated recall interview during SEP2

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Reflections about SEP1 and SEP2 on: Miscellaneous topics
APPENDIX 9 (CONT'D.)

Appendix 9B.a. The CAS heuristic from Habiba's perspective during SEP1

**Tools and Signs**
DIET templates for lesson planning, evaluation, and reflection. Different pedagogies, TLMs, strategies: Flash cards, charts, questions, practice writing, using words in sentences, painting, physical exercises, and games.

**Subject**: Habiba
(A good teacher should be engaging, share a rapport with her pupils and know her subjects)

**Object**: (Learning to teach with deliberate thinking to improve practice
(Habiba reflected to teach content methodically, and check her pupils' understanding regularly)

**Outcome**: Pupils who learn with equity, meaning and construction of knowledge

Appendix 9B.b. The CAS heuristic from Habiba's perspective during SEP2

**Tools and Signs**
DIET templates for lesson planning, evaluation, and reflection. Different pedagogies, TLMs, new strategies like demonstration, experiments, learning-by-doing in science and maths, storytelling, group work, ICT.

**Subject**: Habiba
(It is good to teach science and maths through demonstrations, experiments, and practical examples. Fear disciplines. Learning improves with another).

**Object**: Learning to teach with deliberate thinking to improve practice
(Reflected to manage her class, encourage participation, encourage learning-by-doing and how to work smart, with less work.

**Outcome**: Pupils who learn with equity, meaning and construction of knowledge