

**Building Common Knowledge: A Cultural-
Historical Analysis of Pedagogical Practices
at a Rural Primary School in Rajasthan, India**

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Abstract

The centralized control over curriculum framing and pedagogy, the generally poor quality of teaching with little sensitivity to children's sociocultural environment; and very high drop out rates, even at the primary school level, are some of the challenges facing school education in many of the regions of India. However, one of the successful approaches to these challenges has been the Digantar school system, working in rural communities. The study is based in one Digantar School in Rajasthan and employs concepts derived from the Vygotskian tradition to interrogate the methods employed in Digantar school system.

The study took Edwards' (2010a, 2011, 2012) idea of common knowledge and Hedegaard's (2008, 2012, 2013) idea of institutional demand in practices as conceptual lenses through which to investigate the components of the pedagogical practices that help Digantar teachers to align the motives of the school with those of the child in classroom activities. In doing so it analyses the institutional practices that lead to the development of common knowledge that in turn facilitates how teachers engage pupils as learners.

Data were gathered over six months and comprised around 120 hours of school-based video data together with interviews and detailed observations with teachers and community members. Data were gathered in classrooms, teacher meetings, meetings between parents and teachers and at school-community meetings. Analyses focused on the construction of common knowledge and the use made of it by the school to achieve a mutual alignment of motives between the practices of the school with the community and the families.

The study has revealed that teachers' engagement with the knowledge and motives of other teachers and community members helped to create common knowledge, i.e. an understanding of what mattered for each participating group, which facilitated teaching-learning in the school. The analysis also points towards a form of democracy, which enhances children's participation in their learning. It was found that building and sharing of common knowledge and creating a socially articulated 'space of reasons' (Derry 2008) produced a pedagogical model that engaged children in creating their social situation of development, seeking and recognising the curriculum demands being placed on them.

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Chapter One

1 Introduction to the Enquiry: Setting the Scene

1.1 Introduction

The study examines how the building and sharing of common knowledge works as a resource for developing a responsive pedagogy in a primary school in India. Common knowledge as used in this research draws its roots from the research of Edwards (2010a, 2011, 2012) where she explains common knowledge as comprising what matters for practitioners who are expected to collaborate as they engage with the potential object of activity in a joint endeavour. According to Edwards' account of this phenomenon common knowledge is mutual understanding of each other's motives and intentions for engagement with the object of activity i.e. knowledge of what matters for each of the collaborators which is held in common. The study also uses conceptual tools developed more broadly in the cultural-historical activity theory (CHAT) tradition to study pedagogical practices of a Digantar school. Digantar schools have the distinction of developing a unique teaching-learning process that aims to develop children as self-motivated and independent learners.

This chapter introduces an array of theoretical, methodological and policy issues that have shaped this study. The chapter is divided in four broad sections. The first section delineates the rationale for the present research drawing upon the realities of elementary education in India. The second

section presents a brief introduction to Digantar and its system of education. The third section delves into how a cultural-historical approach to learning and development helps to understand some of the challenges presented in the first section. Towards the end of this section specific research questions are presented that guides this study. The fourth and final section presents a summary of chapters in this thesis.

1.2 Rationale for the present study

This section is subdivided in five subsections. Section 1.2.1 presents the challenges facing education system in India. It largely uses data on drop-out rate and various national and international reports to show that there is an urgent need to work on the teaching-learning processes in Indian classrooms. Section 1.2.2 presents the position of teachers in the Indian educational structure. Section 1.2.3 is devoted to status of teacher training and development in India. Section 1.2.4 explicates the need to engage with the beliefs of those in children's wider communities to understand children's everyday social worlds. Finally, section 1.2.5 draws upon my own M.Phil research on parental beliefs about children's learning and education in an Indian village.

1.2.1 Education in India: Government and international data on primary education

India made a Constitutional commitment to provide free and compulsory education to all children up to the age of 14 nearly sixty years ago but the goal has remained elusive. More recently, elementary education has been made a fundamental right through the Right to Education Act, 2009, which became operative on 1 April 2010. It states that every child has a right to elementary

education of satisfactory and equitable quality in a formal school, which satisfies certain essential norms and standards. The principles of child-centred education spelled out in the National Policy on Education (NPE), 1986/92 and elaborated in the National Curriculum Framework (NCF) 2005 are therefore now part of educational legislation. These commitments have certainly raised hopes that universal basic education could be a reality within a few years time. With the success of various government schemes like Sarva Shiksha Abhiyan¹ (SSA) and the Mid Day Meal² (MDM) scheme in enabling children from disadvantaged background to attend school, India can today boast of its primary education structure being largest in the world (Muralidharan, 2012).

Muralidharan et al. (2012) particularly draw our attention to significant improvements in input-based measures of schooling quality,

“pupil-teacher ratios have fallen by nearly 20% (from 47.4 to 39.8); the fraction of schools with toilets and electricity has more than doubled (from 40% to 84% for toilets and 20% to 45% for electricity); the fraction of schools with functioning midday meal programs has nearly quadrupled (from 21% to 79%); and the overall index of school infrastructure has improved by 0.9 standard deviations (relative to the distribution of the school infrastructure index in 2003).

At the same time, school enrolment rates have increased steadily to

¹ Sarva Shiksha Abhiyan (SSA) is Government of India's flagship programme for achievement of Universalisation of Elementary Education (UEE) in a time bound manner, as mandated by 86th amendment to the Constitution of India making free and compulsory Education to the Children of 6-14 years age group, a Fundamental Right.

² The Mid-day Meal Scheme is the popular name for school meal programme in India. It involves provision of lunch free of cost to school-children on all working days. The key objectives of the programme are: protecting children from classroom hunger, increasing school enrolment and attendance, improved socialisation among children belonging to all castes, addressing malnutrition, and social empowerment through provision of employment to women.

the point that 96.7% of children aged 6-14 are now enrolled in school (Pratham, 2012).” (cited in Muralidhran, 2012, p.3)

But if we move beyond these data, it is quite clear from the Statistics of School Education 2011, MHRD, India, that around 42% children leave school before completing elementary education. The country has the dubious distinction of having the largest number of illiterates and children out of school in the world. Around 8.1 million children in the age group of 6-14 are out of school. As *The Guardian* reported, “[o]f the out-of-school children in 2008, 62% were girls; they make up two-thirds of illiterate 15- to 24-year-olds. And two-thirds of those not in school were from those lowest in the caste system, tribal groups and Muslim communities, despite those historically oppressed groups making up only 43% of India's children.” (*The Guardian*, April, 2013).

Government and International data on elementary education in India suggest that although the initial enrolment rate has remained high (nearly 97%) in the last decade, the drop out rates have been remained very high as well. The situation has been even worse in groups, which are socially and economically disadvantaged. According to the District Information System for Education (DISE) 2009-10 the apparent drop out rate has been higher for the children from the scheduled caste and scheduled tribes community. The data also point towards the geographical and urban-rural divide. The data from Selected Educational Statistics 2009-10 and DISE 2008-09 show that status of education and particularly rural education in states like Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Chattisgarh have remained abysmally low. More than 60 percent of children out of school are from Uttar Pradesh (34%),

Bihar (17%) and Rajasthan (12%). It is noteworthy that more children dropped out in 2010-2011 as compared to 2009-2010 in 10 of the 30 states where Right to Education (RTE) has been notified. Even the states, which are considered progressive like Tamil Nadu and Gujarat, have seen an increase in the drop out ratio (*The Times of India*, 1 April 2012).

In addition to this geographical disparity, the gaps between different social groups are striking. If we analyse the drop out data in terms of caste, which is a social reality in India, the gap becomes more vivid. Children from the scheduled caste and scheduled tribes are more likely to drop out from school.

Table 1.A: Table representing data on drop out at the primary and elementary levels in India

Data on School Drop out 2009-2010			
Categories	All Categories	Scheduled Caste (SC)	Scheduled Tribes (ST)
Primary (Class I-V)			
Age 6-11 years			
Boys	30.3	32.67	35.2
Girls	27.3	25.31	33.7
Total	28.9	29.33	34.5
Elementary (Class I-VIII)			
Age 6-14 years			
Boys	40.6	50.6	55.2
Girls	44.4	52	60.6
Total	42.4	51.3	57.8

Source: Statistics of School Education 2011, MHRD, India.

The data clearly show that when a girl child belongs to the scheduled caste or tribal group the chances of her completing first eight years of education are

very low. Of course, lying behind these educational statistics is the reality that is important to note, that girls face stiff challenges to pursue education. “Many girls face the risk of sexual and physical abuse and as well as social pressure, especially related to child marriage and this impedes their continued education” (Accelerating Progress to 2015 India, 2013, p.VIII). The gender disparity in drop out rates increases significantly in upper primary school as 60.6 percent of girls from scheduled tribe communities drop out as compared to 42.4 percent of the total average drop out. Dreze and Kingdon (2001) also point towards an overall bias against scheduled caste children in the schooling system. Haq (1989) emphasised a similar point when remarking on how different elite groups had most influence in education and benefitted most from it in different periods of Indian history:

“...during the Sanskritic tradition it was the Brahmana who benefitted most; during the Mughal period, it was the nobility of Islam; during the British period, it was the aristocracy and the Indian feudals; and during contemporary time, it is the elite from the higher caste and class backgrounds which monopolise and make use of the best available educational opportunities (Haq, 1989, p. 50).”

Current differences in drop out rates between groups can be seen as one of the indicators of the continued exclusion of disadvantaged and marginalised groups. This observation is in complete contradiction to the view of education espoused by Tagore with Shantiniketan in the 1930s, Gandhi’s Nai Taleem and the vision of education as an instrument of social transformation for dalits and minorities articulated by Ambedkar. The number of children within these more disadvantaged groups still dropping out, out-of-school and not attending

school regularly are immense, thus universalisation of elementary education continues to pose a daunting challenge to India.

Some of the reasons given for the poor retention rates are the problems of child labour, low parental interest and poverty. The Public Report on Basic Education (PROBE report, 1999), which tried to address the poor status of education in five of the states with poor educational indicators and very high drop out rates, suggested that these issues are nothing more than myths. The report indicates that less than 2% of children were involved in child labour and an even lower percentage was involved in working shifts of five to six hours a day; while 96% of the parents were found to be interested in their children's education. These findings point out that the main problem is the inability of education system to retain children and their sustained interest in education. Interestingly the major contributor to the repetition rate i.e., the number of children repeating years, in the schools was reported to be students' failures in achievement. The National Sample Survey Organisation (NSSO) in 2007-08 tried to find out the reasons behind high drop out rates. Their data showed that 36% of boys and 21% girls leave school, as they are 'not interested in studies'. Another 6% of boys and girls leave schools because of their 'repeated failures'. These findings clearly point towards an urgent need to work on teaching-learning processes in schools.

At a recent media roundtable on the 'Progress of the RTE Implementation', Louis-Georges Arsenault, UNICEF Representative in India, observed, "[t]here has been progress in the implementation of the Act in the past three years but

children are still dropping out, not for labour, but because they are not learning anything in schools” (*The Hindu*, 13 April 2013).

At the same roundtable Prof. R. Govinda remarked “[t]he focus has to be on improving the quality and way of teaching because poor outcomes are a result of poor schooling and poor teaching.” (ibid.). Thus, now the challenge of education in India goes beyond providing access. There is a need to develop curricular materials that fully address the range of issues affecting women and other socially disadvantaged groups. Moreover, there is a need to develop a broad based community and school support that can promote education of particularly girls and disadvantaged groups in rural areas. These are old issues, but the new emphasis on the importance of what happens in the schools points us to a way forward where teachers may be able to help transform the education system.

1.2.2 The place of the teacher in Indian educational system

The present teaching practices in India have their foundation in the colonial administration. Fagg (2001) notes, “the net effect of the British education system was the creation of an army of clerks whose only function was to administer the continuation of a colonial ruling structure. It was hierarchical and elitist, and top heavy....” (Fagg, 2001, p. 20). Even after independence the response and progress to educate the masses has been disappointing. In the last two decades efforts were made by the national government to increase school access, especially in rural India. Large numbers of schools were built, thus there has been huge expenditure to develop better infrastructure; but despite these efforts little improvement was achieved in

terms of school curriculum and teacher training (Batra, 2009). A 'narrow technocratic model' of teacher education and development has been the norm. Giroux, writing about the US, argues in such a structure "management issues become more important than understanding and furthering schools as democratic public spheres...the regulation, certification, and standardisation of teacher behaviour are emphasised over creating the conditions for teachers to undertake the sensitive political and ethical roles they might assume as public intellectuals" (Giroux, 1994, p. 278). Similarly Evetts (2009) has distinguished between two ideal types of professionalism – organisational and occupational.

"Organisational professionalism is characterised by the delivery of standardised procedures within hierarchical discourses of control with participants subject to external regulation and accountability. Occupational professionalism is characterised by the exercise of judgement and collective reason within local and collegial structures built on trust and subject to ethical accountability by occupational associations" (Ellis, 2011, p. 182).

In the Indian education system the teacher has limited power to decide on what and how to teach. The decisions are not only taken centrally about what needs to be taught but the within-school supervision is such that teachers are given lesson plans and course plans which decide the timeframe in which a particular lesson needs to be completed. The intention is to provide an objective syllabus and equality of educational experience on the basis of curriculum delivery, but the consequence is that the classroom environment is frequently detached from the cultural and social context in which the child lives. There is little space for children and teachers' agency to enter the

classroom teaching-learning. This state of affairs points towards an effort to promote teachers' organisational professionalism (Evetts, 2009) where they have little space for professional creativity (Ellis, 2011).

Moreover, the centralized administration of teaching-learning in the present system also attempts to ensure the quality of teaching by impersonal examination and centralized teacher training programmes. Impersonal examinations, where external examination bodies like CBSE (Central Board of Secondary Education, India), and other State Boards set examination papers; mean that teachers can no longer pace the pedagogy according to the need of the pupils. Due to these practices the schools have been detached from the social context. They no longer have support from the community and a sense of responsibility to the community. They have largely become part of the government services (Kumar, 1991).

1.2.3 The status of teacher training and development

The quality of teaching in the present education system is the responsibility of teacher training programmes. It is the teacher training which is expected to influence the quality of teaching in the classroom. These training programmes have changed little and as Kumar reported, are largely limited to the maintenance of school registers; the preparation of timetables; voice control; blackboard work; questioning and recapitulation; and how to draw children's attention to the prescribed format (Kumar, 1991). Consequently, teacher training and development appears to have been a futile exercise as Batra (2005), echoing Giroux, remarked,

“It is therefore no surprise that for the last two decades the schoolteacher, as a former centrepiece of processes of social change, is reduced to a mere object of educational reform or worse a passive agent of the prevailing ideology of the modern state.” (Batra, 2005, p. 4347).

The lack of focus on classroom teaching-learning practices has been criticised. Jhingran and Jha (2005) remarked that teachers’ educational qualifications and their pre-service training are not the discriminating factors in a teacher’s performance. Often “teacher trainees in training institutions are treated like cadets...with little internal, personal preparation for evolving into an educator. Once in the field, the untrained mind of the teacher operates on the basis of old biases and prejudices collected through his own schooling and life experiences” (Mahapatra, 2004, p. 26).

Moreover, the District Institutes of Education and Training (DIET) and Institutes of Advanced Studies in Education (IASE), which were started to bring about change in teacher training, lacked professional creativity and critical research. Their approach so far has been only to maintain the status quo, “with the teacher as the passive deliverer of state-prescribed child-centred learning” (Batra, 2005, p. 4348). These critiques clearly suggest that the system of maintaining the quality of the teaching-learning process is not serving its purpose. In such a context high pupil drop out and poor quality teaching are inevitable.

1.2.4 Engaging with the community and their beliefs about education

It is important to mention that it is not always the school that 'pushes' children out of it. Sometimes children are 'pulled' out as well. Often in case of girls they have to leave education because of early marriage or to take care of their younger siblings or because of a societal belief that girls should not study more. These cultural beliefs and family pressures sometimes do deter children's engagement in education.

In addition there is a widespread belief that children should be modest, obedient and receptive in school. Questioning is not encouraged and stating a position contrary to that of the teacher is unacceptable and considered impudent. These were some of the findings that emerged in my M.Phil research (Rai, 2009). The position of the teacher in India is often considered equivalent to God. In the rural areas this is all the more true. This statement is not an exaggeration: the teacher is positioned in a group with God and parents, the group of three should not be challenged. The relationship between the teacher and the child is that of Guru and disciple. As the sanskrit sloka defines it "*Gurur brahma gurur Vishnu, Gurur devo maheswara, gurur sakhashta par brahma, Tasmay shree gurve namah.*" (Meaning: Teacher (or guru) is verily the representation of Brahma, Vishnu and Shiva. He creates, sustains knowledge and destroys the weeds of ignorance. I salute such a Guru). The idea of the teacher as somebody to be worshipped finds frequent mention in the everyday discourse at home and in the community in India. This complete authority of the teacher that should not be scrutinized in normal circumstances inhibits the possibility of interaction between the school and

community. Whenever these interactions do happen teachers are in the superior position, their authority cannot be questioned. In contrast to this strong social positioning, school teaching offers very low emoluments and the status of teacher is equivalent to a clerk according to the hierarchy of government jobs. Thus, this lower status and salary keeps minimum qualifications for the entrance into the teacher training very low and the profession fails to attract high quality entrants. The low status in the government hierarchy and the consequent lack of high quality professionals means more supervision from the administrative authorities.

As a result of these two rather contradictory positions: the lower status job of teacher with lot of supervision and cultural beliefs of the supremacy of position, teachers can operate as meek dictators in the classroom (Kumar, 1991). In these circumstances instead of working on developing a sense of professional agency in teachers the state has tried to improve the education system by investing hugely in school infrastructure and developing a standardised curriculum. Teacher training and development has remained low priority as can be seen from the fact that when around 80% of primary education is provided by government around the same percentage of teacher training is in the hands of private players.

The National Curriculum Framework (NCF) 2005 talked about children's participation in the construction of knowledge but this aim remains an elusive dream, largely because of the current level of teacher training. NCF 2005 has been able to do little to transform the educational realities, mainly because it

tried to bring about a radical change in the school curriculum without altering the processes of teacher training and development in India.

1.2.5 Parental beliefs about learning and education

Teaching-learning processes in schools are also influenced by cultural beliefs about teaching and learning in the communities in which the schools are located, not least because parental expectations shape how children approach schooling. These ideas were firmly reflected in my M.Phil research (Rai, 2009) undertaken to understand the cultural practices of child development and learning in Jamuwa-hariram a village in Uttar Pradesh, India.

The findings from this study suggest that the parents in this rural community held a view of school-based education, which was based on the authority of the teacher and the acquisition of knowledge, which would lead to safe employment. The study also showed that the parents had very high expectations arising from their children's participation in schools. These expectations sometimes worked as negative factors because if children were not performing academically parents often pulled them out of the school. As there had been limited engagement between these parents and the school, the chances of parents pulling their children out of the school was high. In the school in that study it was clearly evident that the teaching-learning in the classroom had largely failed to use children's cultural experiences to create opportunities where what children brought into the school was drawn on to engage them as learners, harnessing their agency to help them propel themselves forward as learners within the practices of the classroom (Rai,

2009). These ideas have also been emphasised by Moll et al. (1990), Lave and Wenger (1991) and Fleer (2009).

The problem of schools' detachment from the immediate concerns of their communities has arisen from the larger national or centralised agenda of education as well. 'Unity in diversity' is a favourite slogan of Indian policy makers. In the name of equality of opportunity the education system has largely been textbook and national curriculum driven. In such a context, even if a teacher wishes to change the approach to teaching to respond to local factors, the larger administrative system becomes the biggest hurdle. The idea of unity and unification in terms of the curriculum, age-graded teaching and English, Hindi or the state language as the medium of instruction has made education a mechanistic process that is managed from the capitals of central and state central government. The lack of autonomy at the school level and no space for teachers to influence pedagogy has meant teaching-learning is one way flow of information from teacher to child. The process is far removed from Vygotskian notions of learning and teaching which were developed alongside a psychology which was meant to help Russia create citizens who could take it forward into a new world. I will explain the Vygotskian ideas used in this research in some detail in section 1.3 and in more detail in Chapter Two.

It was at this point, when I was pursuing these questions of high drop out rates and the poor quality of teaching in Indian classrooms, that I met Mr. Rohit Dhankar (founder of the Digantar schools) at a seminar while I was a

student in New Delhi, and became intrigued by how Digantar had managed to bring about changes in schools in rural areas near Jaipur in Rajasthan. The next section gives a brief description of Digantar's effort to develop an alternative education programme.

1.3 Digantar and its system of education

Digantar (full name Digantar Shiksha Evam Khelkud Samiti) is a voluntary non-profit making organization, engaged in education in the rural areas of Jaipur, Rajasthan. The institution is guided by the principles of justice and equality. The word 'Digantar' in Sanskrit implies 'beyond the horizon' or a change in direction. Digantar's search for alternatives in education began on a tiny scale with the school in 1978. The founders of the school Mr. Rohit Dhankar and Ms. Reena Das were trained under the late David Horsburgh at Neelbagh, Kolar District who also guided the school in the initial years. Through the constant search for the meaning of education and its relationship with the society on one hand, and interaction with other groups working for education and social development, the concerns of the group connected with Digantar schools became sharper and broader. Slowly a more wholesome vision of elementary education inherent in the basic principles of the school began to take shape. In 1986, the school moved to rural area, as it was understood that it was the rural children who continued to be deprived of good education. The focus of the organization became villages on the outskirts of Jaipur.

Since then, Digantar has been running four schools under its Alternative Education Project (AEP). At present, the AEP programme reaches out to 665 children (386 girls and 258 boys) giving them free elementary education. The organization has developed its own teacher training programme and curriculum and textbook development team. The achievement of Digantar in last thirty years has made it a resource support agency and an example for various government schools to focus on the quality of education and school environment. For last several years they have been working with the government of Rajasthan and a few other state governments for supporting teachers in rural schools and enhancing quality of education. In one such programme they are working with 100 government primary schools in Phagi block for quality education. Digantar's philosophy is actualised through the Alternative Elementary Education Program (AEEP) that comprises running two schools in the immediate rural neighbourhood on the outskirts of Jaipur and associated activities. The core agenda of these schools is to develop and promote an alternative system of elementary education. They are also the context where Digantar's ideas of primary education have developed and evolved. The pedagogy followed in these schools is radically different from mainstream schools; the focus here is on learning with understanding, self-learning, cooperation with co-learners and freedom of pace of learning. Digantar recognises that children have different paces of learning and the schools are organised into groups that are multilevel and multi-age in composition. Activities are planned for each learner based on her level. Continuous and comprehensive assessment rule out year-end examinations, pass-fail systems and grades.

There is a significant academic support for schools from Digantar's academic resource unit during the academic year. The schools are also supported in curriculum development with an in-house team revising and field-testing the textbooks. Ramchandran (2003) remarked,

"Digantar ... has found acceptance in larger, more formal efforts, both government and non-government, it is because it strives for excellence and 'success' in promoting an environmentally sensitive, child-centred mutual learning process. Its work in languages, mathematics and environmental education has influenced others into making their systems flexible and joyful." (Ramchandran, 2003, p. 965).

In the last 10 years more girls are being sent to school. However after 8th grade many boys and girls do not study further. The boys have a lot of pressure to learn the diamond cutting and stone polishing work and are sent to Jaipur and girls often get married by that age. Digantar has consistently engaged with the parents of these children and the larger community to negotiate better education for them. The success of the schools and their emphasis on mutual understanding, respect and negotiation to develop the child as a self-motivated and independent learner makes it an ideal place to conduct my research.

1.4 Theoretical framework and research questions

The Vygotskian approach to education puts lot of emphasis on culture and children's agency in the teaching-learning process. He argued that culture

makes two sorts of contributions to a child's development. First, through culture children acquire much of the content of their thinking, that is, their knowledge. Second, the surrounding culture provides a child with the processes or means of their thinking, what Vygotskians call the tools of intellectual adaptation. In short, culture teaches children both what to think and how to think. The concept of 'culture' in this study has been conceptualised after the work of Cole (1996), where it is seen in dialectical terms, mediating human action and interaction with and on the material and social world. This interpretation of culture demands a conceptual relationship between culture, mind and behaviour which recognises, as Cole argues, that: "artefacts are the fundamental constituents of culture...They coordinate human beings with the world and one another" (p. 144). Seen in this way, pedagogical practices and the curricula they carry are cultural artefacts, which are simultaneously ideal and material. These practices mediate teacher-child interaction in the classroom, bringing in what is culturally valued; while also being responsive to children's changing interpretations and actions.

The larger Indian education system that is highly centralized in deciding the curriculum and pedagogy provides little space or nearly no space for children's cultural environment to enter into the classroom. Thus, it becomes nearly impossible for the teacher to relate children to the classroom process. As children find it difficult to relate to the classroom processes high drop out rates and repetition rates are inevitable.

My initial premise for the study was that the lack of intersubjective spaces in the interactions between teachers and learners was the problem, which marked the poor quality of teaching-learning in most Indian classrooms. Consequently, instead of studying the widespread problems with existing schooling, I decided to examine Digantar schools in order to analyse, using Vygotskian tools, how they managed to engage children and the community with education.

The Vygotskian ideas of zone of proximal development, scientific and everyday concepts and the social situation of development have been at the genesis of the research questions which have been raised in this study. Moreover, the critique offered by Hedegaard and Chaiklin (2005) and their argument that there is need to further develop these Vygotskian ideas to use in the classroom has motivated this research. As will be made clear in the next chapter, Hedegaard's work, emphasising the importance of the motives reflected in institutional practices and their presence in the activities to be found within the practices has being a guiding heuristic for the study (Hedegaard, 2012a). In this context, the study uses Edwards' (2010a, 2011, 2012) idea of common knowledge, which she has developed and used in her research on inter-professional working and the deployment of relational agency. These ideas are developed here with the help of Hedegaard's most recent work on institutional demand and learning (Hedegaard, 2012a).

There are several reasons why I have found that the idea of building and sharing of common knowledge is a useful concept for developing responsive pedagogical practices. For now, I will mention three:

First, going beyond the analysis of systems, common knowledge as conceptualised by Edwards (2010a, 2011, 2012) demands a more robust analysis of joint action in sites where practices intersect. Second, following Hedegaard (2008, 2012a) a 'wholeness approach' has been taken in this thesis where efforts have been made to understand the motives and intentions of the participants as they engage in institutional practices and builds common knowledge as these practices intersect. Thirdly, following Derry's (2008) discussion of the space of reasons and systems of inferences, common knowledge can be seen as supportive in building a system of shared inferences across practices.

The following two research questions guided the enquiry:

Research Question 1: How is common knowledge built between teacher-teacher, teacher-children and school-community?

Research Question 2: How do teachers use common knowledge within their repertoires of pedagogic actions in order to align the motives of the school and the child in classroom activities?

The study was conducted in one of Digantar school. Two teachers and the children in their classes were followed for six months to understand how the building and sharing of common knowledge mediated their interactions in the classrooms.

1.5 Summary of the remaining chapter of the thesis

Chapter 2: Theories and Concepts: A Cultural-historical approach to Teaching-learning

The chapter opens with a discussion of the theoretical perspective on teaching-learning provided by the cultural-historical approach. The focus is primarily on the works of Cole (1990), Daniels (1993, 2001), Edwards (A) (2005, 2010a, 2011, 2012), Edwards (D) and Mercer (1987), Engeström (2000, 2008), Fler (2006, 2008, 2009), Hedegaard (2005, 2008a, 2012a, 2013), Leontiev (1978), Moll et al. (1992) and Vygotsky (1978, 1987, 1997). The key concepts e.g. common knowledge, agency, activity theory, motive, practices, agency, mediation, scientific and everyday concept, zone of proximal development (ZPD), social situation of development, relational agency, funds of knowledge; used in the thesis are also explained in this chapter. The discussion moves to the lacunae and the methods used in the literature. The chapter ends by explaining the concepts relevant for the present research in light of the research questions.

Chapter 3: Reconciling Motives and Demands: A Methodological Overview of the Enquiry

The chapter begins with discussion of the research design and the methods used in the research. It then explains the rationale for using multiple methods for collecting data. The idea here is not triangulation of data; rather the approach reflects the view that different methods will reveal different aspects of participants' everyday life, to produce a rich data set. A lot of data collected served as background, informing the analysis of the fore-grounded

interactions taking place between school-family, school-community, school-teacher, teacher-teacher and teacher-child.

The data analysis largely draws from the dialectical interactive approach developed by Hedegaard & Fler (2008). In addition to understanding the building of common knowledge in the interactions between the adults an emphasis was placed on understanding how alignment and realignment of motives takes place during classroom interactions in primary school classrooms. The last section of the chapter explicates the concerns and limitations encountered during data collection and analysis.

Chapter 4: Building and Using Common Knowledge I: Teaching and Teacher Development

This chapter draws on observations, interviews and audio recordings of discussions to present practices associated with teacher development in Digantar schools. The chapter is divided in three broad sections. The first introduces key analytic concepts and the analytic focus, on the second presents an analysis of the Digantar Initial Teacher Education Programme (ITEP), and third presents analysis of teacher sharing meetings within the study school and workshops run for participants across the Digantar system as spaces for building common knowledge and professional collaboration.

Chapter 5: Building and Using Common Knowledge II: Community-School Engagement

The chapter is based on observations and audio recordings of interactions between teachers and parents, the community-school meetings and

interviews with community members, teachers and school functionaries. The school recognizes that factors influencing children's education are not limited to within the four walls of the classroom but very much entrenched in the wider society in which the child is an important member. In Digantar schools, teachers also take up the responsibility of engaging with community life and discussing issues, which matter for the wider community.

The chapter demonstrates how teachers make an effort to construct teaching as a socio-political action rather than keeping it limited to engagement with the classroom text. It is argued that these collaborations with children and their families and the community extending beyond the school boundaries help in building the common knowledge that facilitates children's engagement in the classroom as well. One element in the argument is that the engagement of teachers in community activities helps them to ground their pedagogy in children's real life without compromising the powerful conceptual knowledge that is embedded in the school curriculum. This wider engagement also helps to keep parents and community connected with the long-term aims of education and to create social spaces for the development of that engagement with these educational goals for their children.

Chapter 6: Building and Using Common Knowledge III: Creating shared spaces for teaching-learning

The chapter is primarily based on analyses of video data of classroom activities and teachers' stimulated recall interviews. Analyses demonstrate how motives are aligned and realigned during the course of classroom

interactions. The excerpts from the video data are chosen to show how the teacher mediates what matters in the practices of the school so that child can create their own social situation of development. The focus is the aligning of children's motives with the broad motives and practices that are embedded in the school curriculum. The intention is to reveal the methods of the teacher when helping children as they dialectically create their social situations of development and propel themselves forward as learners.

Chapter 7: Conclusion: Synthesis and Critical Reflections

This final chapter presents a discussion of the theoretical concepts that are emerging from the analysis in the chapters four, five and six. The chapter presents the theoretical and empirical contributions of the study. The first section discusses some of the points made in the introductory chapter. The relationships between the drop out rates, quality of teaching in the classroom and quality of teacher education in Indian classrooms and how building and sharing of common knowledge between the communities and schools could be one of ways of tackling the problem are explored in this section. The second section addresses the research questions. The aim is to consider the analyses that have been developed in chapters four, five and six in order to present a case for how the building and using of common knowledge underpins the organisation of pedagogical practices in the study school. The third section presents contributions of the study to the present literature on cultural historical approaches to designing pedagogy. The fourth and last section looks at the limitations of the study and future research possibilities.

Chapter Two

2 Theories and Concept: A Cultural-historical Approach to Teaching and Learning

“There is nothing as practical as a good theory.”

(Lewin, 1951, p. 169)

2.1 Introduction

My purpose in this chapter is twofold, first to present some of the different pedagogical positions developed in the Vygotskian tradition that have influenced this study and second to present the ideas that have been pursued in the study which have their foundation primarily in the works of Hedegaard (2004, 2008a, 2012a) and Edwards (2010a, 2011, 2012). The chapter is divided into three broad sections:

2.2. Vygotskian framework on learning and development

2.3. From Vygotsky to Leontiev and Engeström, and

2.4. Ideas from Cultural-historical tradition that shaped this research

But before going into details of the concepts that are at the foundation of this research I will first explain some of the concepts introduced by Vygotsky that help to explain his theory of education.

2.2 Vygotsky's framework on learning and development

Bernstein in his foreword to Daniels' (1993) book *Charting the Agenda* remarked that at the beginning of the twentieth century two grand narratives emerged. That of Marx, which looked at the diagnosis and treatments of social pathologies; and that of Freud, which tried to suggest the treatment for individual pathologies. Both of them, Bernstein argues, failed in some sense to engage with the question of language and respond to the holistic understanding of the problems at hand.

"In both narratives, structures of power/domination and the conflicts these engendered propelled the narratives. Both shared strategies for exposing false consciousness and revealing transparent relationships. Both pointed to the duplicity of authority and its repressive regulation. Both claimed scientific status. Marx's theory had little or no purchase on micro levels of interaction and Freud's theory had little or no purchase on discussing and explaining macro structures. Marx projected the macro on to an unmediated micro and Freud projected the micro on to an unmediated macro. Base and superstructure appeared in both theories with similar generating power. In Freud, the id could be conceived as the biological level, ego/superego as the fragile superstructure. The superstructures in both theories were, in today's talk, discursive formations, dependent and regulated by their respective base. These discourses mask reality, rendering it opaque, misrecognised, and so establishing a fragile, pathological status quo. Yet neither theory singled out language as of special theoretical concern; neither was discourse given a special status.....A crucial problem of theoretical Marxism is the inability of the theory to provide descriptions of micro level processes except by projecting macro level concepts on to the micro level, unmediated by intervening concepts through which the micro can be both uniquely described and related to the macro level....Thus, in Vygotsky's case, we have a theory and a necessary pedagogic practice, but which? Daniels, in his introduction, brings up the fascinating point that Vygotsky's theory can provide grounds for

different, if not opposing, epistemologies and pedagogies.”
(Bernstein, 1993, p. xiii- xvi).

When Vygotsky was working on his ideas on children’s learning and development he completely discarded the idea of a one-way flow of information and mechanistic transmission of knowledge from teacher to children as conceived in behavioural approaches to teaching-learning. Instead he regarded children’s broad social situation and culture as important for children’s learning in and out of school. Following Cole (1996), my understanding of Vygotsky’s genius does not lie only in arguing that culture is an important construct in children’s learning and development, but more importantly that he positions it ‘*in the middle*’ of people’s or children’s engagement with their sociocultural environment. The entire architecture Vygotsky built around this idea, with the help of his oft-quoted general genetic law of cultural development, with concepts like internalisation, zone of proximal development (ZPD), scientific and everyday concepts, provides us with a new approach to education. These concepts help us to examine some of the concerns raised about Indian education system in the first chapter in a nuanced way.

The modernist agenda of education, which Vygotsky pursued in his time, remains significant. Not least because it prevents pedagogic arguments based on his work, for example, relating children with the classroom process, from moving towards the slippery slope of relativism. In particular, a Vygotskian focus on theoretical knowledge, or scientific concepts, can underpin practices where children’s cognitive development, particularly

achieving higher mental functioning, stays at the core of teaching-learning. What distinguishes Vygotskian ideas from other important approaches to learning and development was articulated clearly by Leontiev in a discussion with Bronfenbrenner (1977) many years after Vygotsky's death, as follows: "American researchers are constantly seeking to discover how the child came to be what he is; we in the USSR are striving to discover not how the child came to be what he is, but how he can become what he not yet is" (p. 528) (quoted in Wertsch, 1985, p. 67).

2.2.1 The general genetic law of cultural development: Social and psychological planes

"The educative process," Vygotsky said, "is active in three ways. The student is active, the teacher is active and the milieu which they have constructed is also active" (1926/1991, p. 89, cited in Davydov, 1995, p. 17).

One of the ingenious achievements of Vygotsky was to bring together the individual and social plane of children's development. He postulated that learning is fundamentally a social activity and proposed that all higher mental functions appear first on the interpsychological plane, where a person interacts with others and begins to recognise what is valued, and then on the intrapsychological plane, where the learner is able to perform the valued mental functions independently (Vygotsky, 1978). Vygotsky explained his general genetic law of cultural development as follows:

"An interpersonal process is transformed into an intrapersonal one.
Every function in the child's cultural development appears twice: first,

on the social level, and later, on the individual level; first, *between people (interpsychological)* and then inside the child (*intrapsychological*). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals” (Vygotsky, 1978, p. 57).

The argument is that the sociocultural environment presents the child with a variety of tasks and demands, and engages children in their worlds. These interactions are mediated through the use of tools. Vygotsky explained that children acquire knowledge through interactions with people as the first step (interpsychological plane), then later assimilate and internalise this knowledge (intrapsychological plane) to what they already know and regard as important and reconfigure those understanding. They then use these understandings to act on and in the practices they inhabit. Vygotsky pointed strongly to the importance of learning in conversation with others and argued that “[s]ocial relations or relations among people genetically underlie all higher functions and their relationships” (Vygotsky 1981, p. 163).

To explain this movement from the interpsychological to the intrapsychological plane, Vygotsky introduces five basic concepts that will be presented in the next section. They are: *Internalisation, mediation through tools, Zone of Proximal Development (ZPD), movement from everyday to scientific concepts and social situation of development.*

2.2.2 Internalisation

Vygotsky suggested that internalisation plays an important role in the movement of a concept from the interpsychological to the intrapsychological

plane. The internalisation process involves the learner's reconstruction of psychological activity that the learner was formerly only able to accomplish through interaction with others on the interpsychological plane (Vygotsky, 1978). Vygotsky emphasised that "the internalization of socially rooted and historically developed activities is the distinguishing feature of human psychology, the basis of the qualitative leap from animal to human psychology" (Vygotsky, 1978, p. 57). Wertsch made the concept of internalisation more explicit when he observed:

- i. "Internalization is not a process of copying external reality on a pre-existing internal plane; rather, it is a process wherein an internal plane of consciousness is formed.
- ii. The external reality at issue is a social interactional one.
- iii. The specific mechanism at issue is the mastery of external sign forms and
- iv. The internal plane of consciousness takes on a 'quasi-social' nature because of its origins." (Wertsch, 1985, p. 66-67)

Leontiev (1981) took the same view and argued that "interiorisation is not external action transferred into a pre-existing internal "plan of consciousness"; it is the process in which this internal plan is formed" (Leontiev, 1981, p. 60). Thus the aspects of external communicative speech turn 'inward' to become the basis of 'inner speech', the planning or mediating function which guides our own behaviour (Wertsch & Bivens, 1992, p. 41).

2.2.3 Mediation through tools

A central tenet for Vygotsky is that we do not act directly upon the world; it is always mediated by means of sign, symbols or material tools. These tools carry a history of humans' engagement with their world. "Because tools and the way they are used reflect the particular accumulated insights of communities, it is not possible to use a tool appropriately without understanding the community or culture in which it is used" (Brown et al., 1989, p. 3).

For Vygotsky, learning or human consciousness "is fundamentally a mediated mental activity" (Lantolf & Appel, 1994, p. 7). According to Wertsch "mediation is the key to understand how human mental functioning is tied to cultural, institutional, and historical settings since these settings provide the cultural tools that are mastered by individuals to form this functioning...the mediational means are what might be termed as the carriers of socio-cultural patterns and knowledge" (Wertsch, 1994, p. 204)

People engage in semiotic mediation, they interact, commonly in the form of speech to establish intersubjectivity, that is, shared understanding about terminology and the values attached to the terms and learning tasks. As learners advance toward competent performance of the task, they also achieve deeper levels of understanding about the task. Wertsch (2007) distinguishes between two perspectives on mediation in Vygotsky's writing: explicit mediation and implicit mediation. Explicit mediation, he explains, involves the intentional and overt introduction of "stimulus means" or signs into an activity. It is explicit also in the sense that the sign or stimulus means

is evident to those who are participating in the activity (Wertsch, 2007, p. 180). Implicit mediation on the other hand “involves signs in the form of natural language that have evolved in the service of communication and are then harnessed in other forms of activity” (Wertsch, 2007, p. 185). These two kinds of mediation are not in opposition to each other; rather both of them are part of the larger system of ‘tool-mediated learning actions’ that Vygotsky conceptualised in his writings.

In contrast to the theorists of his time who saw a consistent relationship between the word and thought, Vygotsky argued that the relationship between word and thought undergo fundamental changes as children learn. He proposed that humans use signs or words before understanding them. As they further engage with them they gain fuller understanding of those signs. This argument gives us a great insight into how meaning is shared during the classroom teaching-learning.

Taking a very similar line, Kozulin (2003) distinguishes between two agents of mediation: human and symbolic as he pointed towards an “important distinction between experiences produced by the immediate contact of the individual with environmental stimuli and experiences shaped by interactions mediated by symbolic tools” (Kozulin, 2003, p. 23). According to Kozulin (2003) the role of human mediator has been emphasised in Vygotsky’s general genetic law of cultural development where he points out that psychological functions appear twice during learning, once in the form of actual interaction between people then as an internalised form of this function.

Symbolic mediators, on the other hand are mastered through the process of internalisation and appropriation in the form of inner psychological tools.

Vygotsky particularly emphasised the importance of culture in the mediation. The symbolic tools derive their meaning from the cultural conventions that engendered them. Mediation of meaning is a vital component in the internalisation of psychological tools. “Symbolic tools (e.g., letters, codes, mathematical signs) have no meaning whatsoever outside the cultural convention that infuses them with meaning and purpose” (Kozulin, 2003, p. 26).

Vygotsky gave a special importance to the concept of ‘tools’ in humans’ understanding of the world and of themselves. These tools (material and symbolic), which mediate human interaction with the physical and social world, are artefacts created by humans under specific cultural and historical conditions and thus they carry the characteristics of the culture. “The tool mediates activity and thus connects humans not only with the world of objects but also with other people. Because of this, humans’ mental processes (their “higher psychological functions”) acquire a structure necessarily tied to the sociohistorically formed means and methods transmitted to them by others in the process of cooperative labour and social interaction” (Leontiev, 1981, p. 55-56).

The idea of psychological tools lies at the core of Vygotsky’s effort to reorient learning theories from an individualistic focus to a sociocultural (Kozulin,

2003). Cole (1996) also points to this appropriation of tools when he outlines triadic relationship between subject-medium-object (Cole, 1996).

“the incorporation of tools into the activity creates a new structural relation in which the cultural (mediated) and natural (unmediated) routes operate synergistically; through active attempts to appropriate their surroundings to their own goals, people incorporate auxiliary means (including, very significantly, other people) into their actions, giving rise to the distinctive, triadic relationship of subject-medium-object” (Cole, 1996, p. 119).

2.2.4 Zone of Proximal Development (ZPD):

In his introduction to the book ‘Vygotsky and Education’, Moll (1990) remarked

“The power of Vygotsky’s ideas is that they represent a theory of possibilities. The construct of zone of proximal development reminds us that there is nothing “natural” about education settings (and about educational practices such as ability groupings, tracking, and other forms of stratification). These settings are social creations; they are socially constituted, and they can be socially changed” (Moll, 1990, p. 15).

The ZPD is another Vygotskian insight that has been used extensively to understand the interrelationship between the learner and more expert other during the teaching-learning process. The Vygotskian cultural-historical approach to learning and development emphasizes the importance of what the learner brings to any learning situation as an active meaning-maker and problem solver who act in and on the world. Therefore, it acknowledges the dynamic nature of interplay between teachers, learners and tasks and provides a view of learning as arising from interactions with others. It is important to acknowledge that all mediation does not lead to learning. The Vygotskian idea of the ZPD has come to be understood as a device for

recognising how learning is guided in certain interactions so that children move from their everyday concepts to more powerful ways of conceptualizing scientific concepts offered in school.

The ZPD is defined as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86).

However, the role of the expert other in relation to the ZPD needed further elaboration in Vygotsky’s own work. Although he explains the role obliquely in *Educational Psychology* (1996) the nature of the guidance or instruction was left to others to elaborate. In his discussion of Vygotsky and pedagogy, Daniels (2001, p. 55), for example, states “instruction was the driving force of development for Vygotsky”. However, it is still fair to argue that Vygotsky did not elaborate in detail on the role of instruction in the ZPD. Consequently, this has given rise to several interpretations of the role of instruction as well as the ZPD itself (Wells, 1999).

The concept of the ZPD figures prominently as a means for describing the way a child’s intellectual capacity changes over time to reach new levels with the dialogic support of an adult or more capable peer (Vygotsky, 1978; Wertsch, 1984). Vygotsky first employed the idea of ZPD as a means of assessing a child’s capacity to learn, rather than a way of thinking about pedagogy. Mercer (2006) points out that the concept usually deals with

assessing individuals rather than understanding the quality of teaching-learning as an 'intermental' and 'interthinking' process. Quoting Erickson (1996) Daniels (2001) made a similar remark, "that much of the application of the ZPD concept is within dyadic settings with a single expert and a single novice...such a situation may not be typical of patterns of communication in learning situations." (Daniels, 2001, p. 68).

Chaiklin (2003) has pointed out that that there is risk of the concept of ZPD being used in a loose and amorphous way if the focus on development is not acknowledged, pointing out that: "Vygotsky's concept of zone of proximal development is more precise and elaborated than its common reception or interpretation." (Chaiklin, 2003, p. 39).

Chaiklin's main argument is that the ZPD is all too frequently seen as a learning zone, rather than a zone which also involves the development of higher mental functions. His is a powerful argument which reminds us that learning is more than acquiring curriculum knowledge, but also involves the development of capabilities such as reasoning and memory.

He takes us back to Vygotsky's conceptualisation of periods of childhood which are characterised by changes in psychological structures, which can be seen as a set of relations among psychological functions such as perception, memory, speech and thinking. In particular, children's higher mental functions develop through social mediation.

In simple terms, learning can be understood as people's changing relationships with the practices they encounter as they propel themselves forward to create a social situation of development (Edwards, in press, after Vygotsky). In the present study there are many examples of how Digantar teachers worked at engaging the agency of the learners in classroom activities in ways that demanded more of them than simply acquiring new concepts. Yet it needs to be acknowledged that the focus on the work of the teachers prevented a detailed examination of the development of children's higher mental functions.

Pedagogy in the context of the ZPD works through drawing the learner's attention, highlighting the crucial features of a problem, explaining a concept through simple steps, by promoting negotiation and so on (Brown and Campione, 1990). These processes raise the question - how does the teacher know about a learner's needs and relate the processes to these needs? Here, I shall suggest, the idea of common knowledge can come into the picture.

Mercer's argument is that for a teacher to teach and learner to learn, they must use talk and joint activity to create a shared communicative space, an 'intermental developmental zone' on the contextual foundations of their common knowledge and aims. He therefore suggests that the "Intermental Development Zone (IDZ) allows a focus on the way that a teacher and learner can stay attuned to each other's changing states of knowledge and understanding over the course of an educational activity" (Mercer, 2000, p. 132).

“The IDZ represents the dynamic, reflexive maintenance of a purposeful shared consciousness by a teacher and learner, focused on the task in hand and the objective of learning. It is represented in classroom discourse by explicit references to shared experience (present, past and future), common tasks and goals, but can also be sustained by tacit invocations of common knowledge which are intelligible to the participants. Its quality is dependent on the contextualizing efforts of those involved. If their dialogue fails to keep participating minds mutually attuned and focused on the task, the IDZ collapses and the scaffolding of learning stops. Like the notions of ZPD, the notion of the IDZ focuses attention on how a learner progresses under guidance in an activity; but it does so in a way which is more dynamic, more interactive and more clearly related to the task-related talk of both teacher and learner” (Mercer, 2008, p. 10).

However, Mercer’s use of common knowledge refers back to his development of the concept with Edwards (D) (Edwards & Mercer, 1987) where it is the shared understandings of concepts built up in previous teaching sessions. Therefore idea of IDZ largely fails to explain the dynamic exchanges between society, various institutions and social context of learning.

It is imperative, I suggest, to relate the interactions within these zones with the larger social and cultural context within which the institution of school is situated in order to gain a comprehensive understanding of intersubjective encounters at various levels i.e. individual, interpersonal and collective. Fleer (2006), discussing the cultural construction of child development, elaborated the idea of intersubjectivity. In drawing upon cultural-historical theory, she argued that early childhood institutional practices based on western theory and middle-class practices may no longer be relevant, particularly when these theories and practices are not representative of the culturally and linguistically

diverse communities they serve. This has presented an important insight for the present study. The argument has been conceptualised in this study as the building and sharing of common knowledge between the school and community (discussed in detail in chapter 5). I will return to Mercer's idea of common knowledge again in later section of this chapter.

It is important to remark here that according to Vygotsky, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with the peers. Learning according to Vygotsky creates a ZPD, that is to say, once these processes are internalized they become part of the child's independent developmental achievement. Vygotsky acknowledged in *Thought and Language* that instruction precedes development. He explained that good instruction proceeds ahead of development and should awaken to life an entire set of functions, which are in the necessary stage of maturation. This idea points to two important questions for educationalists: one, what are the means that can help learners progress to more powerful ways of acting in and on the world; and second, what is the teacher's role in facilitating the progress to higher mental functioning.

2.2.5 Movement from everyday to scientific concept

According to Wells, Vygotsky distinguished between development of scientific and everyday concepts in terms of their characteristics and how they were acquired. "Compared with spontaneous concepts, he argues, scientific concepts have four features which the former lack: generality, systemic

organization, conscious awareness and voluntary control” (Wells, 1994, p.1). Wells (1994) further explained that out of these four features, the first two are the criteria to label a concept ‘scientific’; what distinguishes this category of concepts is not the fields to which they apply but “the way in which - whatever the field - they relate to experienced ‘reality’” (p.1). Everyday concepts are related directly to the world of experience; while scientific concepts are abstractions and contain meanings which may be generalised, but which are constrained by what the learner is able to bring to their acquisition.

Wells explained: “While the first two features serve to define the way in which scientific concepts differ from everyday concepts, the second two features, by contrast, are better seen as more general characteristics of a stage of mental development that is associated with, and perhaps dependent on, their acquisition. For this reason, although the two sets of features are different in scope, they are also interdependent” (Wells, 1994, p. 1-2).

Scientific and everyday concepts therefore differ in the manner in which they are acquired. Unlike everyday concepts, which Vygotsky (1987) suggests are appropriated spontaneously by the child through the social interaction that occurs while engaging in activities in his or her immediate community, scientific concepts are largely acquired as a result of deliberate and systematic instruction in an educational setting.

Although both everyday and scientific concepts develop in communication, one mainly out of school and one mainly in school, schooled discourse

represents a qualitatively different form of communication because words act not only as means of communication, as they would in everyday discourse, but as the object of study. In classroom interactions, the teacher directs the children's attention to word meanings and definitions and the systematic relationships among them that constitute an organized system of knowledge. Formal instruction, with its special organization and discourse, through its social and semiotic mediations, helps develop a general, self-contained system of words and their relationships (Gallimore & Tharp, 1990). Through formal instruction, children develop the capacity to manipulate consciously this symbolic system.

Vygotsky also emphasized that everyday and scientific concepts are interconnected and interdependent; their development is mutually influential. One cannot exist without the other. It is through the use of everyday concepts that children make sense of the definitions and explanations of scientific concepts. That is, everyday concepts mediate the acquisition of scientific concepts. However, Vygotsky (1987) proposed that everyday concepts also become dependent on, are mediated and transformed by the scientific concepts; they become the "gate" through which conscious awareness and control enter the domain of the everyday concepts (p. 193). Thus, he wrote, scientific concepts grow down into the everyday, into the domain of personal experience, acquiring meaning and significance, and in so doing "blaze the trail for the development of everyday concepts upward toward the scientific" and facilitate "mastery of the higher characteristics of the everyday concepts" (p. 219).

“The development of the scientific ... concept, a phenomenon that occurs as part of the educational process, constitutes a unique form of systematic cooperation between the teacher and the child. The maturation of the child’s higher mental functions occurs in this cooperative process, that is, it occurs through the adult’s assistance and participation” (Vygotsky, 1987, p. 168-169).

The Vygotskian literature explains this movement in terms of the idea of mediation. Vygotsky (1978) claims that the secret of effective learning lies in the nature of the social interaction between two or more people with different levels of skills and knowledge. This involves helping the learner to move into and through the next layer of knowledge or understanding.

The use of language to help learners move into and through their ZPD is of great significance to Vygotskian theory. According to a sociocultural approach, this transition from social to personal happens not through interaction but during (in) interaction (Ellis, 2000). Thus there is need to understand how learning takes place during these interactions and build common knowledge that can mediate teaching-learning in the classroom.

2.2.6 Social situation of development

In his analysis of the development of the mind of a child, Vygotsky introduced the concept of ‘social situation of development, which denotes:

“the special combination of internal developmental processes and external conditions that are typical of each developmental stage and that condition both the dynamic of mental development for the duration of the corresponding developmental period and the new

qualitatively distinct psychological formations that emerge toward its end.” (Bozhovich, 2009, p.66)

Children’s learning from this perspective takes place within institutional practices. Learning changes the person’s relation qualitatively with the practices the person participates in (Hedegaard, 2012b). Rogoff (1990, 2003) and Hedegaard have elaborated upon Vygotsky’s seminal work and have provided further explanations of child development in the context of the child’s relationship with their social situation. Vygotsky’s approach to children’s development points at different development periods in relation to changes in the child’s social situation. The concept of the social situation of development according to Hedegaard (2012a) is critical to understand the dynamic nature of children’s development and to incorporate child’s perspective in a given age period.

“The social situation of development represents the initial moments for all dynamic changes that occur in development during a given [age] period. ...The social situation of development specific to each age [period] determines strictly regularly the whole picture of the child’s life or his social existence.” (Vygotsky, 1998, p.198, as cited in Hedegaard, 2012a, p.12).

Vygotsky in his writings has not emphasised “biological age in itself but [refers] to age period defined by societal traditions that then becomes reflected in the child’s experiential relation to the world” (Hedegaard, 2012a, p.11-12). This is an important insight for understanding how children negotiate different institutional demands as they engage in their schooling. In particular it allows us to distinguish between learning and development, by linking

development, as the more significant change, with societal demands, such as starting school. Learning, though important, is evidenced by changing relationships with a social situation; while development arises from changes in the social situation, which themselves arise through the structuring of society. These distinctions are helpful when considering the differences in demands faced by children from illiterate rural homes when they enter formal education.

Culture has been given a significant importance in the cross-cultural and sociocultural research on children's education that builds on Vygotskian ideas. In drawing upon a large corpus of cross-cultural research, Rogoff (1990, 1998, 2003) also highlights the importance of examining culture to understand development, arguing that "development can be understood only in light of the cultural practices and circumstances of their communities—which also change. In essence, culture determines not only the principles for defining development but also frames the contexts in which the development of children is supported (Rogoff, 2003, p.3-4).

Rogoff et al. (1998) argued that we need to begin to understand "the development of children in the context of their own communities" and this requires the "study of the local goals and means of approaching life" (p.228). She explains that the sociohistorical approach assumes that individual development must be understood in and cannot be separated from the social context. Some of the educational projects, which used Vygotskian insights, are discussed here in this section.

• Funds of Knowledge

Following Vygotsky's focus on children's sociocultural environment in their learning, Moll & Greenberg (1990) presented the concept of 'funds of knowledge' to combine different social contexts for instruction inside the classroom. They were inspired by Luria's interpretation of Vygotsky's work that the origins of conscious activity is not in the "recess of the human brain or in the depths of the spirit, but in the external conditions of life... this means one must seek these origins in the external processes of social life, in the social and historical forms of human existence" (Luria, 1982, p.25). In their approach they tried to build connections between 'productive' (labour-related) and 'learning' (school-related) activities (Moll & Greenberg, 1990, p.319). In their research they studied households' social histories, and practical skills related to the school community's everyday life, especially their labour and language, and attempted to derive pedagogical insights from such an analysis (Moll & Greenberg, 1990). The concept of 'funds of knowledge' sees every household as an educational setting in which the major function is to transmit knowledge from the elders that enhances the survival of its dependents. The content and mechanism of this transmission, the households' 'zones of proximal development', was the central feature of the ethnographic home study. The prime objective was to know more about the local knowledge bases and use them as foundation for teaching in the classroom. It was conceptualised that "both the content and process of exchange of funds of knowledge as enormously useful in mediating instruction" (Moll & Greenberg, 1990, p.344).

The idea of 'funds of knowledge' is an innovative concept in at least two important ways. First, the teachers' visits to children's homes are not seen as casual or simply an administrative visit; rather the teachers assume the role of the learner thus building a more symbiotic and even relationship with children's household where their household practices were seen as significant for their children's education. Second and more importantly, it provides a foundation for developing pedagogical practices in concrete terms, which get lost when a more general term like 'culture' is used or when the concept of culture-sensitive curriculum or pedagogy focuses on arts, dance and cultural programmes (Gonzalez et al., 2005).

• **Teaching as Assisted Performance**

Tharp and Gallimore (1988) in their Kamehameha Early Education Programme (KEEP) tried to develop a theory of instruction drawing primarily from Vygotsky's concept of zone of proximal development. They argued teaching is occurring when performance is assisted. Taking a Vygotskian approach, they suggested that students couldn't be left to learn on their own. Children's performance must be assisted until they have internalised or learnt a concept. Teachers cannot be content to provide opportunities to learn and then assess outcomes. Their argument about developing responsive and assisted interactions in the classroom is very useful when considering innovative pedagogical practices where mind must be 'roused to life' with assistance (Tharp and Gallimore, 1988). They proposed four stages of the zone of proximal development to guide children's movement during teaching-learning process:

“Stage I: Where performance is assisted by more capable other

Stage II: Where performance is assisted by the self

Stage III: Where the performance is developed, automatised and fossilised

Stage IV: Where deautomatisation of performance leads to recursion through the zone of proximal development.”(Tharp and Gallimore, 1990, p. 184-186)

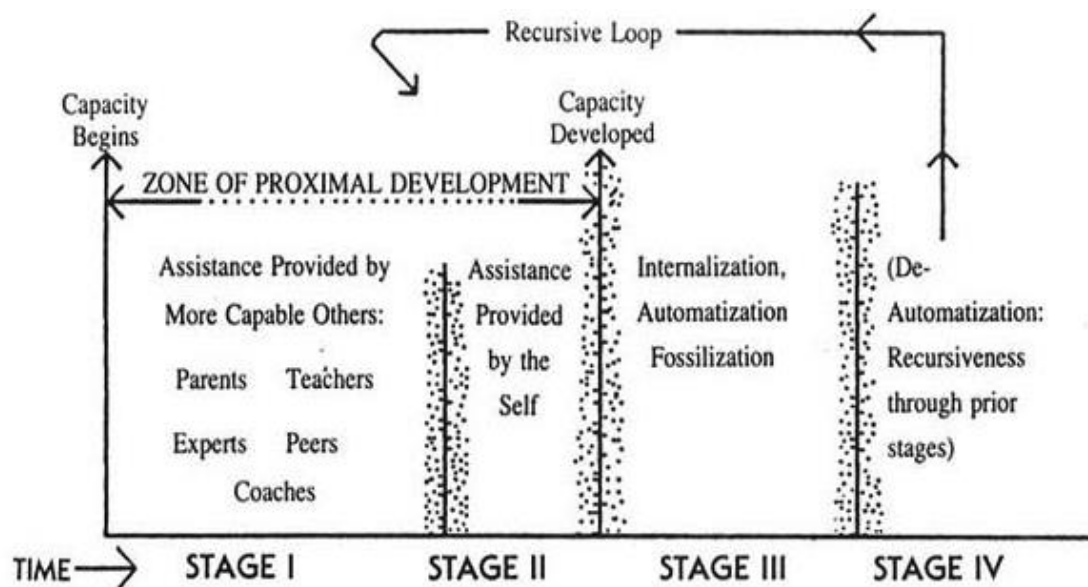


Figure 2:0:1: Figure representing progression through the zone of proximal development and beyond (Gallimore and Tharp, 1990, p.185)

This staged model is not a fixed movement from one stage to another rather it is responsive to child's level of performance. They observed in the transition from other-assistance to self-assistance and there are variations in the means and patterns of adult assistance to the child. At the earlier phases, assistance may be frequent and elaborate. Later, it occurs less often, thus, adult assistance is contingent on and responsive to the competence child has reached in the learning process.

- **Radical-local teaching and learning**

The idea of ‘radical local teaching and learning’ presented by Hedegaard and Chaiklin (2005) is a more nuanced way of approaching the question of culturally-sensitive teaching. They postulated that “teaching and learning for all children should be related to their local conditions” (p. 41) but at the same time it should lead to development of more general concept of subject-matter knowledge (Hedegaard and Chaiklin, 2005, p. 41-42). They further proposed,

“[W]e are not trying to advocate that we should restrict our attention to the local, but rather that we must enrich our understanding of the general by understanding its expression and manifestation in the local, while enriching our understanding of the local by using general subject-matter concepts.” (Hedegaard and Chaiklin, 2005, p. 40-41).

Hedegaard and Chaiklin (2005) have tried to develop the Vygotskian concept of social situation of development, which they consider is quite underdeveloped in Vygotsky’s own writing to be used as a concept for organising pedagogical practices. To organise teaching and learning in schools they proposed, “we should focus on the children’s everyday life in a community rather than construct an ideal cultural identity, binding or restricting the children to a special cultural category” (p. 197). The prime focus behind the radical-local approach is to “relate school knowledge and subject-matter concepts to children’s everyday life so that they get new perspectives and intellectual tools to understand their life and make a future” (Hedegaard and Chaiklin, 2005, p. 198). The approach advocates a shift in focus from the ideas of macro-culture or relating global properties of culture, to the child’s life

conditions in order to guide teaching-learning in school. The ideas proposed by Hedegaard and Chaiklin (2005) are very similar to Moll et al's (1990, 2005) concept of 'funds of knowledge' but one of the main distinctions lies in a stronger focus on subject-matter knowledge in radical-local teaching and learning. The approach requires teachers, "to assemble and analyse local knowledge in relation to subject-matter traditions" (p. 195).

2.3 From Vygotsky to Leontiev and Engeström

Vygotsky considered language as the most important tool in relation to human learning. Language mediates and conveys the meanings at the interpsychological and intrapsychological levels. Thus, it offers a way to understand people's minds and the functioning of the society. Emphasising concepts like social situation of development and ZPD, his approach places lot of focus on an individual's engagement with his social world.

However, focusing on individual understanding in Stalin's Russia was not a safe activity (Kozulin, 1990), with implications for the development of the theory. A significant shift arose after Leont'ev took his team to the comparative safety of Kharkov. As Kozulin (1990) remarked "while Vygotsky (and Leontiev in earlier works) focused on the mediational role of signs and symbols, the Kharkovites devoted their entire attention to activities" (Kozulin, 1990, p. 247). At Kharkov Leontiev worked on the concept of 'object of activity'.

The core idea adopted by the Kharkov group was the idea of object motive. As Leontiev explained: “The main thing which distinguishes one activity from another is the difference of their objects” (Leontiev, 1978, p. 62). “The idea of object of activity was made distinctive in Leontiev’s work by the object motive, which may be interpreted differently by different actors. Activity is guided by a motive” (Leontiev, 1978, p. 62–3 cited in Daniels, 1993). Leontiev’s work brought together motives, goals and social conditions as the object of activity.

His work powerfully shows the relationship between object of activity and motive. The motive arises from societal expectations and in the case of school tasks, in the present study, these expectations are embedded in their design and execution by the teacher. How each child engages with the object motive in each classroom activity is a pedagogical challenge for the teacher.

In the present study, one challenge was to make the activity of school learning relevant. Leontiev, once again, gives a clear rationale for the importance of recognising and working with motives, arguing “to understand why separate actions are meaningful one needs to understand the motive behind the whole activity. Activity is guided by a motive.” (Leontiev, 1978, p. 62-63 cited in Daniels, 2001).

“Thus the concept of activity is necessarily connected with the concept of motive. Activity does not exist without a motive; “nonmotivated” activity is not activity without a motive but activity with a subjectively and objectively hidden motive...just as the concept of motive is related to the concept of activity, the concept of

purpose is related to the concept of action.” (Leontiev, 1978, p. 62-63)

Thus the argument presented by Leontiev is that people’s motive gets explicit as they engage with the object of activity. It is the object of activity, therefore, that gives direction to activities. The idea of object motive developed by Leontiev is a strong strand in Engeström’s work on activity theory. Engeström’s big contribution has been the idea of the activity system (1999, 2007). In developing these ideas he has presented multiple models of activity systems. Engeström (1999) stated:

“I am convinced that in order to transcend the opposition between activity and process, activity and action and activity and communication and to take full advantage of the concept of activity in concrete research, we need to create and test models that explicates the components and internal relations of activity systems.” (Engeström, 1999, p. 30-31).

Engeström developed models of the generations of activity theory to present a dialectical relationship between rules of community life, the division of labour and the changing interpretation of the object of activity. While explaining the central tenet of activity theory (1987, 2007), Engeström explains that

“An activity system integrates the subject, the object, and the instruments (material tools as well as signs and symbols) into a unified whole.

An activity system incorporates both the object-oriented productive aspect and the person-oriented communicative aspect of human conduct. Production and communication are inseparable (Rossi-Landi, 1983). Actually a human activity system always contains the

subsystems of production, distribution, exchange, and consumption.”
(Engeström, 1993, p. 140).

Engeström (2001, 2008) has delineated five basic principles that explains his activity theory:

1) *Object orientation*: The principle explains, “collective, artifact-mediated and object-oriented activity system, seen in its network relations to other activity systems, is taken as the prime unit of analysis.” (Engeström, 2001, p. 136).

2) *Multi-voicedness of activity systems*: “An activity system is always a community of multiple points of view, traditions and interests.” (Engeström, 2001, p. 136).

3) *Historicity*: “Activity systems take shape and get transformed over lengthy periods of time.” (Engeström, 2001, p. 136).

4) *Contradictions as sources of change and development*: The fourth principle is argues contradictions as the genesis of change and development. “Contradictions are not the same as problems or conflicts. Contradictions are historically accumulating structural tensions within and between activity systems.” (Engeström, 2001, p. 137).

5) *Expansive transformation*: The fifth principle asserts that “the possibility of *expansive transformations in activity systems*. Activity systems move through relatively long cycles of qualitative transformations.” (Engeström, 2001, p. 137)

In the most recent and third generation activity which Engeström has developed alongside his research on developmental work research considers “a historically evolving collective activity system, in its network relations to

other activity systems, as the prime unit of analysis against which scripted strings of goal-directed actions and automatics operations are interpreted.” (Engeström, 2000, p. 960). Some of these models and ideas were found to be helpful when thinking about the challenges of teaching-learning. Although the present study does not adopt an activity theory focus on systemic analysis; instead it follows Hedegaard’s (2008, 2009, 2012a) and Edwards’ (2010a, 2012) work and focuses on what happens in practices as teacher and children engage in the teaching-learning processes.

2.4 Ideas from Cultural historical tradition that shaped this research

2.4.1 Hedegaard’s idea on institutional demands and motives to conceptualise learning

Hedegaard (2004) has researched the construction of childhood and development within the framework of the institution, society and the individual. Her work is particularly powerful in that it draws extensively upon Vygotsky’s (1998) seminal critique of child development, but specifically examines contemporary contexts, where there is cultural and linguistic diversity. Hedegaard (2004) views development as the relationship between the child and society to be found in the social situation of development that the child is able to create. She argues that when development does not occur it is not the fault of the child but rather the relationship between the child and society. As such the problem lies not in the child but in the institution. When an institution such as school foregrounds only one view of development, then teachers expect and accept one uniform developmental trajectory. This is problematic for culturally and linguistically diverse communities.

To conceptualise a holistic approach to understand children's learning and development she considers institutional practice and individual activity in the institutional setting as the key. She has argued that "[p]ersonal activities are not systems but processes, and therefore they are not concrete manifestations of institutional practice; they are not inscribed into each other but influence each other dialectically. A person contributes to his own institutional conditions and the perspective of his society; therefore, institution and person both have to be conceptualized as contributing to practice in a theory of children's development." (Hedegaard, 2009, p. 65).

More recently Hedegaard (in press) has argued that activities that children are engaged in during the process of learning and development are influenced by the motives and demands from other practices (i.e., demands from school practice may influence learning at home). Bozhovich (2009) articulated the same concern, she mentioned "children's positions are determined by two conditions: first, *by the demands of the social environment* that have developed historically and are placed on children of a particular age (from this perspective we can talk about the position of the preschooler, the schoolchild, the working adolescent, the dependent, etc.); second, *by the demands the people around them place on children* based on the individual developmental features of a particular child and on the specific circumstances of the family" (Bozhovich, 2009, p. 78, emphasis added).

In Hedegaard's work, motives are seen as an integration of demands from environment and from children, into psychological forces in children's activities. The table taken from Hedegaard (2012a) below shows the model she has developed to present the relation between children's activities and institutional practices they participate in. She has argued that "[c]hildren's learning and development have to be conceptualised as well as studied by focusing on their activities and the demands they meet in institutional practices." (Hedegaard, 2012a, p. 18).

Table 2. A: Planes of analysis of the dynamic relations in children's learning and development

<i>Entity</i>	<i>Process</i>	<i>Dynamic</i>
Society	Tradition	Societal needs/conditions
Institution	Practice	Values /Objectives
Activity setting	Situation	Motivation/demands
Person	Activity	Motive/intentions
Human's biology	Neurophysiological processes	Primary needs/drives

(Source: Hedegaard, 2012a, p. 19)

The planes of analysis in 2.A are interrelated, as society creates the conditions for the production of institutional practices within which activity settings are located and people act. The activity setting, such as a mathematics or science lesson, is likely to be shaped by school's philosophy and societal traditions. In a classroom, the teacher and children create the activity setting together. Depending on their social situation of development the children will contribute to the activity settings and will also be influenced by it. It is through engaging in activities in a setting that a child contributes to

the conditions for her/his own learning and development. Drawing both on Mill's idea of institutionalised societal demand and Vygotsky's idea of social situation of development Hedegaard (2012a) argued that observing children in activities in an activity setting gives access to understanding their motives and intentions for engaging in the activity.

“Observing a child's acting within an activity setting allows one to see how the child in interaction with other partners contributes to creating the settings that both include the demands from the institutionalised practice as formulated by Mill, and the child's social situation of development as formulated by Vygotsky. Activity settings combine the relation between the actual child's actions and activities and the demands the child meets in the practice.” (Hedegaard, 2012a, p. 23)

The present research draws substantially from the Hedegaard's extension of Vygotskian ideas. Following Vygotsky's and Luria's work, Hedegaard (2004) has argued that human learning can be seen as person's changing relations with the world. She has argued that the person's relation to the world changes because “his or her possibilities for mental interaction change.” (Hedegaard, 2004, p. 24-25). “Differences in practices in different institutions give children different competences and a child's competence is evaluated differently in the different institutions because the practices make different demands on the child” (Hedegaard, 2004, p. 26). Thus, to develop a holistic understanding about children's learning and development, Hedegaard (2008, 2012a) has argued in her wholeness approach that the researcher should try to understand the demands child has to negotiate in multiple institutional practices they participates in. She has explained:

“When children move from one institution to another (i.e., from home to school) new demands and motives will turn up and tensions and crises may be the result of how children’s earlier motives relate to demands from the new institutions, these tensions and conflicts indicate how a dynamic in concrete activity settings may lead to learning and development.” (Hedegaard, in press).

Thus, the concept of motive is related to the societal needs and conditions, institutional values and objectives, the demands of the activity setting and people’s motives and intentions as they engage in the activity. Highlighting this relationship between motives and demands Hedegaard suggested:

“Motive can then be seen both as relating institutions and children. From the institutional perspective motives are seen as object motives or objectives that build on institutional values and purposes. From the child’s perspective motives reflect the child’s social situation of development, which also implies the child’s position in the institutional practice.” (Hedegaard, 2012a, p. 24).

This focus on children’s social situation of development and analysis of motives in institutional practices raises the possibility of informing teaching as a dynamic practice, where ‘what matters’ for each of the participants mediates the what happens in classrooms as activity settings. Also leaning heavily on Leontiev’s work on object motive, Edwards (2005, 2010a, 2012) has developed three conceptual tools: relational expertise, relational agency and common knowledge in her research on inter-professional collaboration, which I shall argue are also relevant for developing a responsive pedagogy in schools. The next section presents some of those ideas in detail.

2.4.2 Edwards’ conceptualisation of relational turn in expertise

Taking a Vygotskian stance Edwards (2012) has argued,

A cultural–historical account of expertise is based in the Vygotskian view of learning as a process of internalisation and externalisation, during which people reconfigure their relationships with the practices they inhabit. Importantly, learning or developing expertise in a practice is not a neutral process: it involves a dialectical engagement in activities where what matters for people as individuals is highlighted by them as they interpret and respond to the tasks they encounter. (Edwards, 2012, p. 23).

In her research she has drawn specifically from the Leontiev’s work where she has argued for ‘activity’ as the unit of analysis and ‘object of activity’ as the focus of the activity. “Leontiev’s argument was that taking activity as the unit of analysis allows a recognition that people’s ‘needs, emotions and feelings’ are objectified in what they select to work on” (1978, p. 10, cited in Edwards, 2012, p. 23).

Coming from the same Leontievian roots Engeström and Middleton (1996) in their work have also pursued the idea of distributed expertise. Their analysis of expertise has largely been at the level of system. Thus, distributed expertise for them is a “collective attribute of a system, which is drawn upon to surface contradictions and to accomplish tasks.” (Edwards, 2012, p. 24).

Relational Expertise, as Edwards (2005, 2010a) has argued, is a personal expertise that is evident when people work with others on a complex problem and become resources for the others and draw on the resources that others can offer, to accomplish the task. It is a responsive and dialectical process where people recognise and respond to ‘what matters’ for others. Thus, relational expertise is the capacity to recognise and work with what matters, i.e. the object motives, of your collaborators.

While emphasising what she terms the relational turn in expertise (Edwards, 2010a), the purpose is not to diminish the importance of the core specialist expertise needed to perform a professional practice. Relational expertise is seen as an additional requirement to enable collaboration. The point Edwards (2005, 2010a) has raised is that to work with others one needs additional expertise which crucially includes the ability to understand the standpoint of other. Thus, the joint work is mediated by 'what matters' (Edward, 2010a, p. 67) for the other. She has succinctly expressed as follows,

“Relational expertise is therefore based on confident engagement with the knowledge that underpins one’s own specialist practice, as well as a capacity to recognise and respond to what others might offer in local systems of distributed expertise.” (Edwards, 2011, p. 33).

2.4.3 Relational Agency

As already mentioned Edwards research draws on the work of A.N.Leontiev and particularly his idea of 'object of activity' and Engeström's reading of object of activity as a problem space. Edwards (2010a, 2011) has asserted that when we look at a problem, we objectify what matters for us. Once you see the different ways of objectifying the same problems from different perspectives in a number of ways, you develop a more complex understanding. In her work, Edwards argues that relational agency strengthens the responses that professionals can make to complex problems. She also makes the case that the concept can be used to explain what happens when professionals work alongside clients in order to develop their

own agency and responsibility, helping them conceptualise and respond to problems in their lives.

A key feature of relational agency is that people's professional engagement is shaped by the institutional practices (social worker, teacher, nurse etc.) they belong to. Thus, they interpret the problem, such as a child's trajectory, in ways that reflect what matters for them in their own professional practice.

The notion of 'object of activity' and working on the problem space is central to the concept of relational agency. As she has explained "relational agency is a capacity to align one's thought and actions with those of others in order to interpret problems of practice and to respond to those interpretations." (Edwards, 2005, p. 169-170). Unlike activity theory where system learns or changes through the expansion of the object of activity and then "expanded object in turn works back on the conceptual tools, and other features in the system, and reshapes them." (Edwards, 2005, p. 174), Edwards' analysis the focus has largely been on joint action within or between systems or practices. She has explained:

"Relational agency shifts the focus from the system to joint action and the impact on those who engage in it between and across systems. In doing so it regains a focus on individual learning. In joint action a wider range of concepts or other resources are likely to be deployed on the object or problem space than is the case with individual action and it is more likely that the object is expanded; learning experienced and conceptual tools in turn refined. The focus is what is often fleeting collaborative object-oriented action which may expand the object, but attention is placed on individual change

as a result of joint action rather than transformation of the system.”
(Edwards, 2005, p. 174).

Edwards (2005, 2010a) has presented relational agency as arising from a two-stage process within a constant dynamic which consists of:

- “(i) working with others to expand the ‘object of activity’ or task being working on by recognising the motives and the resources that others bring to bear as they, too, interpret it; and
- (ii) aligning one’s own responses to the newly enhanced interpretations with the responses being made by the other professionals while acting on the expanded object.” (Edwards, 2010a, p. 14).

While arguing for relational turn in expertise Edwards also draws from the work of Charles Taylor (1989, 1991), especially his idea of engaged human agency and Seyla Benhabib’s (1992) argument for understanding the standpoint of other. Seen in this way, relational agency also considers a responsible moral practice to be at its core.

Edwards has further argued that relational expertise and relational agency demand a building and sharing of common knowledge across the practices so that people can use this common knowledge to mediate their collaboration. ‘Common knowledge’ is not a new term and has been primarily used by Edwards (Derek) and Mercer (1987) in their work on classroom teaching and learning, Middleton (1996) has also used the term as a resource for quick and joint-decision making in an established team. In the next section, I will take some of these initial conceptualisation of the term first and then come to the Edwards (A) idea of common knowledge that has been used in this research.

2.4.4 Common knowledge

Edwards (D) and Mercer (1987) have postulated common knowledge as an important concept for the effective classroom communication. Focusing largely on the classroom communication, Edwards (D) and Mercer have argued for sharing of knowledge to avoid misconceptions. Following Bruner they have argued for discursive meetings of mind. They described the construction of common knowledge as the

“expression of stance and counter-stance....a negotiative depiction of education, a rhetorical, argumentative meeting of minds in which what is ‘known’ is what is claimed by somebody: it is open to scrutiny. And scrutiny, is a social process not merely one of individual discovery but one of sharing, comparing, contrasting and arguing one’s perspective against those of others” (Edwards and Mercer, 1987, p.164).

Taking a Vygotskian line they have argued “our central concern is how teachers and pupils establish shared understandings of curriculum content, so that our examination of various sorts of classroom communication is oriented to the ways in which information, arguments, ideas or analysis are expressed” (Edwards and Mercer, 1987, p. 128-129).

Taking a very similar discourse-analytic perspective Middleton (1996) has used the concept to understand teamwork in a medical setting. His use of the term is to largely reveal how common knowledge can help people when they are working on the uncertainties of the problem. “Talk about work is of interest as situated discursive action that is used both to construct versions of what the team is currently doing and constitutes ways to act that respond to those versions. Accounts of past practice in the present become a resource in

defining future practice.” (Middleton, 1996, p. 248). Giving examples from the medical setting, he has argued that as someone “engages in acts of (re)presentation in working up and arguing their view of a potential line of action that might help to resolve current difficulties. Such acts of (re)presentation form an important feature of creating a “working intelligence” concerning practice that is crucial to teamwork as collective action.” (Middleton, 1996, p. 238). Thus, collective realisation of ‘working intelligence’ is seen as an important component of common knowledge.

On the other hand Carlile (2004), very similar to Edwards’ (A) work on interprofessional collaboration has argued “common knowledge as a resource for mobilising knowledge across practice boundaries”. (Edwards, 2012, p. 25). Pointing to the importance of common knowledge Carlile (2004) has explicated “[a]cknowledging both domain-specific knowledge and common knowledge at a boundary provides a useful distinction to better understand the challenges as actors try to work across domains when innovation is desired.” (Carlile, 2004, p. 555).

Edwards’ (A) use of the term is slightly different from those presented so far, owing more to the ideas of Leontiev outlined in the previous section. Edwards (2010a, 2011) extends Leontiev’s initial argument that when people engage with the object of activity they make their motives explicit. Her extension is that it not only about interpretation of the problem but also about the response to the problem. How people align motives in response to ‘what matters’ for others gives us the better understanding of the problem at hand.

This focus has its root in Leontiev's argument that there is need to understand motive in a very practical way in practices. Following the work of Benhabaib (1992) and Taylor (1989, 1991) she has argued that it is important to understand the perspective of other. The common knowledge, is thus made up of the motives; i.e. 'what matters' for the each collaborating partner in a joint activity. The 'what matters' will include key concepts in the work, such as school attendance or family support; they are the ideas which make a practice distinctive and connect with the identity of each participant. In classrooms the learning is thus governed by the interpretation of the problem as presented by the teacher and also the response to it by children.

If we translate these ideas to reveal the links with Edwards' work to be made in the present study, what happens in a teaching interaction is the constant alignment and realignment of 'what matters' in interactions between people from different practices such as village life and schooling. These alignments are mediated by the 'common knowledge', (Edwards, 2012, p. 25), which consists of what matters for each participant. Her idea of common knowledge aligns with the cultural-historical activity theory perspective where

"relational engagement with the knowledge and motives of others can produce a form of common knowledge which comprises a partially shared understanding of what matters for other....This knowledge can then mediate responsive professional action" (Edwards, 2011, p. 39).

According to Edwards (2010a) following features of work in sites of intersecting practices where the focus is children's well-being, help to facilitate the building of common knowledge:

- "Focusing on the whole child in the wider context.
- Clarifying the purpose of work and being open to alternatives.
- Understanding oneself and one's professional values.
- Knowing how to know who: Knowing the people and resources distributed across local networks was an important capacity but was not enough. Knowing how to access and contribute to systems of locally distributed expertise by informing interpretations and aligning responses with others was crucial.
- Taking a pedagogic stance at work. This involved: (i) making one's own professional expertise explicit and accessible and (ii) being professionally multi-lingual i.e. having a working knowledge of what mattered for other professions in order to 'press the right buttons' when working with them.
- Being responsive to others: both professionals and clients.
- Rule-bending and risk-taking to pursue the wellbeing of children. Rule bending was a response to contradictions between emergent practices and the established systems of rules, protocols and lines of responsibility in their home organisations.
- Creating and developing better tools for collaboration.
- Developing processes for knowledge sharing and pathways for practice.
- Learning from practice." (Edwards, 2010a, p. 44-45).

My argument here is that common knowledge as postulated by Edwards (A) has the potential to be developed further to be used as a tool for pedagogic engagement. Moll et al. (1990, 2005) and Hedegaard and Chaiklin (2005) have argued in favour of moving from the rhetoric of culture sensitive to more nuanced approach where subject-matter knowledge could be related to

children's everyday life. Common knowledge as I see it after Edwards could be a robust concept for underpinning pedagogical practices where children can create their own social situation of development.

Seen in this way common knowledge is about putting the need of the child at the core and being able to respond in most appropriate ways where the long term wellbeing of the child is important. The concept also encapsulates the notion of historicity of interaction developed by Edwards (D) and Mercer and more recently by Mercer (2008) in their research. Edwards and Mercer have also given importance to the argumentative meeting of minds. The present research agrees on the importance of that idea and draws on Brandom's (1994, 1991) extension of Sellar's idea of 'space of reasons' to explore it further.

2.4.5 Brandom's idea on 'making it explicit' and 'space of reasons'

Following Sellars idea of 'space of reasons' and his semantic pragmatism, Brandom (1994) in his book *Making it Explicit* argues that his project in the book is to elaborate on a notion of rationality that centers on categories of expression. He argues for making explicit the thought and expressions that otherwise remain implicit for others. As he mentioned in his interview with Penco (1999)

"This thought is worked out at two levels. First, I am concerned to say what it is we must be able to *do* in order to count as *saying* or *thinking* anything at all. And my basic idea here is that we must engage in practices of giving and asking for *reasons*. Making something explicit is putting it in a form in which it can serve as a *reason* for another claim, and for which in turn reasons can be

demanded. Second, the function of vocabulary of most interest to philosophers (starting with logical expressions) is to make explicit those *inferential* connections that articulate the contents of all concepts, and the *normative* aspects of our social practice in virtue of which we can keep track of how our *commitments* and *entitlements* are changed by performing speech acts (giving and asking for reasons). I see mastering discursive practice as a matter of knowing what one is committing oneself to by performing certain speech acts, and what would entitle one to them.” (Penco, 1999, p. 5)

Following this line Derry has presented two basic arguments. One, she has argued for the abstract rationality. Her exposition is the:

“Vygotskian approach doesn’t depend simply on individuals being placed in the required environment where they discover meaning for themselves. The learning environment requires design and cannot rely on the spontaneous response to an environment, which is not constructed according to, or involves, some clearly worked out conceptual framework.” (Derry, 2008, p. 60-61)

Thus effective teaching according to Derry “involves providing the opportunity for learners to operate with a concept in the space of reasons within which it falls and by which its meaning is constituted.” (Derry, 2008, p. 58). Thus she provides a critique to the notion of implicit mediation presented by Werstch. Implicit mediation in itself is not enough. For children to learn a concept it need to be made explicit. This point to the importance of child’s agency in creating his/her social situation of development which is second vital thread in her idea of abstract rationality presented after Brandom (1994, 1999) and McDowell (1996).

Seeing classroom practice in this way has a real advantage. The interaction between teacher and child is not seen just as argumentative meeting of mind rather it is seen as being committed to one's position as well. Thus it makes one's motives explicit, linking it back to the Edwards' version of common knowledge. According to Brandom (1999) people act and communicate inferentially. "Knowing for a human being consists not merely in expressing a response, but in being aware of what follows from it. In other words, it involves knowing the implications, or what Brandom calls the "giving and asking of reasons." (Brandom, 2007, p. 3). The notion of 'space of reasons' will be an important feature in the analyses of interactions throughout the study.

Summary

The concept of social situation of development, everyday and scientific concepts developed in the Vygotskian tradition and Hedegaard's idea of institutional demands and motives all pointed to a focus in the present research on the middle layers of institutional practice and activity setting in Figure 2.A. Here the primary concern is the promotion of children's learning, which is seen as children's changing relations with their social world through social interaction in institutional practice. Learning in this sense was seen as related to tool use, guided by instruction and related to the institutional activities in which the children participate.

Chapter Three

3 Reconciling Motives and Demands: A Methodological Overview of the Enquiry

3.1 Introduction

Drawing upon the theoretical framework presented in the last chapter this chapter details the object of enquiry, outlines the data collection process and discusses the stages of data analysis. The chapter is organised in six broad sections. Section 3.2 details the challenges of initial conceptualisation of research problem. Section 3.3 presents the pilot study, section 3.4 delineates the process of redesigning research plan particularly the changes that have been made after the pilot study. Section 3.5 outlines how data was collected at the multiple layers of pedagogic engagement i.e. teacher training and development, school community engagement and classroom teaching-learning. Section 3.6 presents the rationale and strategies used for data collection. Section 3.7 depicts the data analysis process. The efforts made to establish the validity of the research are presented in section 3.8. The last section 3.9 explains the ethical issues considered before conducting the research.

3.2 Initial Conceptualization

As I explained in Chapter One, my starting point was the dismal state of elementary education in India particularly the very high drop out rate in rural

areas. Around the time when I was trying to identify the many causes, I became intrigued by how Digantar had managed to bring about changes in the educational scenario in rural areas near Jaipur in Rajasthan.

After visiting Digantar and consulting my supervisor it was decided to conduct my study in Digantar. It was decided that instead of studying the problems with existing schooling, it might be helpful to instead examine Digantar schools and critically understand, using Vygotskian tools, how they managed to engage children and the community with education.

3.3 The Pilot Study

After getting permission from the school authorities I conducted a pilot study for four weeks in April and May 2010 when I observed and video-recorded the classroom teaching-learning in two classrooms in a Digantar school. Two teachers and children in their classroom were part of the study. The children were in the age range of 6-10 years. The tentative and broad research aim at this stage was to explore the pedagogical practices that led to the creation of shared spaces in which meanings were negotiated between teachers and pupils in Digantar schools. The two research questions, which guided the enquiry at this stage, were:

- What are the features of pedagogical practices that permit the creation of shared spaces that function as opportunities for children's development as learners?
- How do the pedagogical practices of the school reflect the practices of the community in which it is located?

It was intended that the pilot study would enable me to a) refine the research questions and conceptual framework; b) identify the best approach for answering the research questions; c) test methods for data collection; d) operationalise the theoretical framework for analyzing data; and e) sharpen my skills in interviewing, observation and responding to the practical constraints and the unexpected in the field.

3.3.1 Practicalities and first few days in the field

I stayed in Digantar's guesthouse for the period of data collection, which was around 8 kms from the school and near Digantar's administrative office. On the first day, the director of the school and the programme coordinator of the schools organized a meeting to discuss my needs and plans. They sorted practical details of transport and food and I made a brief presentation of my research plan. I also met two officials of the school- the community coordinator (CC) and the academic coordinator (AC). These were my contact points over the next two years. They initially helped in selecting and approaching teachers; while the director shared the school annual report and other documents stating its philosophy and history.

The plan of data collection was kept very open at this point so that I could learn about the various institutional practices children and teachers engage in. For the first few days, I read school documents and interacted with coordinators in the school. A series of informal interactions with the teachers, academic and community coordinators gave me some sense of the functioning of the school.

In the pilot phase I followed the classroom interactions of two teachers who had been working in the school for five years. It is important to mention that most of the teachers leave Digantar after a relatively short period of time as the schools are situated in a rural area and salaries are lower than government schools. Moreover, once these teachers have training from Digantar their chances of getting better job elsewhere increases. Often the attraction of a government job with better salary leads to high attrition; consequently most of the teachers in the school have only one or two years Digantar experience. I selected teachers with substantial experience to best represent the philosophy and pedagogical practices of the school.

As a next step I started to interact with the two teachers and children in their groups during the morning school cleaning and *sabha* (morning assembly in the group³). For the first few days, I sat in the classroom and observed the teaching-learning process. It helped me to decide where to sit for recording, and identify which activities might impede recording and observation. It also helped to develop a rapport with the teacher and children and learn the common language and tools they use in classroom activities. I started with the video recording once I received consent forms from the parents and teachers. I speak Hindi, the local language.

³ Each group has its own morning assembly where children and teacher sit in a round circle and talk about their experience, perform short plays, mono act, puzzles, songs, dance or village news. The choice of what to do depends on the children and teacher in that group.

The participation in school activities and interaction with teachers made me aware of the other institutional practices like teacher-sharing meetings and school-community meetings, which might have bearings on the classroom processes. Teacher-sharing meetings were organized every Saturday in the school. The teachers discussed their teaching plans, topics such as children's attendance and their own experiences of the previous week, in groups of four or five. I could not attend any teacher-sharing meeting during the pilot study. Although interviews with teachers gave an overview on how these meetings were run.

Another interesting institutional practice that came to light during the pilot study was the school-community meeting. These meetings serve as a basis for ongoing interaction between the community and the school. They were usually organized every month by the community coordinator and teachers. I was told that parents' participation was often very high. As these meetings seemed relevant for my study, the director and community coordinator agreed to my participating in one school-community meeting during the pilot study.

In addition to these observations and video recording, semi-structured interviews were conducted with the teachers and parents and two sessions of stimulated recall interviews, based on recordings of teaching sessions, were conducted with two teachers and four children. The stimulated recall interviews were found to be helpful for understanding the perspective and intentions of the teachers and children.

3.3.2 Preliminary analysis

From the preliminary analysis of the data, it became clear that Digantar was employing a unique pedagogy and limiting data collection to classroom interaction would not be sufficient to identify how pedagogical practices in a Digantar school are shaped.

The pilot study data showed that the organization of practices in the school created the possibility of engagement with 'what matters' for the community and children in relation to schooling. These constant engagements were made possible, as the school has created multiple avenues for connecting with the community. The teachers and coordinators also share ideas, resources and expertise with each other in sharing meetings and workshops. These interactions were also seen to help teachers to build common knowledge and develop pedagogy, which was responsive to children as learners. The following three sites of interaction were evident during the pilot study:

1) *School-community engagement*: One school community meeting and two teacher-parent meetings were followed during the pilot study. It was found that Digantar schools enjoy a good reputation among their community members who also support the functioning of the school. For example some have helped with the construction of the school building and its maintenance. The community and school were in constant interaction through the school community meetings and regular teacher parent meetings. At times there were disagreements between the community and the ideas put forward by the school. The school, in these situations created a space for reasoned negotiation. The school-community meetings became platform for parents to

engage with the school. These negotiations in which common understandings were built appeared to serve as a crucial component in the foundation of the teaching-learning processes at Digantar.

2) *Teacher training and development*: The school believes in the philosophy of autonomy and democracy and provides the opportunity for teachers to decide their curriculum and pedagogical tools. Teachers were given a broad framework for designing the curriculum and have the freedom to select the syllabus and books. The only condition was that they have to defend their plans in the teachers' workshop and meetings, which are built into the academic cycle. They also had to align their ideas with the overarching philosophy of the institution. Teachers were given approximately two months in-house training before they start teaching in the schools. In brief, teachers decide on the concepts they want to cover and borrow books from the centralized library for their school. Children are also told about what they are going to study and, although teachers plan teaching and have a list of concepts to be covered, some of the decisions are made after interacting with children about when and what to study.

3) *Pedagogic practices in the classroom*: After deciding when to study and what to study, another important layer of negotiation was seen at the level of within activity. Teachers often conducted their classroom activities keeping in mind the philosophy of the school. For example, students should not be punished; even disciplining them using coercive means is not allowed. Students also understand that the teachers cannot punish them so they also

sometimes try to do things they want to do. Thus, negotiations within activities become complex and all the more challenging as they are influenced by the philosophy of the school and teachers' and children's ideas of teaching-learning.

One important finding at the pilot phase was that the teaching-learning process at Digantar provided opportunities for the children's world to enter the classroom. Teachers' training and philosophical understandings of the teaching-learning process were the foundations that helped in the development of common pool of resources and tools where the everyday understanding of the children are brought into connection with the scientific concepts to be found in the curriculum. Children were often invited to take control of the classroom activity as the teachers moved from the centre of the activity to the periphery. It was decided that the study therefore needed to include an analysis of all these four layers of interaction to understand the pedagogical practices in the Digantar school.

The participation in a Doctoral school at the University of Copenhagen on "*Developmental Psychology Practice Research: Researching Children in Institutional Practice*" just after the pilot study, helped in developing a framework to investigate multiple layers of pedagogical practices in Digantar. The interaction with Prof. Mariane Hedegaard guided me to the analysis of institutional practices and social situation of development that shapes and get shaped by children and teachers as they engage in teaching-learning activities. Moreover, drawing from the dialectical interactive approach to

researching children (Hedegaard, Fler, Bang, & Hviid, 2008), it was decided to take a holistic approach to analyze pedagogical practices in the study school. At this point it was decided to broaden the scope of data collection. (Hedegaard et al., 2008) and (Bozhovich, 2009) writing on the social situation of development were helpful while considering expanding the scope of research. Moreover, instead of intersubjectivity, the idea of 'common knowledge' (Edwards, 2011) (Edwards, 2010a) was found to be a more suitable concept through which to examine the pedagogical practices in Digantar school as it provided the possibility to explicitly engage with, how motives are aligned and realigned during the course of pedagogic action at multiple layers. The research also intended to investigate the traditions of learning that were historically and culturally located within the institution that shaped the current pedagogical practices of the teachers.

3.4 Reworking the Research Plan

The data from the pilot study and insights from Hedegaard's dialectical interactive approach required a reworking of the research questions, conceptual framework and data collection and analysis.

3.4.1 Rephrasing the research questions

Before the pilot study I was not aware of the multiple layers of negotiation that were happening in the Digantar schools. The pilot study and Hedegaard's model necessitated a consideration of how motives, goals, and assumptions of the teachers shaped the social situation of development for the children in Digantar schools. At this point I also moved away from conceptualising teacher-student pedagogic relationships in terms of intersubjectivity; to see

the process as 'building and sharing of common knowledge'. The reasons for this change are discussed in the next section in detail. Taking a cultural-historical position, I was also keen to understand the traditions for learning that were historically and culturally located within Digantar and shaped the current pedagogical practices of the teachers. Thus, the research questions for the main study were:

Research Question 1: How is common knowledge built between teacher-teacher, teacher-children and school-community?

Research Question 2: How do teachers use common knowledge within their repertoires of pedagogic actions in order to align the motives of the school and the child in classroom activities?

3.4.2 Revisiting the conceptual framework: Building on the Dialectical-interactive approach

The main study draws upon a strand of cultural-historical activity theory (CHAT) called *dialectical-interactive approach* as a theoretical and conceptual framework for designing data collection and analyzing data. The pilot study had shown that analyzing classroom talk only, could lead to a simplistic analysis of pedagogical practices in Digantar schools, which did not represent the richness of the field data. The conceptual framework for understanding practices that are built around the constant negotiation of meaning between the community and school, school and teachers, teacher and children became the central demand of the study. Another demand was how sharing of tools and resources at one point influences engagement at other layers of pedagogic action. Hedegaard's levels of analysis model (Table 2.A in Chapter Two) prompted a redesign of the research to capture the multi-layered

pedagogical practices delineated in the previous section; while Edwards' idea of 'building and sharing of common knowledge' (Edwards, 2010a; 2011) helped with an understanding of the negotiations of meaning that happen at multiple layers. The concept also made me to think about the agency of the participants and their motives while engaging with the object of activity.

3.4.3 The object of enquiry and unit of analysis

The methodological approach developed by Hedegaard, which has its foundation in the work of Vygotsky, Elkonin, Leontiev and Schutz, focuses on participants' motives, projects, intentional actions and interpretation (Hedegaard *et al.*, 2008). Taking this approach it was decided that study should focus on children's and teachers' intentional actions and the activities in which these actions are taken. Hence it was vital for the research methodology to be able to take multiple layers of interaction and negotiations in and between them as the object of enquiry.

Interestingly, when the individual is the unit of analysis, the dialectical relationship between the individual and his or her environment can become invisible. The individual as a unit of analysis makes it impossible to explain the dynamic aspect of teaching-learning in the classroom. Alternatively, CHAT focuses "on both individual mind and collective action, and offers some scope for examining action with others in relation to the intentions of the others" (Edwards, 2010a) Aligning with this theoretical framework, the teaching-learning process in schools is understood as mediated, and fundamentally social and participative.

The CHAT framework 'allows an analysis of action in activities' (Edwards, 2010a, p. 64) and reveals the motives that shape the practices in which the activities are located. This attention to the practices and then motives was central to the present study as a constant effort was made to understand the interaction and negotiations of the multiple perspectives that shape practices. The approach demands insights into the developmental conditions from societal, institutional and individual perspectives. Thus, an expansive and holistic approach to research was taken.

According to (Hedegaard et al., 2008), in order to understand how children learn it is necessary to analytically combine attention to action in activities in social situations. At the same time, Hedegaard argues, it is important to include evidence that can illuminate the societal and the institutional conditions that create a child's social situation.

Thus, the present study, which focused on how the teachers worked within the practices of the school and connected with the practices of the community, set out to research the conditions in which activities take place as well as how participants take part in different activities. The methodological challenge, in order to understand the participants' perspectives in the way modelled by both Hedegaard and Fler, is that the researcher has to enter into the practices of the settings and the everyday activities of the school and children. It was therefore necessary to observe the different activity settings that comprise the range of social interactions inside the classroom. These observations were needed to give access to the motives of both teachers and

learners in order to begin to build a picture of how motives in pedagogic interactions become aligned.

The study used multiple methods, not to triangulate data, but with the intention of revealing different aspects of pedagogical practices. A lot of the data that were collected therefore served as a context for analyzing negotiations and activities taking place at various layers for building common knowledge, and were not analyzed in detail. The use of multiple methods generated layers of data from individual, activity settings, institution and societal layers, thus they brought multiple perspectives through thick description particularly of action in activities. Following Hedegaard's⁴ own methodology, the rich descriptions of actions in activities, which were situated in the practices of the school, gave access to the motives of the participants.

The term 'triangulation' is often seen as a strategy to improve validity. Green (2005) argues:

"the logic of the approach of using multiple methods is that the strengths of one method help counterbalance the weaknesses of another. Thus, interviews with patients can be used to collect the detailed data on health care experiences that might be missing from hospital records, or observations used on a few hospital wards to validate the replies of hospital managers in a national survey."
(Green, 2005, p. 162).

⁴ The clarification note (Appendix 02) submitted to the examiners after the transfer of status (ToS) viva gives some sense of the direction the study took after meeting Prof. Hedegaard.

She has also suggested, however, that its purpose is not only to validate one method over other or cross check the data, it could also be used to build a more detailed picture which is sometimes difficult to do using a single method.

“Triangulation is thus not a simple process of building up multiple accounts of one phenomenon from different perspectives in the hope that they somehow ‘match’ and that we can therefore have more faith in the results. Rather, it is a more subtle process through which researchers can explore the differences, and build up a more complex picture of health or health behaviour.” (Green, 2005, p. 163)

In her argument for developing a holistic approach to researching children and collecting multiple layers of data Hedegaard’s critique of triangulation is largely focused on the tendency in research that depends on it to match data from different sources; while Green, as we can see, argues that it does more than that. However, Hedegaard goes a step further than Green to provide a framework for building multiple layers of accounts (Table 2. A: Planes of analysis of the dynamic relations in children’s learning and development on page no.61) providing, I suggest, a more robust focus on how practices are historically developed and negotiated.

3.4.4 Redesigning the data collection plan

The overarching aim of the study was to understand how building and sharing of common knowledge influences the aligning and realigning of motives during the course of pedagogic engagement in the same Digantar school I visited during the pilot study. Investigating the motives, goals and assumptions about pedagogy of teachers, children, school functionaries and community members was vital to an analysis of how teachers shaped the social situation of development for the children. Figure 3.A shows some of those changes that were made after the pilot study.

	Initial Plan	Pilot study	Final Research Design
Sites for data collection	Classroom, Teacher workshops	Classroom, School-community meetings & Teacher-sharing meetings	Classroom, Teacher workshops, School-community meetings & Teacher-sharing meetings
Video recording/day	Entire day	Only two hours	Only two hours (sometimes more as well)
Selection of teacher	No criterion decided	Years of experience	Years of experience and their availability till the end of the project
Technique for data collection	SRI, Interviews, Documents, Video/Audio recording, Observation notes	SRI with teacher and children, Interviews, Documents, Video/Audio recording, Observation notes, Case Study children	SRI only with the teacher, Interviews with parents, school functionaries and teachers, Documents, Video/Audio recording of classroom and community meetings, Observation notes

Figure 3:1: Figure showing refinement in the research plan

3.5 The Main Study: Investigating multiple layers of pedagogical engagement

3.5.1 Seeking Permission

In a study of this nature participation is constantly negotiated. The social position of the researcher in the field changes as people start to understand the motives of your engagement and interest in their lives. Formal permission from the parents, teachers and school were sought well in advance. As the majority of parents did not know English and some of them were also illiterate I talked with them using the parent-information leaflet and consent form (Appendix 04). The intention was to fully inform them about the study and

address their doubts. Before starting the observations aimed at understanding the family practices, permission were sought not only from the families but also from all the families living in the vicinity, as they also become part of the observation given the structure of the social organization and focus of the research on social practices. Later the case study of children was not conducted in the main study and people were told about that.

Permission from the school authorities and community members were also sought before audio recording the school-community meetings. The community coordinator who organized these meetings introduced me to the group and gave me some time to explain my purpose of participation in the meeting. They agreed to my recording the events and then signed consent forms after the meeting was over. As the school also took signatures from the participants on the minutes of the meetings, it gave me an opportunity to get their signatures on consent forms as well. The details of the consent form were explained individually to each participant at the end of the meeting. Most of the parents wanted to interact with me, as they were keen to know more about me and why had I come to their village.

Data were also collected from the teachers' sharing meetings and workshops. As there were other teachers in addition to the two who were part of the study. I explained the study and sought their consent to audio record the workshop and sharing meetings. Most of them were aware of my research as I was introduced to the teachers before starting the pilot study.

3.5.2 Participants and context of data collection

The study took place in one of the Digantar schools called *School A*. It was a primary school, teaching children from age 5 to 15 years, with approximately 110 children on roll. There are four teachers working in four classrooms (the school call them *Samuh* or groups). The village in which it is situated is 15 Kilometers from Jaipur. Agriculture is one of the main occupations of the parents. Most of the male adults also work in the city as carpenters, stone-crushers and drivers. Most of the children attending the school were from the Muslim community, however, children from *Brahmin, Gurjar, Kumhar, Mali* and a few other scheduled castes group also attend. The school offers education to children from neighbouring villages with some children walking approximately three kilometers to attend. Very few of the parents have completed elementary school and levels of literacy across the adult generations are low.

Two teachers and their classroom teaching-learning activities were followed and video-recorded. The teachers followed in the main study were not those who were part of pilot study. I chose teachers with maximum experience, as the pilot study indicated that people with more experience would be able to represent the philosophy and practice of the school. The teaching-learning processes in these two classrooms were video recorded. The teacher stayed with the same group for the entire day. Within the first fortnight semi-structured interviews were conducted with the school director, the two focal teachers, the school programme co-ordinator, the secretary and the school's academic and community coordinators. Five parents were also interviewed to

gather their perspectives on teaching-learning and children's social situation of development in the school.

Shradha and Pravesh (names anonymised) were the two teachers who participated in the study. Shradha had been working with the school for last two years. She had joined Digantar after completing her bachelor's degree in Elementary education. She came to Digantar on one of her college's visit and decided to join the school. Pravesh has worked with the Digantar School for the last 5 years. Before joining Digantar he was a teacher in a private school. He came to Digantar in search of better job but later got very engaged with the philosophy and work of the schools.

3.5.3 Plan for the data collection

The study involved data collection for six months between October 2010 and March 2011. Taking a dialectical interactive position an effort was made to understand participants' motives and bring together multiple perspectives to make sense of people's engagement with Digantar schools. Thus, a variety of methods were used to create a holistic picture of the teaching-learning in the school.

Drawing on the research questions and conceptual framework, a scheme for data collection and analysis was designed as shown in table 3.A:

Table 3.A: The table represents the broad framework of the study

Conceptual layer of Analysis	Focus of Inquiry	Methods and scope of data collection
Teacher training and development	Interaction between teachers during teacher sharing meetings, workshop for teachers' continuous development and initial teacher training	Audio recording of the teacher sharing meetings and workshops, observation notes, school philosophy and other documents, semi-structured interviews with teachers
Community-school engagement	Interactions during teacher-parent meetings and school-community meetings	Semi-structured interview with parents, audio recording of the teacher-parent meetings and school-community meetings, observation notes.
Pedagogical practices in the classroom	Children's and teacher's motives inside the classroom, Interaction between teachers	Video/ Audio recording of classroom interactions, teachers and parents semi-structured interviews, informal interactions with children, observation notes, stimulated recall interviews

3.5.3.1 Investigating the teacher training and development in Digantar

It was clear from the interviews with school director and secretary during the pilot study that the initial teacher education programme (ITEP) is one of the key elements informing teaching-learning in Digantar schools. As I could not observe the ITEP, which generally takes place between May and July, school documents and interviews with teachers, school functionaries and teacher educator were examined to gain understanding of the teacher training. However, I was able to gather data on related teacher development processes through attending and audio recording the school-based teacher sharing meetings and training workshops, the latter of which involved

teachers who worked in other Digantar schools. Both types of meetings provided evidence of how teachers built common knowledge among themselves. The teacher sharing meetings, which I observed, had seven teachers. All of them were teaching primary groups. Both the teachers who were part of my study were in the same sharing group. The sharing meetings were organized in the school. The academic coordinator and community coordinator also use to participate in these meetings, which were held on Saturdays and were generally between two and three hours in length. During the period of data collection I was able to record six of these meetings. Some of the meetings also got cancelled due to preparation for the Republic Day celebration and other festivals and a science exhibition. Shorter meetings on some weekdays generally compensated for the cancelled meetings but they were not considered for analysis as they were quite different in nature and focused on completing the official formalities only. The teachers' training workshops that took place between 17 Dec 2010 and 5 Jan 2011 in the Digantar's main office campus was also audio-recorded.

3.5.3.2 Investigating the community-school engagement

It was initially decided to observe four families for one week each as well, to understand the social practices and cultural beliefs of teaching-learning in the village. The family to be observed was intended to be one whose children were part of the classroom, which was observed and video-recorded. I got initial permission from the school but it was difficult to visit the families during daytime and interact with them as the male family members were out. In most of the families male members worked in the city. They leave very early in the morning and come late at night. For the first one week I tried to go to the

family along with the child after the school. Even when the family members were very welcoming I found that a few younger female members had to stay in the house while I was there. As my presence was making it difficult for the family to perform their normal activities it was decided after consultation with my supervisor that I should abandon these case studies and focus instead on the teacher-parent and school-community meetings to access the perspectives of the parents and their engagement with Digantar. Five school-community meetings were audio-recorded during the period of data collection. These meetings provided a perspective on the teachers' engagement with community values. Some of them took place for around two hours or more. As no electricity connection was available at the site of meetings, two of the meetings were recorded by making observation notes and other three were audio recorded.

3.5.3.3 Investigating classroom teaching-learning

The study uses a combination of different methods of data collection to create an account of the pedagogical practices in the study school. The classroom interactions were video-recorded. Apart from recording the classroom processes, to access teachers' perspective of their own teaching five Stimulated Recall Interviews (SRI) were also done with the teachers. The interviews conducted with the school functionaries and teachers added another layer of data for understanding classroom processes.

The use of multiple methods increased the burden while collecting data but also gave an opportunity to enter into multiple institutional practices to understand teachers and children's motives. Using video, then editing it for

SRI and visiting various sites where teachers, community and children interact with each other made the whole process quite cumbersome; but participation in different institutional practices gave me a better understanding, helping me to engage with the participants. Moreover, I never felt out of place while being in the classroom or in various meetings.

While using a dialectical-interactive framework an effort was made to focus on the behaviour of an individual in naturally occurring, ongoing settings, while they engaged in the practices within the setting. As I have already indicated, the aim was also to provide a thick description (Geertz, 1973) so that during analysis it was possible to identify intentions and motives in action in activities. To accomplish thick description a number of methods were used to collect data. These were: participant-observation, using audio and video recording, interviews, SRI and documents. Moreover, constantly reflecting and checking the data helped in building layers of descriptions, thus yielding a thicker description and increased credibility and validity. The table below shows the focus of different methods of data collection used in the study:

Table 3.B: The focus of different data collection methods

Method of data collection	Focus
Interviews	To explore teachers' and parents' views on teaching-learning in Digantar schools. Interviews with school functionaries, teachers and teacher educators helped to gain understanding of the process of teacher development in Digantar schools
Video/ Audio-recording	To create a rich description of classroom teaching-learning, teachers sharing meetings, workshops and

	school-community meetings
Observation	To record the context and peculiarities of classroom interaction, school-community meetings, teacher sharing meetings and workshops
Stimulated Recall Interviews	Conducted with two teachers whose classrooms were video recorded to understand their perspectives on sessions
Documents	Philosophy and historical information of the school

3.6 Data Collection: Rationale and strategies

This section delineates the rationale behind each of the research methods used in the study and the strategy followed for data collection in the broader framework of dialectical-interactive methodology. It was understood that data gathered through multiple methods would support data analysis to present a holistic understanding of the processes that shape pedagogical practices in Digantar schools.

1. Video recording in the classroom

Rationale: Inspired by ethnographic and CHAT approach to research, every effort was made to study real people in real situations, doing real activities. Video recorded data provides more contextual details (Gass & Houck, 1999). Thus, they can give us a more complete sense of who the people are, and acquaint us with the settings in which the people function and the types of activities they engage in from day-to-day as well as the nature of these activities themselves. Thus, over time they can help in building an understanding of motive as we can better locate action in activities. The video

recorded data has gestures, facial expressions, and other visual interactional cues, which help in the investigation of both the negotiation of meaning and the negotiation of affect during the course of classroom interaction. Video (as well as audio) recording also provides denser linguistic information than observation notes, as ideally it records every word. When taking observation notes, the researcher is limited to capturing only part of what is said, or recording only brief interactions because of constraints on memory and the limitations of note taking (Bebee & Takahashi, 1989).

Another advantage of video recording is permanence (Grimshaw, 1982), which allows us to experience an event repeatedly by playing it back. With each repeated viewing, we can change our focus somewhat and see things we had not seen at the time of taping or on previous viewings (Erickson, 1982, 1992). Video recordings also bought me time for analysis and gave me a better chance to consult my supervisor and other experts. Recording on video was considered not as substitute for other forms of data collection but it has many advantages, such as sharing live data with others, being able to check findings and reanalyse, the opportunity to select extracts later and focus on the important elements for analysis. It is also important to note that the data gathered from other sources like observation notes and interview already has an element of interpretation. The video recording of classroom interactions therefore provided a means of analyzing students' relationship with their environment within the rich context of the whole classroom-learning environment. It was also helpful to choose snippets from the video-recorded data to show to the teachers during SRI.

Strategy:

I particularly focused on sequences where teachers and children's pedagogical engagement in the relation to the learning activity was visible.

The school had no electricity connection in the classrooms so the use of video camera was limited to two hours of battery life. This sharpened the decisions made about what to record. The morning *sabha*, mathematics and environmental science sessions were selected as they were found to be of maximum help as school's pedagogical practices were found to get more explicit in these sessions. Later recordings were also done using an iPod's camera. The resolution of the video was not very high quality but the iPod was less obtrusive and easy to handle. Overall, around 120 hours of video data was recorded. Only 70 hours of video was considered for the data analysis after first round of filtering.

While recording, an attempt was made to film the whole classroom event i.e. from start to end. This was crucial as it helped in tracing the classroom interaction over time, which was needed to address the research questions. The camera was hand held all the time, as the classroom was not organized in a formal way with desks or tables. Teacher and children moved a lot and sat in different groups on the carpeted floor while doing their tasks and in discussion. Most of the time the camera was focused on the teacher. The video recorder constantly captured the talk of the teacher and children. The zoom function was occasionally used, but principally the larger class area was recorded. To be less obtrusive, I tried to position the video camera at some

distance from the participants. In order to keep the interaction naturalistic, I made an effort not to manipulate the setting in any way. I sat on the floor in a circle with children as one of the participants. Initially when the teacher gave children some task they had the tendency to come and ask me what is the answer or how to solve a particular math problem. I agreed with the teacher that I would not help the pupils.

I was helped in videoing by a friend for some of the time, as recording without a tripod was physically demanding. Participants knew that they were being video-recorded but did not appear uncomfortable. The children often appeared unaware of the camera possibly because they were so engaged in their work that they had no time to wander around. Despite this I often did a cross check with the teachers to see if they felt any discomfort. They were always very supportive and treated me more like part of their teaching-learning process, often discussing classroom activities during lunch break or after school hours. After some time children considered me part of their class. They would buy toffees for me or want me to have lunch with them.

2. Interviews

Rationale: Interviews are understood as ‘conversation with purpose’ (Burgess, 1984), yielding rich insights into people’s opinions, attitudes and experiences. The interviews were primarily semi-structured to allow me to seek clarification and elaboration on the answers given and thus enter into a dialogue with the interviewee. These interviews also served as a mechanism for building rapport with the teachers in the first few weeks and for understanding their

perspectives. The informal interview with the community members and post-lesson interaction with children similarly served the similar purpose of rapport building and to learn the perceptions and beliefs of parents and children about the teaching-learning process in the school. A number of shorter informal interviews were also planned into the study to build rapport and help me better understand the social processes in which the school was embedded.

Strategy: The table below shows the scheme for the interviews.

Table 3.C: The participants interviewed and the method of interviewing used with them

Interviewee	Type of interview
Teachers	Semi-structured
Parents	Semi-structured and informal interactions
Children	Planned informal interactions
School officials and teacher trainer	Semi-structured and informal interactions

Seven semi-structured interviews were conducted with teachers and school officials i.e. the programme coordinator, the community coordinator, the academic coordinator, the secretary and the director. The programme coordinator and secretary (Mr. Rohit Dhankar) also led sessions in teacher training workshop and initial teacher training. They all shared a lot of information on teachers' development and the training process in Digantar in their interviews. Five semi-structured interviews with parents were also conducted. Most of these interviews were 20-30 minutes long except the interview with the programme coordinator and secretary, which were

approximately one hour each. At the same time multiple informal interviews were also conducted throughout the study with people associated with the school administration, teachers and community members to reduce the “artificiality” of formal interview settings (Hammersley & Atkinson, 1995). A series of informal interactions with the children produced data on their beliefs about teaching-learning and their experiences during the lessons. The interviews were organized taking into consideration, its relevance for the research theme and dynamically with regard to the interpersonal relationships in the interview (Kvale, 1996).

It is worth mentioning that people sometimes avoided talking or showed discomfort when the community coordinator told them that I am going to interview them. I realized this problem after several meetings and later we only said we wished to talk for 15-20 minutes. This eased the formal environment and allowed parents to interact freely. These interviews and discussions in the first two weeks brought me closer to the community and children. The informal chats with the community members about their work and interests and post-lesson interaction with children helped to create a relationship. Later, parents themselves started to talk about their children’s education and the teaching-learning process at Digantar. I think the initial rapport building and showing authentic interest in understanding people’s life helped parents to open up and share their ideas.

Before conducting interviews it was imperative to develop the trust and confidence of the participants (Corbin, 1971; Finch, 1984; Oakley, 1981). The

interviewees were told that pseudonyms would be used while reporting, so they could express their views without fear. I mentioned before starting the interviews that I would audio-record the interviews so that I would have an accurate account of what they had to say. The broader objectives of the research and manner in which the interview will be recorded were explained to the participants. I indicated that they were free to seek clarification on any point that I made and decide whether they wished to participate. Before interviews started, most of the parents asked many questions. Where I have come from? Why I am doing this? Do they get any benefit out of this? Can I come to teach their kids? These initial interactions were sometimes longer than the interviews and gave me lot of information, which helped me to understand participants' perspective. An interview guide (Patton, 1985) was developed to facilitate the process of interviewing.

3. Stimulated Recall Interviews (SRI)

Rationale: Using a cultural historical methodology it was important to consider teacher's perspective in relation to the activity they were engaged in and also their perspective on children's social situation and activity settings. Thus SRIs were designed to understand teachers' perspective on their pedagogical practices inside the classroom. SRI allows the investigation of cognitive processes through inviting participants to recall their concurrent thinking during an event when prompted by a video sequence or some other form of visual recall. The rationale for using the stimulated recall technique was to provide, in retrospect, an accurate verbalized account of teachers/ children's original thought processes. Other studies have pointed to the fact that

willingness to recall their thinking was found to be remarkably improved by pre-viewing video (Pierie, 1996). Even during the pilot study I found that the technique worked well with the teachers to access the underlying processes that influenced classroom teaching-learning.

During the pilot study stimulated recall with the children seemed to work well. However, while analyzing data it was evident that the SRI did not give access to children's perspective. Moreover, it was also restricting their natural behaviour inside the classroom, as after watching their video recording, children were more prone to hover around the video camera. So I decided to have informal interactions with children after the class to gather their perspectives about the classroom process and dropped the idea of conducting SRI with children.

Strategy: Five stimulated recall sessions were organized with each of the two teachers. More sessions were not selected as prompts as the teachers were giving similar responses to each clip. While conducting the session, a small clip of classroom video was shown to the participant either on the same day or at maximum within three days from the recording of the video. (Ericsson & Simon, 1980) have cautioned that stimulated recall procedures should be conducted as soon as possible after the task is completed as information which is established in long term memory becomes not a direct report of the experience, rather a combination of the experience and other memories.

The choice of clip was made taking into consideration the objective of the research. The clip shown to the teachers for SRI involved pedagogical practices where it was seen that teachers had made efforts to align with children's motive or negotiated to build common knowledge that facilitated children's learning. In one interview a clip where the teacher was using inputs from the teachers' sharing meetings was also shown to him for stimulated recall. The types of video clips chosen were also discussed with my supervisor over skype. The purpose of these interviews were to bring teachers perspective about their practices. This helped to make their intentions more explicit and understand them better.

The teacher was instructed to stop the videotape at points when s/he want to talk about the video recording shown to him/her. If a period of 3-4 minutes passed without any comment by the teacher, the researcher stopped the videotape and asked open-ended questions such as "what were you trying to accomplish here?" or "what were you trying to do at this point?" All the comments by the researcher and teacher were audio recorded. These sessions generally lasted between 10-20 minutes.

4. Documents

Strategy: Documents like annual reports of Digantar schools, teacher training guides, textbooks and tools used for classroom teaching-learning were collected to help understand the philosophy, historical foundations and programmes run by Digantar. The school director gave me annual reports of the past few years, Digantar philosophy document and some of the children's

magazine called *Batuni*. These documents helped in creating a historical account of the practices in Digantar.

5. Participant observation

Rationale: Although a video camera captured a great deal of both auditory and visual information, it nevertheless restricted the view as well. Therefore, in spite of the sense of being there that a film can provide, it does not show every observable thing that happened, but only that which was occurring within the range of the camera lens (Fetterman, 1998; Heider, 1976). So observation notes were made to provide better understandings of the contextual details of the interactions recorded on the video recorder.

Observation notes helped to record what people said and did when there was no camera. I used observation notes not only as a data collection tool but also as a tool for rapport building and engaging with people. The knowledge gained about the people and environment from the observation notes helped in contextualizing the interviews later.

Use of observation in the inquiry was primarily to provide additional contextual data about school and community processes. The classroom observation was expected to serve the following purposes:

1. Immersion into the field and rapport building;
2. As a basis for conducting the post-lesson discussion with the children;
3. Establishing shared experiences between me and pupils for later interviews and stimulated recalls;

4. Giving contextual details for the interviews with the teacher;
5. Assisting understanding of the data from video/ audio recordings.

Strategy: “The theoretical framework with which we enter the field is one of the key influences in what we will observe and record” (K. M. DeWalt & DeWalt, 2002) p.68). I entered the field with well-defined and specific research questions. I had prior idea due to my reading of Vygotsky and Leont’ev that how social structure, social interaction systems, power relations and networks and way of life are organized has influence on people’s consciousness. These understanding influenced how I engaged with people and also the sites and events I chose to observe while being on the field. The sites for observation were decided in advance. Classroom processes, school community meetings, teacher sharing meeting and workshops for the teachers were recorded on observation sheets.

Loosely structured observation data helped to construct the details of the psycho-semiotic environment of the classroom. For example, the interesting details and comments made by the teacher were noted down. Observations also gave me a chance to initiate dialogue that helped in gaining fuller understanding of the tasks in the classroom. Observation notes were documented and contained what I had seen and heard during data collection activity and interaction with pupils. Any interpretation of the observed event or interactions was marked as OC (meaning observer’s comment). This helped to segregate the observation from the interpretation of the event. While involved in informal interactions, I recorded the bits of information, which

could help in later recall and constructing the situation. Behaviours that were particularly unusual and noteworthy objects in the environment, which mediated the learning process, were also recorded in the observation notes.

3.7 Data Analysis

This section explains the rationale of how the collected data were organized and analyzed, followed by the format of how they were finally reported and presented.

A dialectical-interactive approach to research seeks to capture all perspectives so that practice can be conceptualized beyond something occurring within a researched person's head or body and move towards a dialectical relation between the researched person and his or her social situation across time and institutions (Fleer, 2008, p. 103). Thus, while analyzing the multiple layers of data collected using multiple methods, the following four steps process were used:

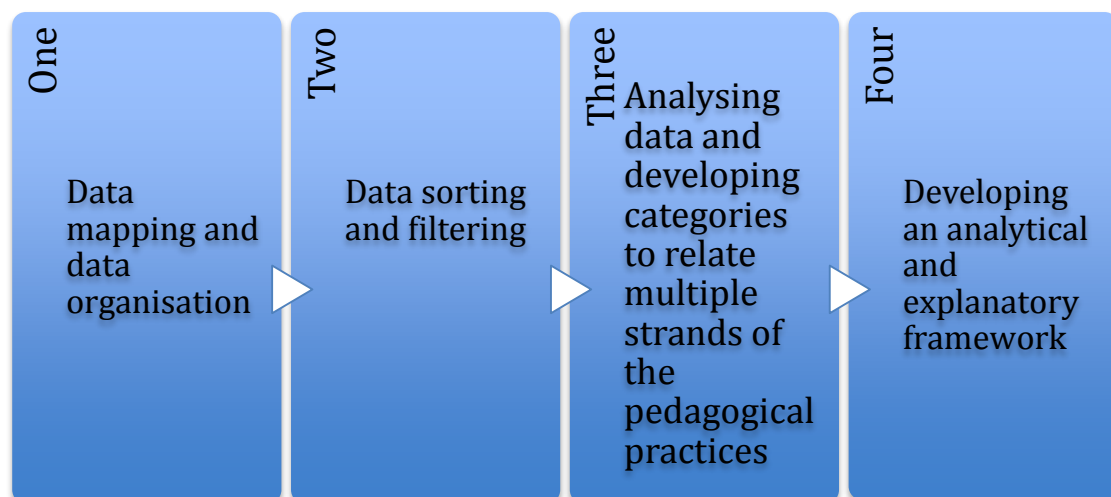


Figure 3:2: Figure representing layers of data analysis

3.7.1 Data mapping and organization

I started to sort data while in the field by building a map so that various perspectives emerging from different strands of data could be related and seen together. To avoid data overload and to direct the data analysis process, the conceptual framework and research questions were used as a guide. As multiple methods were used to collect the data, they were put on a timeline in order to trace the historicity of events. It was then possible to discuss the relevance of data collected from one method with the others.

The conceptual framework of the research was used to organize data. All the data sets informing about teacher education and development, community-school engagement and teacher-child interaction in the classroom were organized separately. This split was employed for the purpose of presentation and to make the theoretical arguments clear, it was not intended that they should be separated conceptually. For the purposes of clarity, Chapter Four contains analyzed data on teacher development and training and Chapter Five presents community school engagement. Lastly, Chapter Six is devoted to with-in classroom interaction data. Chapters four and five are organized around practices of teacher development with a mix of interviews, observation notes, documents and audio-recorded data; while Chapter Six is structured around the video data showing classroom teaching-learning practices. The data from SRI and interviews were used to enrich the details and help to reveal the intention and motives explicitly.

3.7.2 Data sorting and filtering

The initial step of the analysis was to select which sets of data should be analysed. The data collection generated around 120 hours of video data along with interviews, stimulated recall interviews and observation reports. Thus the first step was to make data manageable so that I could effectively respond to the research questions. The following criteria helped in reducing the video data to 70 hours for the purpose of the analysis:

1. All the video clips less than 15 minutes were not considered for analysis
2. Only data from environmental studies (science and social studies) and mathematics teaching-learning sessions were considered for analysis as they related most clearly to the research questions
3. Initially it was decided to use the video from morning *sabha* (assembly) as well, as they were found to be spaces, which entwined children's everyday world and the school's academic life but it was decided not to use them. The data from morning *sabha* would have made the presentation all the more complex for the reader to discern. Although it was an important layer, which may be explored further in future.
4. All the audio-recorded data coming from the teachers' sharing meetings, teacher training workshops and community-school meetings were considered appropriate for the analysis.

These criteria helped to filter out approximately 40-45 hours of video data. Another 10 hours of video recording were not considered as some of the data in two teachers' classrooms were found to be overlapping, being on the same concept. Only one of the video clips was chosen in that case.

During the fieldwork, I started initial analyses of the video data and a level of preliminary analysis started at that point, which later helped in organizing the data. Two skype meetings with the supervisor were organized to start with the data analysis while being in the field. At that point it was decided that transcribing the entire data from interviews and video would be both cumbersome and unnecessary. Only the relevant sections of the data which were used in showing the negotiation taking place for building of common knowledge in the sharing meetings and workshops and data reflecting pedagogical practices inside classroom where teachers align motives to engage children in their learning and school-community meetings were translated and transcribed.

It is important to mention here that the language used during classroom interaction was Hindi, which is my mother tongue. So I faced no problem in understanding the language. Although some of the words, which were used in, the parent-teacher meetings and community-school meeting were not familiar as they were part of the local dialect. The community coordinator helped me in understanding those words and transcribing those sections. After translating the data segments into English they were shown to the group of three research students from India at the University of Oxford. These students were native Hindi speaker and have good English language competence. The sections of the translation where they had disagreement were marked for later discussion. In the discussion, I explained my reason for

choosing a particular word over other. A few changes to the translated text were made during these discussions.

3.7.3 Analyzing data and relating multiple perspective

Reading and rereading of the transcripts and observing the video data were given considerable importance since there is no substitute for knowing the data well and being sensitive to what it might be telling you. At this point engagement with the recorded data and discussion with the peers, experts and supervisor shaped and progressively focused the direction of analysis.

First layer analysis and coding the language data: The next step was to write codes, in order to map and analyze the patterns and interactions that stand out. Nearly every dialogue was coded while those sections where intentions of the researched persons get more explicit were marked so that I could return to it quickly (one such excerpt could be seen in Appendix 03). Thus the purpose was to get a sense of the data and devise a framework, which could help to deal with the complex data set efficiently. It is vital to point out that even at this level the categories that emerged were identified with the research questions in mind and using explicit concepts from the cultural historical literature. This was a slight departure from the dialectical-interactive tradition as it was seen that the first level common sense analysis promoted by the tradition was not adding anything to the analytical process; but kept the analysis at a descriptive level.

Analyzing the demands of the institutional practice and intentional orientation of the researched person: At this point the focus was on the interpretation of

the practice in an institution. The following theoretical conceptions outlined in Hedegaard's analysis were focus of the analysis at this level:

- i. "The intentional orientation of the researched person
- ii. The ways of interaction between participants (interaction patterns)
- iii. The conflicts between different person's intentions and projects in the activity
- iv. The competence and motives that can be seen in the researched person's interactions in his or her social situations" (Hedegaard, 2012a, p. 58).

The effort at this layer of analysis was to present the intentional orientations of the participants. In all the finding chapters this analysis is presented alongside excerpts from the video/audio recorded data.

At this stage the analysis was presented at conferences: ISCAR-UK (International Society for Socio Cultural and Activity theory Research) and the European Congress of Psychology. The discussions in these conferences helped to validate the way in which the data were analyzed. The experts also suggested how to further develop the analytical framework. After multiple discussions with my supervisor it was decided to further develop the analytic and theoretical framework.

Interpretation at thematic level: The interpretations at this layer are 'directly connected to the aim of the research' (Hedegaard et al., 2008, p.61). Effort was made to formulate "explicit relations using theoretical concepts to find patterns in the situated complexity of the institutional practices level of

interpretation” (p. 61). Hedegaard further explains that at this level “the category system is developed as a dialectic between the aim of the research (i.e. what one wants to study), the theoretical preconditions and the concrete materials. Through this process new theoretical conceptual relations can develop” (p. 61).

3.7.4 Developing an analytical and explanatory framework

- ***Analyzing the building and sharing of common knowledge at the teacher education and development layer***

The school philosophy documents and interviews with the director, secretary and coordinators of the school gave a sense of the historical foundation of the ITEP in Digantar. The data from the interviews, school documents, and audio-recording of the teacher-sharing meetings and workshops were used to understand how building and sharing of common knowledge happens at this layer. How are the teachers engaged with the Digantar’s idea of schooling? Where does the conflicts between the intention of the teachers and school arise? What are the challenges teachers face while engaged in the institutional practice? What are the demands Digantar schools put on these teachers? These were some of the initial questions that guided analysis.

- ***Analyzing the community-school engagement***

School-community meetings, accompanying teachers when they visited homes, interviews with the parents, the community coordinator and the director of the school were found to be valuable when compiling an account of

how institutional practices are organized. Guiding questions were as follows: What are the cultural beliefs about teaching-learning? What are the beliefs about the role of teacher and child? How did the school engage parents with their children's schooling? How was any conflict between school and community's ideas resolved? While asking these questions the focus was to get into the intentional orientations of the research participants as they engaged in their regular practices and met together across practices.

• ***Analyzing the pedagogical practices in the school:***

The classroom data presented in Chapter Six was more difficult to deal with as it involved capturing multiple modes in the interactions, where gestures, postures and other non-verbal cues like intonation were also considered equally important for meaning making. The analysis as presented in Chapter Six had following focus:

1. Sequencing and interplay of modalities used during interaction: the teacher draws a figure or does an activity or plays and dances with children while teaching in the classroom. It was considered important to analyze how a particular way of interacting with children influenced mutual alignment of motives.
2. Scientific concepts that mediated interaction in the classroom: The classroom discourse between the teacher and children was generally mediated by the scientific concept to be taught. How is the concept introduced and how the concept mediated teacher-child engagement were analysed in detail. This also offered a window for understanding teachers' and children's motives.

3. Strategies that helped in alignment and realignments of motives: The components of pedagogical practices and strategies used by the teacher to negotiate children's consistent engagement with the object of activity were also considered crucial for the analysis of pedagogical practices.
4. Relational orientation as they changed during the interactive trajectory: Long discursive episodes were selected for analysis to show the interactive trajectory and how motives were aligned and realigned during that process. Conflicts, negotiations, disagreements were seen as an opportunity to show the changing relational dynamics between the teacher and children. Thus, it helped to present a rounded understanding of the learning process.

3.8 Establishing validity of the research

In the dialectical-interactive tradition "the validity is connected to how well the researcher can explicate the historical tradition of the practice and the preconditions that are anchored in the values that integrate and specify different perspectives" ((Hedegaard et al., 2008), p.43). As she further points out that "[T]he answer depends upon how well the model being used can catch the different perspectives of the participants in everyday practices?" (Hedegaard et al., 2008), p. 43). Thus, following this approach an effort was made to capture multiple layers of data so as to gain their perspective. The conceptual framework presented in this chapter gives a sense of how these different perspectives were brought together in the analytic framework of the research.

After completion of the first layer of data analysis it was presented in OSAT (the Oxford sociocultural and activity theory group) meetings. The data analysis was also critically and rigorously discussed with the supervisor at various stages. In addition, other experts working in the cultural-historical tradition, including Prof. Mariane Hedegaard, Dr Seth Chaiklin and Dr. Jan Derry were also consulted. After refining the analysis further I also went back to the Digantar school and showed them how I was analyzing data and what was emerging from it. The school approved of the emergent findings. I also contacted the two teachers who participated in the study and showed them some parts of the analysis concerning their interaction with children and how I was using their interviews.

“Importantly validity of this approach is gained through the act of analyzing all the perspectives of the participants- their motives, projects and goals. The perspectives when taken together, give meaning for actions within the social setting, resulting in a much clearer understanding of the video and interview protocols that are generated” (Fleer, 2008, p. 87). The multilayered data collection and analysis made efforts to ensure that all possible perspective could be included in the research’s object of enquiry.

3.9 Ethics

Throughout this chapter I have attempted to reveal how the study attended to a range of ethical concern, from engaging with the community, to disrupting the classrooms while observing. The ethical demands were high, not least because I inserted myself into a village community for six months and became

an accepted actor in it. The study received the usual ethical approval from the University of Oxford, and a concern with the well-being and expectations of the participants in the community and school shaped my engagement. As an engaged researcher, within the cultural historical tradition, I was happy to discuss my work with the teachers as it proceeded. I hope also that the concern with cultural conditions that is central to the approach taken here, and discussed through this chapter, is seen to indicate a strong concern and respect for the historically accumulated practices of both the school and community.

Chapter Four

4 Building and Using Common Knowledge I: Developing Teachers' Professional Expertise

“Some people think that extraordinary people are needed to teach in such schools. No is our answer, we recruit ordinary people and they become extraordinary teachers in this kind of atmosphere; when they are relaxed, have freedom and a warm relationship with children.”

(Digantar Annual Report 2009-2010, p. 11).

4.1 Introduction

This chapter presents the institutional practices and discursive interactions, which contribute to continuous teacher education and development in Digantar schools. The chapter is based on the analysed data derived from school documents, audio-recordings of the teachers' sharing meetings, workshops and semi-structured interviews of teachers and school functionaries. The intention is to detail an analytic picture of teacher preparation and support in Digantar schools using the tools of cultural historical activity theory (CHAT). The chapter is divided in four sections:

4.1. Key concepts and analytic focus

4.2. The Initial Teacher Education Programme: Engaging with schools' values and motives

4.3. Teacher Sharing Meeting: Developing collaboration and responsive teaching.

4.4. Teachers' workshop: Seeking support from the expert in the system of distributed expertise

4.2 Key Concepts and analytic focus

The chapter draws on the cultural historical work of Edwards (2002, 2010a, 2011), Engeström (1999, 2007) and Hedegaard (2008, 2012) that has already been discussed, as well as the accounts of teacher education provided by Cochran-Smith (2008) and Van Huizen et al. (2005), acknowledging the attention to social justice in the former and the Vygotskian roots of the latter's argument. The intention is to reveal patterns and build a coherent narrative in relation to teacher development in Digantar.

In her 2010a book Edwards argues for building and sharing of common knowledge as a pre-requisite for quick and responsive relational work. Her arguments draw on her research on inter-professional work and the demands of working at what she terms the sites of intersecting practices. In this study I would like to add to her arguments to offer a case for how building and sharing of common knowledge can contribute to developing teachers' professional expertise.

Edwards et al. (2002) point towards collaboration between teachers as an important way to improve their teaching. Taking a very similar position, this chapter presents how the constant building and sharing of common knowledge facilitates the development of a self-sustaining group of teachers.

Edwards' concept of relational agency and relational expertise in a system of distributed expertise will serve as a foundation to show how teachers align what matters for them with the demands of teaching in Digantar schools. Like Edwards (2010a, 2011), the present study also uses Hedegaard's model of levels of analysis and idea of object-oriented practice to relate institutional practices to the discursive interactions that happen during the teacher sharing meetings and workshops.

4.3 The Initial Teacher Education Programme (ITEP): Engaging with schools' values and motives

The school in which the research took place emphasises the ITEP. The initial training is considered the foundation, which distinguishes Digantar teachers from teachers in other schools. The analysis of data shows the components at the core of the ITEP:

4.3.1 Understanding oneself and one's professional values better

For the first 10-15 days ITEP participants scrutinise their understandings of education, children's learning and development, community and role of children's environment in their education, assumptions about knowledge and construction of knowledge. The teacher (Pravesh) noted that there is considerable discussion of:

“[i]deas about life, what is knowledge, what is the purpose of education, why teach children. We use to wonder why are we asked these questions. We are here to teach, give us a classroom and we will teach. We recognised its importance after sometime.” (Excerpt from teacher's interview).

It was clear that the philosophical questions that were raised in the ITEP were designed to engage teachers in asking profound questions about life, knowledge and education so that they recognise that their individual consciousness and the world stand in relation to each other and it is vital to grapple with these issues. One teacher (Shradha) observed:

“training changed the way I see the world. I realised that the teacher is not just a test preparer and examiner but his role is also to see students not just as learners but also as potential citizens. This changed the way I think about teaching”. (Excerpt from teacher’s interview).

The school aimed at building a professional identity that distinctively represented the kind of teaching-learning found in Digantar schools. They appeared to respond to Edwards’ question “what kind of teachers for what kind of learners?” (Edwards, 2010b, p. 63).

But more than that, the Digantar philosophy of education aligns with Vygotsky’s remark that “Questions of education will have been resolved when questions of life will have been solved” (1997, p. 350). The emphasis in the ITEP on life and the idea of society was a major step in enabling Digantar teachers to continuously consider the kind of society they want to create with education. As the Annual Report 2008-2009 stated “We visualise a pluralistic, democratic society that safeguards justice, equity, freedom and human dignity to all its members” (p.4). I would like to suggest that Edwards’ broader question is also raised by Digantar schools. There responses to the question

also reveal sympathy with Cochran-Smith's (2010) concern about developing a theory of teacher education for social justice.

This aim appeared to be reflected in Digantar pedagogy. The director and secretary of the school remarked that the design of the ITEP is consistent with their understanding of the processes of human learning, and reflects school practices. They also recognised that "these adult learners who aspire to become teachers have vast stores of experience, ideas, opinions, values, attitudes, information and skills" (Digantar secretary). The organisation of the ITEP and its focus on each teacher as a meaning maker who is agentic and engaged in his or her development helps to make the training a transformative experience, which is far from indoctrination.

A commitment to the values of teaching-learning lies at the heart of the professional identity the ITEP intends to create. One teacher (Pravesh) explained "we were never told to believe in whatever is said in the training. Sometimes *Shyam ji* (the teacher trainer) deliberately gave us absurd solutions to the problems we posed. The purpose was to make us challenge them. In the process of challenging something said in the training we read more books." Thus the orientation was in line with a Vygotskian approach to teacher education, which has been described as not "to recruit teachers into any existing ideology, but clarify and define their own allegiance and commitment to teaching as the core of their professional identity" (Van Huizen et al., 2005, p. 276).

4.3.2 Challenging trainee teachers' mental schema and engagement with the schools' mission

One of the prime aims of the ITEP was to challenge the mental schemas which beginning teachers bring so that they develop a more reflective and evidence-based way of operating. The term 'mental schema' has been taken from the school document. It does not represent the more nuanced debate found in the work of Cole and Holland (1995) where they have used discourse and schema theory to develop a novel concept of cultural artefact.

The school coordinator in his interview explained, "so our first job is to challenge their ideas about the world". The term 'challenge' is taken very seriously in the training. The school coordinator, who also works as one of the trainers elaborated, "this process generates more questions than answers. They come back to the sessions and ask more questions. Some of them have told me in the past that their belief systems and notions about education are completely shattered."

One of the purposes here seems to be to make these trainee teachers aware of the contradictions that exist in their own thinking. Another teacher-educator explained, "this is the time when we start to teach them and suggest readings on educational philosophers and thinkers."

Most of the teachers also corroborated the destabilizing impact of the discussions and visits during their own training. One of the teacher mentioned,

“I lost my entire self-confidence after 15 days. I felt very bad about myself but I was also thinking that I have changed in my approach towards life. The discussions with *Rashid ji* even on small issues used to go on very long. I started to enjoy them and there was feeling that I am doing something good for the society.”

The contradictions and crises that emerge at this point help in developing a new professional identity. As they assume a theoretical approach towards social life and education the approach becomes a tool to negotiate and align what matters for them with the values and motives of the school.

Challenging the teachers happened in order to provoke the exercise of personal agency and develop understandings of the processes of teaching-learning; and the need for critical thought and reason. In these processes there emerged a common ground of shared understanding of what mattered for all participants, which comprised the common knowledge, which mediated the collaborations necessary for exercising relational agency when in school.

Relational agency (Edwards & Mackenzie, 2005) “involves a capacity to offer support and to ask for support from others” (p. 294). The sessions in the ITEP where each participant learnt from others helped them understand what mattered for each of them. This process appeared to play a vital role in the creation of common knowledge. One of the teachers mentioned:

“for the first few days we used to speak too much in the training sessions and nobody wants to listen what the other has to say about the topic. Rashid ji (teacher trainer) often use to ask us what others in our group had just said. That was the time when I realised, I don’t

usually listen to what others have to say. When somebody is speaking I use to think what will I say. I realised in short time that listening to others was helpful because they sometime share things I never thought about.....over a period of time we started to share a lot of ideas.” (Excerpt from Pravesh’s interview).

4.3.3 Changing trainee teachers practices and relationship with the social world

“After 10-15 days we start to see a marked change in the way trainee teachers think. They start to devote more time to library and discussion. Some of them even start to enjoy it” (School coordinator interview). One of the teachers mentioned in an interview “we came to Digantar considering it’s a teacher’s job and we will go and teach but it completely changed our social relations”. This changing relationship with the social world and engagement in discussion and using the library brings about the change in their idea of teaching-learning. It also redefined their motive of engagement with the profession as well. “Money and time became our secondary concern. We are not able to meet our relatives for months. A constant thought start to run in our head what will I do tomorrow in the group (means classroom)” (teacher’s interview).

There were parallel processes of de-stabilization and construction at work in the training. A concerted effort was made to develop an epistemological worldview of the teacher, which aligns with Digantar philosophy. A significant component of the ITEP is visiting Digantar schools and observing in them for a few days. The trainees also visit the villages and meet community members. Afterwards they write reports based on their observations and interpretations.

This constant emphasis on engagement with the concrete social and material world makes the school philosophy explicit. In carpentry, drama or reasoned discussions in Digantar schools there is a constant effort to provide space for the expression of the participants' ideas. It was observed that in the ITEP sessions attention was always paid to highlight the importance of reasoning and logical thinking during interactions. As trainee teachers' relationships with the social situation changes it marked, as Vygotsky argued, "new structures of consciousness" (Vygotsky, 1997, p. 199).

4.3.4 Developing a pedagogic stance towards work: Changes in ideas about teaching-learning

Effort was also made to translate the abstract and philosophical claims into theoretically informed practice that is feasible at the institutional level and can be evidenced in everyday pedagogy. Thus the cultural values, beliefs and epistemological standpoints that frame academic expectations of students are made explicit.

Teachers are encouraged to develop their own understandings to make knowledge personally useful. It was believed that each teacher would bring a unique and valuable perspective with him or her. The training itself focused on both the trainees' sense-making and reasoning and on the more creative aspects of thinking and acting through activities like story or poem-writing, drawing, painting, play acting and singing. The secretary of the case study school explained that these more creative activities give each participant an opportunity to express him or herself and emphasised that education is not only about books and abstract thinking but also about sharing ideas in

creative ways so that people relate to them. He took carpentry as an example and explained that the purpose in teaching carpentry in schools is not restricted to teaching a skill. When you interact with the concrete world you learn how it works. “If you have to make a round circle from cardboard and if you make any mistake it cannot be reverted” (Excerpt from interview of programme coordinator). This interaction with the concrete world is extended and teachers are expected to develop an interaction with the community in their training period as well.

With the help of the intellectual toolkit acquired from readings, meeting with experts and discussions with trainers, the group starts studying the curriculum and methodology of teaching. One of the teachers interviewed in the school-based fieldwork said that the training completely redefined his relationship and understanding of the subject areas and teaching. The school philosophy documents state:

“The emphases is laid on recognizing the particular contribution of each subject area to development of total understanding of the world and to perceive the particular nature of that subject area; how it is understood, how it grows etc. The emphasis in the whole training exercise is on understanding the fundamental concepts and structures of each subject area more than on acquiring information” (p. 9).

Table 4.A: The table summarises the details emerging from teachers and school functionaries' interviews about changes in teachers' worldviews after the ITEP

	Before ITEP	After ITEP/ What the school intends teachers to do
Curriculum	The school gives curriculum in terms of number of books to be covered.	Acquisition of situationally relevant knowledge and skills is vital, teachers and students decide the curriculum on the basis of broad framework of conceptual development (provided by the school).
Pedagogy	Teaching is to cover curriculum and examine.	Student-teacher relationship at the centre of pedagogical practices at the same time it is informed by the interaction at the school-community level and interaction between teachers. Teaching involves working on children's long-term trajectory.
Assessment	Very important to evaluate what marks a child is getting in what is taught.	A comprehensive continuous assessment was followed where teachers believed more holistic information about the child's progress is to be registered that include their family circumstances, their health and their learning curve.
About teachers role	Teachers' primary job is to discipline children and teach them.	Teacher was considered a collaborator who guides, scaffold and serve a model for other learners.
About children	Children do not know much, they need to be taught.	Learned to demonstrate respect for students and their knowledge. They are active collaborators in the learning context and effort should be made to make them self-dependent and motivated learners. Peer group plays an important role as they provide collaborative assistance in learning.

4.3.5 Commitment to professional identity: Institutional expectations and criteria

Van Huizen et al. (2005) suggest that a Vygotskian approach to teacher education “presupposes the presence of ideal forms (Froumin, 1995) towards which professional development may be oriented and directed” (p. 274). On similar lines, after the ITEP the teachers are expected to develop:

- i. “an understanding of human knowledge and the process of its formation.

- ii. an understanding of the processes of the child's learning, certain values and social concerns,
- iii. an understanding of the child's environment; socio-cultural as well as physical,
- iv. an ability to observe the effects of her own intervention, reflect and analyse them (possible only if she can analyse her own value system, belief system and attitudes),
- v. a certain understanding of and command over the subject areas (language, mathematics, science, arts, crafts, etc.),
- vi. an understanding of the place and importance of the subject areas in human understanding and effect on human action,
- vii. an ability to help the child without indoctrinating him/her
- viii. teaching skills, right through the curricular spectrum (starting from finger movements to concept formation),
- ix. an ability to raise stimulating questions of fundamental importance which lead to increased sophistication and growth of the child's understanding; which could be very different from her own understanding,
- x. a sensitivity towards other human beings, towards the community and particularly towards the child” (Digantar School Document: The teacher and teacher formation, p. 1).

These competences serve as a moral positions or part of teachers' professional identities, what Taylor (1989) calls “the commitments and identifications which provide the frame or horizon within which I can try to

determine from case to case what is good, or valuable, or what ought to be done, or what I endorse or oppose” (Taylor, 1989, p. 7).

The secretary of the school explained, “it may seem that a superhuman being is needed in this kind of system. Fortunately it is not the case. We believe an average person has sufficiently broad and firm ground to build most of these capabilities.”

This process of transition from an ordinary person to extraordinary teacher is based on sincerity and rigorous striving to meet these expectations. The school recognises that even after their initial training for three months and workshops most of the teachers may lack many of the required capabilities.

The school director explained:

“actually we believe that no one alone will be able to carry on such an education system. Only a group of teachers formed on the basis of shared concerns and values can evolve and run such a programme.”

This analysis is compatible with Edwards’ idea of relational agency discussed in Chapter Two. In her writings she has consistently argued that these collaborations and negotiations “calls for linking the agency of the practitioner with the motives of the practice while considering the implications for the institutions in which these practices are located” (Edwards, 2010a, p. 16).

4.3.6 Legitimate Peripheral Participation as a way of teachers' induction in the schools

Once training is complete or near completion trainee teachers were given space to engage in teaching-learning practices. One of the teachers in his interview described,

“We were not given what to teach we were left with the philosophy ... It was a situation where we were very unsure what to do....find out what is a child's level.... what people in the past have written about him/ her and design the curriculum accordingly... complete freedom....”

In the final phase of their training, trainees work as teacher assistants alongside established teachers. They choose, make and design teaching-learning materials and sometimes teach as well. The secretary of the school also remarked that the training merges with actual work in the schools in such a way that it is difficult to pinpoint the exact day on which the participant stops being a trainee and becomes a teacher.

Once the participants assume the full responsibility for teaching a group of children, some of the more practical problems of day-to-day teaching are taken on. For the first few weeks, teachers who have been working for many years support new teachers. The academic coordinator also helps the beginning teachers in their processes of immersion. This process has similarities with the idea of “Legitimate peripheral participation” (LPP) as explained by Lave and Wenger (1991).

“LPP provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts, and communities of knowledge and practice. A person's intentions to learn are engaged and the meaning of learning is configured through

the process of becoming a full participant in a socio-cultural practice. This social process, includes, indeed it subsumes, the learning of knowledgeable skills” (Lave and Wenger, 1991, p. 29).

Reflecting this view, the training in Digantar schools is not seen simply as the acquisition of knowledge by individuals which they can use as tools in the workplace, but also involves a process of social participation in the practices of school.

Once training is over it is understood that the groundwork has been completed, and the new teachers themselves are capable of finding appropriate solutions to the problems they face. The structures are also built around teaching-learning in each school to facilitate the process of development of professional collaboration.

4.4 Teacher Sharing meetings (TSM): Developing collaboration and responsive teaching

This section presents how a constant process of development and reenergising takes place through sharing meetings. These socially shared and interactive spaces in Digantar schools help in further shaping the teaching-learning environment.

Everyday after children have left, the teachers stay for another two hours and prepare for the next day’s work. During this time often teachers seek help from their colleagues and discuss professional problems. In addition, every Saturday teachers share their weekly plans and the problems they have faced. These sessions are generally quite argumentative. Teachers ask each

other many questions. Ideas and practices are discussed at theoretical and philosophical levels and also at the level of practice. Often academic coordinators participate in these meetings. Their job is to support and facilitate interaction and also to take note of any problems that need to be discussed in the next session. Developing a professional identity, Van Huizen et al. (2005) argued, “requires the ongoing exchange of experiences and views with the fellow-trainees, teachers and teacher educators” (p. 283). These teacher sharing meetings appear to provide space for developing common knowledge and deepening a professional collaboration that enhances teachers’ pedagogical tools.

In Digantar schools teachers have to plan and implement learning programmes for their group of children, planning everything from the curriculum to the smallest classroom activity. They are constantly supported in the process by the school coordinator, the academic coordinator and the community coordinator. Sometimes they get help from TARU (The Academic Resource Unit) as well. The position and role of the teacher are so designed that she or he perceives learning as embedded in a social process based on professional collaboration.

During the fieldwork I observed constant effort by the school’s academic support unit to develop a group of teachers, which could sustain the school’s values and expectations as well as continuously grow in understanding and skill. School sharing meetings in a group of five or six teachers provided a platform for both sustaining and developing pedagogical practices, which align

with the school's philosophy. Teachers met in groups of five or six, every Saturday and, as well as discussing plans and problems, they also discussed their engagement with the community members, parents and any challenges regarding children's attendance. Primary teachers, upper primary and secondary teachers met in separate groups. An excerpt from one of the meetings, with teachers from the primary school, is presented below.

4.4.1 TSM on children's attendance

Excerpt 4.1

Place: Study School

Context and participants: This meeting at the school involved six teachers—Sunil, Mahesh, Shradha, Ramesh, Imrana and Pravesh (all pseudonyms). Pravesh who was the most experienced, having worked in the school for five years, chaired it. Mahesh joined the school six months previously. Shradha, and Sunil had worked in Digantar schools for nearly two years. Ramesh had just joined Digantar, but had been affiliated with the organisation in other projects for last three years. This meeting presented teachers' concerns about children's low attendance during a festival when it was not a holiday in the school. I have numbered each turn for ease of reference in the discussion that follows and have indicated where there are gaps in the transcription. I am focusing on the topic and the reasoning that occurs and not on the fine-grained levels of analysis that involve gesture, tone etc.

Excerpts from the sharing meeting	Analysis
1. Pravesh: We don't have enough time today. Let's do the attendance first. This is an important official formality and then we will discuss the plans. Who will start?	Pravesh tries to focus the meeting by laying out the

2. Mahesh: Okay let me start. 3. Pravesh: Fine. 4. M: Group name <i>Gulab</i> (Rose). This month Average = 14, Percent attendance = 46.66%. Last month Average= 16, Percent attendance = 53.33%, Monthly average = 16, Percent = 54.83%. The attendance in the class was average. Due to ill health and wrong rumours about holiday on <i>MahaShivratri</i> attendance was affected. Resham and Mushkan II were not able to come to the Shala (school). 5. P: (smiled) Wrong rumours.....<i>MahaShivratri</i>. 6. M: Yes, wrong rumours because there is one <i>dhandi</i>(small part of village) <i>Iravat</i>, ten children come from that. Two children in that group, who are older in age, told others today is holiday. We don't have to go today. They come in group, Other children don't come if these two boys don't come, as they have to cross the canal. 7. P: No, you are right. I feel and even it could have happened in your group as well. On that day (<i>Mahashivratri</i>) all the government and private schools declared a holiday so children thought that there could be holiday in our school as well. Probably because of that many children didn't come that day. 8. Sunil: It happened with nearly all of us. 9. P: What we have tried to do and decided with the children that until we say in the school, don't decide on your own about holidays. We even talked about it next day (after <i>Shivratri</i>) and some of the children were saying we thought it's a festival so there must be holiday. As other schools are closed our school will be closed as well. Yes, you are right there was an effect of that.	plan. Mahesh aligns with his intention and initiate to start the meeting without wasting much time. Mahesh tried to make it explicit why he intends to present attendance on one particular day as a problem to be worked on. Pravesh tries to expand Mahesh's explanation that it may be because of the confusion that could have occurred. He was trying to argue that it may not be about two children influencing the group rather a relational structure exists. He also presented the solution he used in
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our holiday. (<i>Everybody laughed on that episode</i>). 17. P: Okay we will talk about it later, lets move on now. I am putting this for discussion in workshop. This is a problem, which nearly everybody is facing. We need to discuss it with Naurath ji (Community Coordinator) as well.	discourse with more details. Pravesh recognises it is an important concern that needs to be raised in the workshop and also at the community level. He intends to seek expertise to work on the problem further.
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The analysis of the excerpt made following components of the practices visible:

1. **Decoding the problem:** The discussion was about poor school attendance on *MahaShivratri* (a Hindu festival). Mahesh initiated the discussion and said it was because of the rumours. The discussion was oriented several times not just to add more details but as they gave alternative explanation their motives became explicit. Teachers' knowledge about the community and students helped to situate the problem. The discussion between turn 6-12 which focused on seeking why is attendance low on *MahaShivratri* shows that the problem is not because children don't want to come the school but because their friends from other schools have holiday they assumed it was a holiday in their school as well. The constant engagement with the 'why' of the event, i.e. the motives of the children, helped to place teachers in Digantar schools in a better position to solve the problem.

2. This positioning is important as this discussion helped the teachers to perceive themselves as people who can interpret problems and work on them and have the agency and mechanisms to do so. This insight makes their practices both responsive and proactive. When the problem is vague the teachers can only react to it. Thus, the way problems are perceived by the teachers also has implications for the agency they perceive in themselves to work on and change the practices in which their work is located.
3. ***Taking a critical stance to work:*** The constant building and sharing of common knowledge led teachers to make a quick decision that the problem demands a more creative approach. The existing school practices of engaging with children and their families or telling them about the holiday in advance was not working for the school. While doing so teachers were critical of the solutions they have developed in the past to work on the problem.
4. ***Open to seeking expertise:*** These sharing meetings help in development of teachers' self-sustaining groups but at the same time they also recognise the need to seek expertise from outside the sharing meeting groups. This ability to 'know who' to seek support from Edwards (2010a) has argued is an important component of responsive professional practices.

4.4.2 TSM on a child's long term absence from the school

Excerpt 4.2

Place: Study school

Context and participants: This meeting conducted at study school involved the same six teachers mentioned in excerpt 4.1. Pravesh coordinated the meeting. The excerpt from the meeting presented here centred on the discussion on long absence of two children Resham and Muskan from the school.

Excerpts from the teacher sharing meeting	Analysis
1. M: Two girls, Resham and Mushkan, in my group have not attended for quite sometime. Muskan is not coming because of the distance and Resham is very young she is not able to come on her own. 2. P: Okay 3. M: Mushkan says she doesn't come because of the distance. She is ready to come in Sunil ji's group but not my group because her sisters are in that group. She doesn't want to come to the school alone. She wants admission in the new school⁵. 4. S: She is near School A. The other school is far off and she might feel lonely. Yes her sisters are here in the new school. 5. M: Yes, nobody from her <i>Dhandhi</i> comes to study here in School A. 6. S: Is there anybody else from <i>Karimnagar</i> in her group. 7. M: She is the only one. 8. S: Okay she is the only one. 9. Imrana (I): But your school is in the middle, isn't it? 10. M: Yes.	Mahesh, Pravesh and Shradha are making efforts to understand the problem. Shradha and Imrana are aligning with Mahesh's concern by asking more questions and

⁵ The school made a new building of the school very recently as they had to relocate due to expansion of the city and their land was allocated to an Engineering and Management college. In the excerpt this school will be mentioned as new school.

11. I: Then it would be easy for her. Don't you think?	seeking clarifications to make the object of activity explicit.
12. S: No the problem is, her brothers and sisters are going to the new school. Even in my class there are students from Karimnagar but they have their own group but she has to go alone at 3 pm when the school ends. Isn't it Mahesh ji?	The fellow teachers in the meeting are trying to decode the problem. While doing so they constantly move from child's social situation to the school's values and principles.
<i>Discussion went on for another 3 minutes and Mahesh agreed that the girls could be given admission in the new school if that solves the problem.)</i>	Pravesh rephrases the solution presented by Mahesh as a new object of activity to be discussed. Now at this point he phrases it in such a way that it includes both the child's social situation and school's concerns about initiating such a practice.
13. P: You are right but it can have negative effect as well. From tomorrow onwards anybody will come and say that three of their friends are going there so we will also go there. I think we have to think of that as well. But you are right it could be changed as well we have to think. (Suppose.....) Are you saying that the older children who come with her from Karimnagar also take the same route and go to new School. So it would be helpful for her if she could be given admission in that school? Isn't it?	
14. M: Yes, yes.	
15. P: Okay let also discuss with the people in the main office (means programme coordinator). Once they agree we will move her to that school. This may solve	Pravesh is looking for the alternative solutions and

her problem. She will not have to come or go alone. I am still wondering is it possible for her sister to leave Mushkan in the morning and then Mushkan will wait for her to come in the evening while going back. Both of them can go back together. Can this solution work? 16. I: But going back will be a problem for her as she will have to wait for them. Her sisters' school will end after another 40 minutes and then she will take at least 10-15 minutes to reach here. It would quite long wait for her. <i>(Pravesh and Mahesh discussed about how long she wait and other reasons why she is not keen to come to leave the old school)</i> 17. S: But there is also this idea that they want an environment where they meet their brothers and sisters during lunch and often have lunch with them. Sometimes they also find it convenient to bring only one lunchbox. They want that kind of environment as well. A few of the girls in my group sometimes also go and meet their younger brothers or sisters. I think sometimes it helps the young children. 18. Ramesh: I agree with your point on lunchbox but I have observed that once they start to engage in their group they want to live more with their group as compared to their siblings. Once a child develops a bond with the teacher and the group he loves to be in the group more than anywhere else. They want to sit with their friends and have lunch with them rather than going to his/her siblings during lunch. They often go back home and play with these friends from the school than with their	trying to see along with other members, that is the solution going to work for the girl. This constant focus on 'what matters' for the children's learning stays at the core of the solution they were trying to devise. Imrana brings her concern and tries to expand the object of activity further. Shradha and Ramesh are presenting two different aspects of children's social situation of development to argue their points. While doing so they are consistently focusing on what matters for the children in the school. This also shows how people
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28. R: Now distance is not the reason. The problem is that she is not feeling comfortable in the school. My opinion is that there is a need to discuss and talk and develop a bond with her. Sit with her during lunch breaks; talk more with her so that she feels easy in the school. Do you think this could be done? 29. Su: Has she come to the school? Did she ever come to the school? When was the last time she came? 30. M: No, no, she never. 31. Su: She never came to the school (with surprise). She never sat with you and did any work? 32. M: No. 33. Su: Did you talk with her family? 34. M: Yes, two-three times I have been to their place. They also say the same thing that she can go to the school but she wants to go to the new school. She is very reluctant to come here. She is also a relative of Salman ji. I also told him to talk with them. He assured that he would talk with them. 35. Su: First we have to work on how she can start to come to the school. You said she never came since you have joined this group. Was she coming before you joined? 36. M: No, no she was not coming then as well. She used to come way back in Harish ji's group and now also she is ready to go in his group in the new school. 37. P: Then it seem to me it is not an issue of acquaintance or sibling but it is rather a situation where..... 38. I (Interrupting Pravesh in the middle): She is more comfortable with Harish ji and wants to go in there. She has not developed a bond in your class yet. Would it be	While Ramesh intends to articulate 'where to' as a legitimate question to be asked, he was trying to work on the teacher-child's relationship as a way to work on the problem. As more details emerges from the consistent questions from Sunil, the problem become more explicit. The teachers are working on the child's trajectory trying to understand her motives behind not coming to the school.
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right to say that she not yet comfortable to come to your group? 39. P: How can she build that bond if she is not coming at all? 40. M: Yes she has not come at all. 41. I: Are other children from Karimnagar also in Harish ji's group? 42. P and S: No, no. They are in other groups as well. 43. I: Then it does not seem that she wants to go in that school because of her group from Karimnagar. <i>(Pravesh and Mahesh discussed the possibility of the child being interested to go back to her old group. They also enquired about the child's level so as to help in designing teaching plan for her.)</i> 44. P: You have not worked with this group before; I can imagine the problem you might be facing. 45. M: She did not come to my group even once. 46. P: But what about Harish ji's report he must have given you some idea of her level in his report. 47. M: He has not written anything very clearly it just says that she has started to work on Hindi and Maths books. 48. P: What should we do in this case? 49. P: When you go to her place, does she talk with you? 50. M: No. 51. Su: We can even talk to her siblings and try to understand if there is any problem. Let's first initiate a dialogue with her. 52. P: <i>(nods his head)</i> 53. Su: It could also be possible that she feels too shy to talk with the teacher. <i>(Pravesh shared his experience about the problems he faced when he joined. He also detailed what strategies</i>	Pravesh tries to bring back the focus on the object of activity with which they started. Imrana aligned with his intentions. As teachers become more clear about the child's social situation; they start to work on the possible ways of engaging the child with the school. Sunil tries to develop a concrete plan to help the child. Pravesh realises that Mahesh still needs resources and tools to understand the problem better.
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<i>helped him to build trust with the children.)</i> 54. Su: I also feel you are right to an extent there is a need to develop a bond with this girl. You can take some drawing by children done in the class with you when you go to meet her. You can also give her a sheet and ask that you can do this I will come tomorrow to see this and might share with her what are her previous group members doing. She might be happy to know about it. I think this will help you to create an opportunity for interacting with her. You can do one more thing but for that you need help from other children in your group who know her. In your group are there children who play with her? 55. M: Yes there are a few children who live near her house. I think two. 56. Su: If you can ask these children to help you. You can also communicate with her through these children in your group that we have done this in the group today. If you are doing something, which can attract her, then the advertisement of something interesting could reach her from other children in her playgroup and then you also go and talk to her on the next day. Tell her more about what you did in the group. Gradually you can bring her closer to the group and yourself. She might feel that these interesting things are happening in the group let me go at least once and see what is	He explains his own problem, what he did when he faced similar problem. Building on some of the strategies shared by Pravesh while being in the similar situation Sunil tries to work again on the problem. They are drawing on their knowledge of the social institutions and people around the girl to use them as a resource to facilitate her engagement with what happens in the school. Sunil intends to guide Mahesh to relate with the child as a solution to the problem. The child's engagement with the activity and group members was seen as an
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happening. You have to develop things, which interest children some story or play or artwork. <i>(Mahesh was writing some of the suggestions in his diary and nodding his head at the same time. He assured the group to work on some of the solutions they have suggested. Shradha, Sunil and Pravesh also offered their help in case he wants somebody to assist him when he goes to meet Mushkan again.)</i>	integral component of learning in the school.
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The analysis of the excerpt made following components of the practices visible:

1. **Working on child's trajectory as a legitimate object of activity:** In the long discussion of a child's absence the teachers were not trying to make cause-effect relationships. As the discussion progressed an effort was made to situate and understand the problem in the context of child's social situation. Thus the first step was to understand the structure around the child, which might be causing the problem. The teachers made attempts to situate the problem by bringing information from the multiple institutions the child participates in and the demands these practices may put on child's engagement in school. This shows a nuanced approach to solving the problem where the focus was to constantly understand 'what matters' for the child. Instead of drawing a simple causation a holistic approach to understand the problem was taken by the teachers. The constant effort was to unravel layer after layer of reasons emerging from the school, teacher, family and peer group, which might have been influencing the child's absence from the school.

The way in which suggestions were made also presented the teachers as self-sustaining group who are reflective about their practices and have very detailed knowledge about the educational and social context of the children. The knowledge about the child was so good that they could clearly situate the problem.

2. **Engaging with 'where to' tools:** Engestrom (2007), in his model of epistemic levels of mediational artefacts, argued that same tool can be used by the practitioner in different ways depending on how the object of activity has been conceptualised. In the turn 26-28 Ramesh made effort to move the group's focus from asking the 'why' question to rather a more important 'where to' question. This created the possibility of discussing the child's long-term trajectory to better understand the problem. On similar lines, the solution, which was reached, was also long-term and considered child's wellbeing at the centre of it.
3. **Space of reasons:** As teachers were recognising and engaging with the object of activity they constantly built a rational and logical space by giving and asking for reasons. This practice of giving and asking for reasons helped to make teachers' motives and resources explicit. It helped the fellow teachers to mutually align with the demands posed by others while working on the problem. Thus it was important component of building and sharing of common knowledge in the sharing group meeting.

Constant underlying themes in these discussions was clarifying one's own position and purpose and staying open to alternatives suggested by others. This created space for more experienced teachers to share their expertise, which helped new teachers to resolve the problem. There was not a simple sharing of stories by teachers; rather a more theoretical reflective approach was taken to connect with the object of activity. The information and tools shared by the more experienced teachers helped in enriching pedagogy in these meetings, as we see in the following excerpt.

4.4.3 TSM on sharing lesson plans

Excerpt 4.3

Place: Study School

Context and participants: The same group of six teachers participated in this meeting. Pravesh presented his plan for teaching air pressure and sought suggestions from others. Before opening it for discussion he presented his plan and the worksheets he has made for the session.

Excerpt from the sharing meeting	Analysis
1. P: This is my plan for teaching air pressure. 2. R: Are you only using this text to teach this? 3. P: No, I will discuss with them as well. I will talk about how pressure cooker works; they pump air in their cycle's tyre. I will try to generate a discussion. 4. R: Are you doing any practical? I mean are you doing something, which they can observe or experience in any way? 5. P: No, I have not thought about it yet. Do you have any suggestion though?	Pravesh is a more senior teacher than others but still he is showing intention to seek suggestions from his fellow teachers. Ramesh is trying to

	understand Pravesh's perspective behind organising the lesson in a particular way (which he described).
6. R: I was wondering could you ask them to make parachute? I think you can integrate your art and science time together. Start with the idea of air pressure, generate some discussion and then take two parachutes with you. Show them how it goes up and comes down. They will enjoy it and that will help in engaging them in the discussion as well. Once they start liking it, ask them do they want to make some parachutes like this. Attach a paper ball to the parachute and then throw it again. Ask them can they see any difference? This might generate some curiosity in them to know more? 7. P: Yes that could be an interesting idea. 8. Su: You can also do some demonstration with paper for generating discussion. 9. P: Yes, I thought about it. I will use a plain sheet of paper and a sheet rolled into ball shape, drop them from the same height and then ask them why ball is coming to the ground before the sheet. 10. R: Yes that will be good. I think we should not forget the point that in science we are not just giving them concepts but also discussing the method of doing science. Scientific methods are foundation to work on the concept.	The fellow teachers make efforts to support Pravesh in sharpening his pedagogy shows how the group of teachers by sharing tools and resources work as a self-sustaining group and develop not just individual professional expertise rather contribute to the collective professional expertise.

The teacher in turns 4, 6, 8 and 10 shows the capacity to align one's professional practice with that of others when working on the problem. These alignments and realignments help to facilitate negotiation that shape and sharpen pedagogical practices in Digantar schools. They also help to mobilise knowledge within the school as an activity system and sustain the affective aspects as well. Thus we see a constant effort of mutual strengthening of competence and expertise to enhance collective competence.

These meetings and the conversations in them operated as platforms where teachers were helped to engage in institutional practices and learn from each other help and check each other, and share setbacks and achievements. The school philosophy on teacher development explains:

“[i]f we see the freedom as the collective freedom of the group of teachers and responsibilities as the collective responsibilities of the group of teachers, all this becomes possible and instead of superhuman beings standing apart from each other we need a group of ordinary human beings standing together on the ground of shared concerns, values and understanding.”
(School philosophy document, p.7)

This view connects with Grumet's (2010) 'radical position' and her call for teacher unions or groups to determine teaching-learning practices. The idea of developing teachers' self-sustaining groups, positions them as practitioners engaged in professional collaboration in shaping activities and the practices in which they are located.

In Digantar schools an important capability, which is constantly developed in the teachers, is to function in a group, simultaneously gaining personal enrichment and growth from the group and contributing to it. Echoing the Vygotskian cycle of learning as internalization and externalization, the teachers learn to control the group and to be controlled by it. The ITEP also emphasises the collective and lays the foundation of the development of the teachers' self-sustaining groups once they are employed. The sharing meetings help in creating and developing better tools for collaboration. These tools, in turn, help teachers to connect their personal sense-making with the wider and more public meaning-making within school practices and, in brief, ensures they continue to learn.

4.5 Teachers' workshops: Seeking support from the expert in the system of distributed expertise

There were occasions when the teachers were unable to solve a problem using their joint knowledge and experience. These were the points when the teacher workshops played a vital role in teachers' development.

Teaching workshops are an integral part of Digantar's calendar. They are organised at least twice a year once in winter and again in summer for around 10-15 days each. The agenda for these workshops are generally set by the problems and concerns raised by the teachers. The teacher educator and programme coordinator also suggest points for discussion on the basis of their observations and readings. Two excerpts are presented below:

4.5.1 Teachers' workshop discussion on lesson planning

Excerpt 4.4

Place: Digantar Office

Context and participants: This is an excerpt from the teachers' workshop organised in the Digantar main campus, involving teachers from all three Digantar schools. The programme coordinator led the group with the academic and community coordinators. The workshop was organised to discuss some of the concerns raised by the teachers in sharing meetings and in one-to-one discussions with the academic coordinator.

Excerpt from the Workshop	Analysis
1. Programme Coordinator (PC): Lets talk about things we face in our schools and try to share them in a larger group. We will have more time to talk about it. I understand in sharing meetings and at other places you don't get much time and support. So let's start. <i>(Teachers talked on various problems many of them were about attendance and why some of the children are not coming to the schools. They devised a few strategies to work on this problem and decided to revisit them in the next workshop. Pradeep (P) raised a concern about how to move children from one concept to other when they start to like the one they have learnt well.)</i>	PC tries to present the workshop as a joint problem solving space and invites teachers' concerns and questions.
2. P: It is often the case we design a lesson plan and try our best to deliver it. What happen in the process that some children start to like them because it is well presented and they understand it better, also sometimes because they already had interest in them. Now it becomes very difficult to introduce a new topic at this point. What to do in these situations? As teachers we	Pradeep presents his reflection on his practice as an object of activity to be discussed. Suresh adds another dimension

also have this in our ‘psychology’ as well that we like a situation where children learn, so there is a tendency to stay in that state. You feel good that children are participating. 3. Vikrant (V): Yes we do face such problem. 4. Suresh (Su): There is one more point related to this. Often we also see there are few students who are moving quite fast and they keep moving, on the other hand, there are some who don’t want to move. It becomes very difficult to deal with them. 5. PC: Yes, these are interesting points. Anybody want to add to this? What do you think? 6. Academic Coordinator (AC): I have observed a few groups in the last two months and often seen that teachers plan well and when they are talking in class, they start to go ahead with children who are getting things quickly. Teacher also feels good and starts to highlight the children who are learning as he has expected. I think we need to think a bit about it. I think the teacher should focus on all the children and have to be vigilant about their participation. While doing so we sometimes forget that one of the jobs we have is to keep creating the possibility for all the children to move forward. 7. PC: What about the psychology he is talking about? 8. AC: We surely face such a situation. Once you know about it, that’s the first step but more important is how to tackle it. We could suggest something but let’s try to find a plausible solution to this problem. Let’s talk more about it.	to the problem and expands the problem to be worked on further. PC aligns with the teachers’ motives and encourages them to participate. AC is sharing his observation and expertise to make the object of activity explicit and workable. He also tries to bring children in this discourse so that teaching-learning can be seen a holistic process rather than limiting it to a problem of individual teacher’s psychology. While doing so he is also wary of giving a quick recipe to solve the problem. AC aligns with Pradeep’s concern
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9. Rohan (R): I think we should help those children less who are working fast. We can form a group of them and they can help each other as well. They are quite motivated and when they learn, that also give them more motivation. So, we should focus more on the group, which is lagging behind. 10. PC and teachers (together): Yes, yes you are right. 11. PC: Rohan we agree with you. You are probably pointing towards the learning trajectory of the child and want to say that once the child feels motivated to learn something it becomes easy to engage him or her. Let's come back to Pradeep's problem. 12. P: I accept what he is saying but my problem still remains. I was talking about the psychology, which stops us from moving to a new concept or topic. 13. PC: Yes, when do you think this has happened to you? 14. P: Many a times, it happened last week as well. 15. PC: Let me bring another point. Was the topic (you were teaching also) of your real interest? 16. P: Yes, it was. 17. PC (speaking before Pradeep finished): Now, there are occasions when we are in such a situation. Pradeep loves what he teaches and when he gets into his favourite area he just get immersed into it (everybody started to laugh). No, but that's true (now more seriously). That happens to all of us. We are human and that happens to nearly everybody. We do have some favourite areas, which we love to talk about. Now what is the solution?	and intends to see how teachers develop it as a theoretical problem to be worked on. Rohan shows his intention to work on the problem but responds to a different question. The group agree to the principle he suggested but PC recognises the digression from the problem and brings the discussion back to the object of activity. Offering tools to work on the problem. Not suggesting set of guidelines or rules to follow but processes, which can help him to work on the
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(After a pause) 18. PC: I would say you are your best guide. There are high chances that you could get into this trap but once you are aware of it that is the first step. You have to see how you do justice to the concept and then move on. It is very interesting if you will think about it you will realise that during that time you are just thinking about yourself and not performing your responsibility. This happens with everybody. It's difficult; take the help of your colleagues and academic coordinator. Talk with them at least. Let me see how you take this further. My suggestion is to remember the basic philosophy we have discussed time and again. That should be your guide. 19. P: It becomes difficult to deal with these situations. 20. AC: Pradeep you are right. It is difficult. Do you think the teacher knows that he is over doing or caught in it? 21. P: Yes, most of the time yes, I know when I do. I realise it later. 22. AC: Once you realise it try to plan so that you get out of it and you can take our and other teachers help in the process. The key is to remember all the time that you have to engage children and create those zones of opportunity and challenge. When you are on the same topic you are not creating those possibilities. 23. P: (after sometime) Yes, I understand. I will talk with you more about it later. I agree with your last point. It might be helpful.	problem. Thus, the agency and responsibility to work on the problem still lies with the teacher. AC offers another tool to work on the problem as he explains the idea of zones of opportunities and challenges.
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The analysis of the excerpt made following components of the practices visible:

1. ***Developing processes for knowledge sharing:*** The teaching workshops are an institutional structure that intends to engage teachers with their

social situation and so that they collaborate to find solutions to the problems they are facing in their practices by sharing understandings and perhaps generating new ideas. Importantly the agenda of these meetings are not governed by the teacher educator or programme coordinator. Teachers were engaged in deciding the points for discussion. This in itself gave them ownership and agency to influence the discussion. The use of words like 'we' repeatedly by the teacher educator helped to demolish the expert-novice hierarchy and he tried to present himself also as one from their group. The reference to sharing meetings by the programme coordinator in the initial statement and recognising the lack of time to discuss things extensively in the sharing meetings help to present the teacher training workshop as a component similar to sharing meetings to help teachers to work on problems of practice. This helped to explicitly credit the authority of the teacher and also present a situation where he is seeking support. As I have already indicated, Edwards (Edwards and D'Arcy, 2004) defined this process as exercising relational agency, the practice of seeking the support of others and recognising the needs of others for support. This point was also clearly evidenced in this excerpt.

- 2. *Sharing experiences and tools for collaboration:*** The question and initial comments by Pradeep, Sushil and Vikrant point towards teachers being reflective about their own practices. Thus, it ensures that the teaching-learning debates in Digantar reflect the concerns of the workplace. The inductive and reflective nature of discussion assures a

participative discussion that helps in empowering and developing a sense of responsible agency among the teachers.

An interesting feature of the excerpt is that the interaction is not limited to the programme coordinator and one teacher but other teachers and the academic coordinator also shared their ideas. Although multiple perspectives were introduced, the programme coordinator did not offer readymade answer to the question. Even at the end in turns 12, 14 and 16 the problem was not solved and every effort was made so that the teacher could recognise that he could solve this problem himself. The methodology, which the trainer used, provided space for the articulation of one's worldview in a group, comparing it with that of others and critically analyzing it. The trainers participated alongside the teachers but only presented hints to criteria and methodology for deciding and finding solutions. They believed:

“the purpose is not to give solutions to the problems even if they have one but to engage the trainees in the process of understanding the problem.”(Excerpt from the interview of Programme Coordinator).

Importantly the Digantar premise is that “no solutions to such problems are final and all solutions are meaningful only if the context of broader world view in which they have formulated.” (Digantar Philosophy document, p. 8)

Instilling confidence and giving teachers tools so that they can work creatively and effectively in their worlds was constantly emphasised. The direction of solution suggested by the teacher educator, academic

coordinator and fellow teachers shows strong alignment with the philosophy of the school. This alignment is also evident in the following excerpt.

4.5.2 Teacher workshop discussion on planning for children who are not regular in the class

Excerpt 4.5

Place: Digantar Main Office

Context and participants: This excerpt is part of the teachers' workshop organised to understand problems of practice faced by the teachers. These include regular problems of absenteeism, which do not just affect children's engagement with classroom teaching-learning but also creates a problem for the teachers as they need to design teaching plans for them when these children return.

Excerpts from the Workshop	Analysis
1. PC: Many of you have talked about the problem you face in planning and what to do when the child is not coming for a long time. So, should we start that? 2. Teachers (together): Yes, this is a big problem. 3. PC: Okay then let's talk about it. One of the problems that many of you have mentioned is how to plan for those children who are not coming for a long time or who are absent for a few days. This is something which often happens in our schools (<i>explained for approximately 5 minutes the problem of children's absence</i>) One of the problem that has been raised is about how to ascertain their level (<i>children's level of conceptual understanding</i>)? 4. R: I think for children who are coming after a long time we can put approximately 80 percent of work, which you	PC is trying to present the challenges faced by teachers in designing their teaching plan when children are irregular in the group, as a legitimate object of activity to be worked on. Rohan is a senior teacher and

think he might know well and take interest in and 20 percent, which is a level higher than that. This will tell you about his level and then you can plan accordingly. 5. PC: hmm. I agree. This could be one way. I will just add one more point. What you can do is to design the plan considering what that child will always know. I mean what he has learnt so well that there are little chances that s/he will forget it and then also give something, which you want to introduce as Rohan suggested. 6. Indira (Id) (<i>Indira is not a teacher in Digantar school but she has joined as a Volunteer teacher to teach English from another NGO</i>): I often face another problem. For example in my group there are a few children who are not coming for sometime. I have already made a plan for them and once they join I will start to work on the plan. But my problem is if one of them is not coming for the last one month and the other is not coming for last 15 days. Now do you think I should work with all three of them separately. I also feel real problem as that increases the number of groups over a period of time and that influences the quality of teaching in the class. 7. PC: That's an interesting point. Let's talk about it. Let me make Indira's point more clear. She is giving a kind of principle that as the number of groups increases the quality of teaching deteriorate. (<i>Indira explained her point again that she is not giving a principle but rather presenting a problem which she often faces when two children come today, three tomorrow and she feels as a group they are not able to achieve what they</i>	suggests a solution on the basis of his expertise. PC rephrases Rohan's position so that it becomes more explicit and position it as a tool, which align with the children's trajectory. Indira makes her problem explicit and presents it to be worked on as a legitimate object of activity. PC tries to discern the basic assumption that underlies the problem. As PC and Indira make their intentions more explicit their perspectives become part of the object of activity as well. This also provides the
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14. PC: Now why are you going back to the chapter again and again? 15. Id: But the chapter has certain skills and concepts embedded in there. 16. PC: Can I use the term text instead of chapter? Now what governs your plan is not the chapter but the linguistic skill you want children to learn. Now I have three sub-groups and I know their levels of understanding. Once I know that, I have to plan accordingly. Now I can choose three different tasks for them and I can use the same text but the level of work you give to each group is contingent on the level they have reached. Now I have to decide how much help each one of them need from me. Now I am engaged with them but I am planning it so that I am engaged with them at three different points and help them in the process so that they get my help when they need it. 17. AC: I think it is also important to say that lot of the problem here is also because of the way in which we are seeing the idea of sub-groups. You are considering them as a permanent entity. They are not permanent they keep changing. Sometimes you work in three, sometimes in two, sometimes in one sub-group. You have these sub-groups to help you to teach in the class. Sub-groups are dependent on your planning and what you intend to achieve. According to your plan they keep changing. 18. PC: This is another problem, which we often talk about. There are two terms - lesson plan and teaching plan. In the lesson plan you are concerned about completing chapters or lessons, on the other hand in teaching plan we are more concerned about objectives, which could be in terms of concepts or skills. Now on the basis of the objective you decide the text you want to use. So we in Digantar often emphasise on teaching plan rather than doing lesson plan. I hope it answers some of the	PC takes a pedagogic stance to work where he is bringing in the concept already developed by the Digantar schools to work on such problem. PC and AC have tried to bring forward the contradictions on using terms like lesson plan and teaching plan and relationship between sub-groups, groups and teaching plan. They reveal problems of the practices and values and motives attached to them. Their
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concerns you had. 19. Id: Yes it is helpful but I also need some help on how to know when those children who are not coming for a long time will come in my group again. 20. PC: I cannot be of much help in that. Now Vedprakash and others take her to the community. Have you been to the community? 21. Id: Not yet. 22. PC: Then you must. Vedprakash and others please help her. Take her to the community. It is important for the teacher to know about the child's background. The designing of teaching plan should be informed by the child's background. 23. Ramesh (R): There is one more thing. Going to these children's home also builds an environment of trust with the child. This trust is very helpful while interacting in the group. I have found this very important.	position is similar to a Vygotskian position where he emphasised the cognitive aspects of learning. PC points towards the relational aspect of teaching-learning and engaging with children's social situation of development. He also encourages the need for teachers to function together as a self-sustaining group.
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An underlying motive in the entire excerpt from the teacher educator seems to be an effort to build common knowledge in relation to the problems for teachers in dealing with teaching plans for irregularly attending children. This excerpt was overtly led by the programme coordinator and was based on his interactions with the teachers for several weeks about these additional plans.

Several times he said, "Let's talk about it", "what do you think?" These statements helped to break the traditional boundary between the teacher and

trainer and open up the space of reasons, where the wider inferences attached to the key concepts in the policy documents could be made visible. The suggestions from the teachers also show that the responsibility is distributed among the teachers and their reasoning is also made visible. The teachers had considerable say in deciding and defining how to proceed and what to talk about, there was space for their inferences to be made explicit. Interestingly, as in excerpt 1, the solutions they offered were governed by the school philosophy and their interpretations of it regarded as valid, while the newcomer was inducted into this system of inferences. For example, there was an effort to differentiate between the teaching plan and the lesson plan (19) and teacher was also told that there is a need to know child's background (21-24).

The participation by the academic coordinator and teachers in this excerpt in turns 4, 12, 18 and 24 shows how a mismatch between Indira's interpretations and those of the Digantar philosophy created an opportunity for collective negotiation and learning. The object of activity, in this case, was not seen as an independent entity. Rather it was perceived as situated and in dialectical interaction with Digantar rules, community, division of labour and the material resources and conceptual tools that teachers have. Engeström's cycles of expansive learning were implicitly reflected in the discussion as interpretations of the object of activity were encouraged and its meaning expanded. As we shall see, practices in the school also reflected these processes. In line with Engeström's idea of 'expansive learning' the teacher educators made an attempt to expand the objects of activity the group engaged with in order to

achieve as broad as possible interpretation of what a problem entails. Over a period of time the group formulated a revised and often broader worldview, which took them towards a solution. This new worldview, made up of the ideas that matter to the trainers and the trainees, is close to the concept of common knowledge discussed in Chapter Two, and provides a platform of shared understandings, which helped in facilitating collaboration among participants.

Both in the sharing meetings and workshops we can see mutual responsibility and object-oriented activity by the group of teachers and coordinators. Teachers' engagement in multiple institutional practices is not to consolidate knowledge at one node or point, instead the process of building common knowledge and reflection leads to cross fertilization of ideas leading to development of distributed and relational expertise. Moreover, following a Vygotskian line it is nowhere suggested that teacher's subject knowledge is not important. The relational expertise is seen as helpful over and above the core expertise. Thus, "what is required from the teacher is enhanced knowledge of the subject and enhanced knowledge of the methodology of the craft" (Vygotsky, 1997, p. 345).

Chapter Five

5 Building and Using Common Knowledge II: School-Community Engagement

5.1 Introduction

This chapter takes up the question of how common knowledge is built and used as a resource to mediate community-school interactions on complex problems relating to children's education. The focus is parent-teacher meetings and school-community meetings to show how community and school work together on children's education and wellbeing. The excerpts from these meetings have been analysed to explain how engagement with children's social situation of development helps the school to align with what matters for pupils and their families and work alongside families to help them rethink the purposes of education for children. The chapter has three sections:

5.2. School-community relationships in Digantar schools

5.3. Teacher-parent meetings

5.4. School-community meetings

5.2 School-community relationships in Digantar schools

Vygotskian scholars argue that understanding the social relationships in which children develop in their home is key to shaping schooling programmes which engage them (Moll, 1990; Gonzalez et al., 2005; Zipin, 2009). The study school follows a similar line of thought, emphasising teachers' engagement

with the community to incorporate their economic needs and aspirations for children's learning into classroom practices.

However, this intention was not simply a matter of education for the children's existing social and economic needs. Rather, the school set up a dialectic between the aims of schooling and those of the families it served, and saw engagement with the community as a site for dialogic interaction to surface what mattered for families and to help them to recognise the standpoint of the school. Consequently a constant interaction with the community was a feature of Digantar schools.

One challenge for the school in acknowledging what matters for the community was digging into the layers of community beliefs, cultural histories, needs and aspirations in order to understand them and reflect them back in conversation. All too frequently curricula and pedagogy are designed in an absence of knowledge about the cultural and labour history, the practices, beliefs and needs of the communities being served. Digantar, however, aimed at a holistic and dialogic engagement with the community to gain these understandings. As the school philosophy document states:

“The participation of the community becomes very important, not because the support of the community could be utilized to construct school buildings, to ensure total enrolment..... but rather because of two theoretical looking practical issues of immense importance. An educational programme affects the worldview and capabilities of those being educated. Knowledge of the physical world, of the socio-cultural world, values and skills are affected. This has an impact on the way the educatees will function in the community. Therefore it is

direct intervention in the community's life. No one has the right to intervene in any community's life without the knowledge and consent of the community itself. Not even the smallest rural community is a monolith in terms of ideals, aspirations and felt needs. Nor are the ideals, aspirations and felt needs as static as we sometimes tend to take them to be. On the other hand the educational programme itself develops and unfolds. It is not possible to communicate the whole of its content; process and impact in a one time dialogue even to an individual, leave aside the whole community. Therefore a continuous interaction with the community becomes essential." (Digantar School Philosophy Document, p. 4)

It is evident that the school considered continuous interaction with the community and their engagement with what matters for the school as vital for their children's learning.

5.3 Teacher-parent meetings

Teachers regularly visited children's homes. Generally they did so in groups of two or three with plans for the meetings made in teacher-sharing meetings or with the community coordinator.

The observation data revealed two practical functions of these meetings:

1. to discuss poor school attendance with parents; and
2. to respond to requests for meetings from parents.

When addressing these practical issues the teachers also worked at building common knowledge between school and home through:

- i) helping parents to relate to the philosophy of the school; and
- ii) learning more about what matters in children's socio-cultural environments.

5.3.1 Children's attendance

Retaining children in the classroom is a challenge, which these rural schools consistently face. Individual meetings with parents helped teachers to understand the reasons for drop out or infrequent attendance. The reasons emerging from these meetings were discussed in school workshops and teacher-sharing meetings (see excerpt 4.2, Chapter Four). Efforts were also made to engage parents in their children's education as in the excerpt from a meeting between teachers and family members presented below:

Excerpt 5.1

Context: Azlam, aged 10 had not attended school for last two weeks. This issue was discussed in a sharing meeting. Azlam's teacher, Pravesh, was concerned and visited Azlam's home to make enquiries. Azlam's mother revealed she was also worried about Azlam's education and assured Pravesh she would talk to her husband. Two more weeks passed without Azlam attending. Pravesh raised this issue in a sharing meeting and teachers decided to meet his parents. Shyam ji who had worked in the school for 18 years knew the grandparents and joined the group to talk with them. On reaching Azlam's village they met his brother and grandmother. The teachers spoke with his brother about Azlam's absence and learnt he was going to the city for work. Shyam ji started to talk with the grandmother.

Excerpt from the teacher-parent meeting	Analysis
1. Shyam ji: How are you <i>dadi</i> (grandmother)? 2. Grandmother (GM): I am good. I have not seen you for a while? 3. Shyam ji: Yes, I do not teach Azlam now but have heard that he is not going to the school. What	Shyam ji and Pravesh are trying to present Azlam's education as a legitimate object of activity.

happened? 4. GM: No he is not going. He has already studied for 5-6 years. 5. Shyam ji: Then? 6. GM: How much more will he study? His father decided that he should go along with him for a job. This is the age when he will learn. There is little chance once he gets old. Children don't learn anything once they grow up. 7. Shyam ji (laughs): We have come to take Azlam to school tomorrow.....(Shyam ji laughs and GM reciprocates with a smile) 8. GM: He will go to school sometimes. 9. Pravesh (Teacher): <i>Dadi</i> you don't understand, Azlam is good in studies and he was doing well before he left. He will learn only if he comes to school regularly. He is too young to start working. 10. GM: Then who will work? And how will he learn his father's job? 11. Pravesh (P): Where is he working? 12. GM: He works in the city with his father. 13. P: What is he doing? 14. GM: His father grinds stones in the building. Contract work, you would know. 15. P: But Azlam is too young to do such things. 16. GM: No, his father was saying that this is the time when he will learn. His father was only 11 when he started this work. (All of a sudden Azlam comes out from the house running) 17. P: <i>Dadi!</i> Azlam is here. 18. GM: He did not go today. He was not feeling well. 19. P (to Azlam): How are you? 20. Azlam (A): I am good Pravesh ji. How are you? 21. P: I am good. Children were asking about you in the group. I told them I would go and talk to you and	GM considers the child's (Azlam's) long-term trajectory as a problem. CC and teachers have to reposition their stance from Azlam's attendance in school to the long-term future of Azlam. There is a temporal expansion of the object of activity as GM shows concerns about Azlam's past and future. Teachers and GM negotiate their ideas about the child's trajectory.
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your parents. So why are you not coming? 22. A: I am learning how to grind stones from my father. 23. P: Okay. Is it in the city? 24. A: Yes. It takes 1 hour to reach there. 25. P: So how is the job? 26. A: Very tiring (with expression) 27. Community Coordinator (CC): So Azlam? 28. A: Yes Naurang ji. How are you? 29. CC: Tell me what do you want? 30. A: I want to come to the group (with his eyes down). 31. CC: Dadi, he wants to come to the school. 32. GM: I don't know, his father and grandfather will decide what he will do. I am nobody. 33. CC: Where is his grandfather? His father must be in the city? 34. GM: He has gone to the market and his father comes very late at night, around 8 pm. It takes a lot of time to come from the city. 35. CC: But you (grandmother) are here and we want to talk with you about sending him to school again. 36. GM: I cannot decide anything. [Azlam's mother (AM) enters the scene] 37. AM: You will have to talk to his grandfather. 38. CC: We are talking with Dadi and she will communicate to grandfather (laughs). 39. AM: She would not be able to say anything. 40. Shyam ji: Why not? I am sure, she will. 41. AM: I am telling you she cannot. You will have to come and talk with him (laughs). 42. Shyam ji: We will talk with him as well. 43. GM: You tell me what you want to say. I will tell him. 44. Shyam ji: He is only 10-11 years old. It will not be good for him to start working at this age. We were thinking that he will appear for the eighth standard exam next year but he has stopped coming. At least let him study for another two years and then see how	The social position of GM and AM and their inability to influence Azlam's education become explicit. CC and teachers also become aware of the rules and power relationship in the family.
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is he doing. 45. GM: But he can earn now as well. 46. P: How much does he earn? 47. GM: I don't know but he will not get much now. Over a period of time he will get better. So he should start early. 48. P: How much do they pay him? Rs. 2000-3,000 for a month? 49. GM: But his father's manager told him he would pay good money after sometime. 50. P: They make fool of people. Which businessman pays good money to labourers. They want cheap labour and that's why they use children because you will ask less money for the child. If he studies for some more time he might not have to do manual labour. Businessman look for cheap labour, cheap land, cheap resources and make money. Don't you think education is important 51. GM: Okay I will talk with his grandfather? 52. CC: But you should also understand this. What do you think about it? 53. GM: You are right, but money is also important. 54. CC: But he must be earning very little. Don't you think? 55. GM: It is for his future. He will learn something to survive. 56. CC: I understand your concerns but soon there will be machines doing everything. Now you see very few people use a plough, instead they use tractor. So machines will come and then whatever he would have learnt would not be of much help. 57. GM: Yes, that's true machines are coming. 58. CC: So, let him study and if you feel like training him do it after two years. By then he will pass eighth and if he attends high school he may get a better job. 59. GM: hmm. Okay, I will tell his grandfather. 60. AM: I want to send him back to school.	The knowledge of economic and social needs of the family help teachers to see the dialectical relationship between the division of labour, community and object of activity. It also helps them to engage GM in reflective negotiation. CC and teachers are working relationally with the family to avoid Azlam's drop-out from school. They also offer tools to GM to talk with Azlam's father.
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61. A (Azlam was playing around): What happened Pravesh ji? 62. P: Why don't you come to the school tomorrow? 63. A: Okay I will come. 64. AM: Naurang ji you should also talk to his father and grandfather. 65. CC: Okay, I will do that. I will come again after two days. Tell him I will come. 66. AM: Okay, you can even talk with him by phone. Take his mobile number. (Pravesh writes the mobile number in the meantime CC talks with the GM and asks her to talk to the grandfather and Azlam's father)	Building mutual trust and strengthening social network.
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A complex expanded picture of child's life emerged for the teachers, clarifying Azlam's domestic social situation of development. The excerpt shows that the meeting with the family was not to convince them to send Azlam to school; rather the approach was to create the possibility of critical engagement with what matters for the family. The teachers presented Azlam's case as a problem to be worked on by the grandmother and mother and engaged them in finding solution, which benefitted Azlam. Sharing a concern for him in turns 9, 15 and 21, Pravesh created a space to work on the problem from school's perspective as well. As the teachers and community coordinator tried to relate to the family's concern about Azlam's future they were building mutual trust. This taking the perspective of the family prompted grandmother to share her apprehensions. In turns 10, 16, 32 and 36 she did not justify Azlam's absence, rather discussed her social realities, which needed to be faced. The teachers and coordinator acknowledged them and worked alongside her to

find a solution. The suggestion from Azlam's mother and grandmother to talk to the male members of the family was agreed as the next step.

How the team engaged with the household showed that it was not only concern for the child, which was important, but also provoking the family to question societal structures, oppressing the uneducated. In turns 45-50 the grandmother presented the problem from her perspective. The teachers offered her the perspective of businessmen and how working now might not advantage Azlam long term. Although the school team argued against the grandmother's position they acknowledged her concerns. In turns 55-58 the coordinator presented his argument in a way that connected with what mattered for her in relation to Azlam and his future.

Asking her "don't you think education is important" made grandmother reflect on her own argument. Using reflective awareness to present their perspective and align it with family motives helped in engaging parents in questioning their assumptions about education and work. These discussions consistently provoked families to rethink established inter-generational work habits and helped families to see children's education as a legitimate object of activity.

5.3.2 Teachers being consulted by parents

The success of enabling questioning of existing inter-generational practices was most evident when parents ask to see teachers. Generally women sent message through children that they wanted to meet a teacher. The interaction presented below is part of one such meeting.

Excerpt 5.2

Context: Rehana and Asifa's mother has sent a message for Naurang ji (community coordinator) to come and meet her, as she wants to talk about Rehana's education. Naurang ji went to her house with Sohini and Raman (teachers) who had previously taught Rehana. Rehana, aged 12 had discussed her education with Naurang ji and Sohini, asking them to convince her parents that she wants to study.

Excerpt from the teacher-parent meeting	1st level analysis
1. CC: <i>Namaste Namaste</i>, you asked me to come. 2. Rehana's Mother (RM): Namaste, you don't come now-a-days Naurang ji. Even Sohini ji doesn't come for tea. How are you? 3. CC: Its God's grace. I am good. (They talked about their past meetings for a while) 4. RM: I wanted to know how to send Rehana to school now. She has passed eighth standard this year. I wanted to send her to school but a few people suggested that I should get her married. Even <i>Maulavi Saheb</i> (cleric) came few days back and asked her father not to send her to school anymore. (Rehana was around but left the place once her mother started to talk about her marriage) 5. Sohini (S): How old is she? 6. RM: She will be 13 this year. 7. S: She can study for some more time. Isn't it? (looking towards CC and Raman) 8. RM: Now the school has been shifted to a new location and it is quite far-off from here, that's why I called you.	Rehana's mother presents Rehana's education as a shared object of activity. CC and Sohini are trying to understand her perspective and situate the problem.

She wants to go to school but she is a young girl now. Now I cannot take the risk of sending her alone. 9. S: Many children go from your village..... Anyways tell us what do you want to say? 10. RM: They don't go together. 11. S: Alright. If that is a problem. (Looking towards Naurang ji) Can we talk with few girls of her age to make a group and come together? 12. RM: There are only two-three girls (who go to the school) and sometimes they don't go. Even <i>Maulavi Saheb</i> had a talk with Mohsina and Gulafsa's father that they should not go to school anymore. 13. CC: What is Rehana's father saying? 14. RM: He is not sure. You talk with him sometime. He asked me to seek your suggestion. 15. CC: We will always say that she should come to the school. She has not reached the age of marriage yet. 16. RM: But if one delays then she might not get a good match. 17. CC: Okay. So what is your plan? 18. RM: I want to send her to school at least for this year. Rehana wants to attend high school. She started to cry yesterday that's why I called you. Now you tell me. Her father is concerned as well. He doesn't feel it is safe to send her so far.... all alone. Rehana doesn't understand this. She is adamant to go. Now only you can convince her. 19. S: Convince for what? 20. RM: for whatever (it seemed she meant marriage). 21. CC: Rehana is very committed for her education. Why don't you delay her marriage for a year or two? 22. RM: I can't do that. (After a pause) 23. RM: <i>Maulavi Saheb</i> was saying she should come to	CC and Sohini are working alongside RM to make object of activity clear. RM is making social foundations of the problem explicit. The power relationship in the community (importance of <i>Maulavi Saheb</i>) and rules of community life become more apparent. Multiple facets of Rehana's problem become explicit i.e.
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<i>Madrasa</i> to learn sewing and other things that she will have to do after marriage. He also suggested that I should teach her cooking. 24. CC: We are not against her going to <i>Madrasa</i> to learn sewing if she wants to do so. You teach her cooking, it's fine. 25. Rehana (R): (She comes out of her room) She will teach me cooking for the whole day and then send me to learn sewing. I don't want to do that. (The annoyed Rehana goes to her room again.) 26. CC: If she is not willing to go somewhere don't force her. If you let her come to school, which she wants to, then you might be able to teach her other things as well. 27. RM: But how to send her? 28. S: Look the problem is only while going (to the school). Why don't you come along with her till the canal and then the school is very near. The problem is only till the canal and after school ends, she can return with the other children in the afternoon. 29. CC: We are also organizing a meeting to discuss about a vehicle. Many parents have raised this concern after the school shifted to the new location. Come to the meeting next week. 30. RM: If there's a vehicle it would be good. 31. S: Okay problem solved! now be happy. (RM was still thinking) 32. RM: But what about her marriage? 33. CC: Can you wait for some time? At least for two years. 34. RM: We have got a good match; they are not ready to wait. 35. CC: If you have to do it anyway take 3 to 5 years <i>Gaona</i> (ritual in which girls don't go to their in-laws place immediately). Although I would say you should ask her. If she wants to study, her education should not suffer. You remember our Rukhsar. She got married four years back	• Problem in reaching school • Marriage • <i>Maulavi Saheb's</i> power and social relations CC relies on already existing knowledge of dealing with the similar problem as a tool to work on Rehana's problem. He also tries to align the solution to the needs and apprehensions of
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when she was appearing for intermediate exams. She was good in studies. Her mother was also concerned but they found a boy who owned a garage in the city. They got her married but she insisted on completing graduation. She took private admission and used to come to the school library for sometime to study. Now she has passed BEd exam and is teaching in the city school. She earns more than her husband. You have examples in front of you. She (Rehana) is still very young to marry. Wait for sometime. Tell <i>Maulavi Saheb</i> that she will learn sewing and cooking in next few years and then she will marry.	RM.
36. RM: I will think about it. 37. CC: Talk with her father so that he understands. Don't worry about sending her. We are organizing a meeting next week and for a few days come till the canal or send her with Ramesh ji who comes to the village to take primary children. 38. RM: Alright Naurang ji. I will call you again. Come for dinner someday. 39. CC: All of us will come (laughs). You send Rehana and don't worry. (Rehana started to come to the school from the subsequent week)	The tools (solution) offered by CC make RM feel agentic, able to negotiate the problem of Rehana's education.

The excerpt shows another very common problem faced by Digantar schools as girls get married at an early age and they leave school. The school has worked to curb this situation in the past. These one-to-one meetings with the parents have been very successful in sharing parents concern in a context where marrying girls at an early age is a custom. Interestingly, in such issues schools in other communities are not consulted but Rehana's mother's effort

to seek advice from the school in itself shows the mutual trust that has developed between the school and the community.

Between turns 1-20 the teachers and the coordinator probed the problem and the mother's perspective. It was only in turn 22 that they shared their view but presented it from Rehana's perspective. As the coordinator knew Rehana's views he offered her perspective to her mother. The role of the school team was of a mediator through which Rehana communicated with her parents.

Although the school philosophy differs strongly from the *Madrasa's* idea of education, the teachers did not use this opportunity to assert their approach. The coordinator recognised that *Madrasas* are integral to the family's social life. The teachers were also aware of the *Madrasa's* socio-political power and understood they had been called because the parents did not agree with the *Madrasa's* demands and wanted help in finding solution.

Recognising people's motives and then working on the object of the activity to find a solution was the approach followed. The solution suggested by the coordinator in turn 36 takes into consideration the concerns of all the participants (Rehana, her family, the *Madrasa*) and the school's intention of helping Rehana in her schooling. Turn 36 also demonstrates that these teacher-parents meetings are not only sites where common knowledge is built but the common knowledge then comes into play to mediate possible solutions to the problem being worked on jointly. The coordinator also

deployed common knowledge a story of a previous similar problem (turn 35), and used it to emphasise the motives that mattered for the parents, that their daughter should have financial security. The school team showed 'relational expertise' that enabled them to take the standpoint of the family; work with their motives and weave them into narratives about Rehana's future capturing the intentions of the school and the families.

Interestingly, during these interactions teachers' relationships with the school change as they not only represent the school, but are required to talk more broadly about why education matters in ways that question existing patterns of family life. At the same time in the conversation they position themselves as people who are aware of and respectful of what matters in the community.

It is the recognition that educational practices are organised around and stand in relation to other practices that helps teachers to understand the values and motives of the children and their social life and be able to work with these values and motives to help align them to work on the child's education as a shared object of activity.

5.3.3 Review of the discussion on TPM: Working alongside parents on children's trajectories

It was evident from the TPM that these interactions with individual parents helped in understanding their motives, intentions and needs so that teachers could work with them to help the mutual alignment of what matters for both the families and the school when working on the development of children as learners. The figure below (Figure 5.A) shows the typical TPM context.

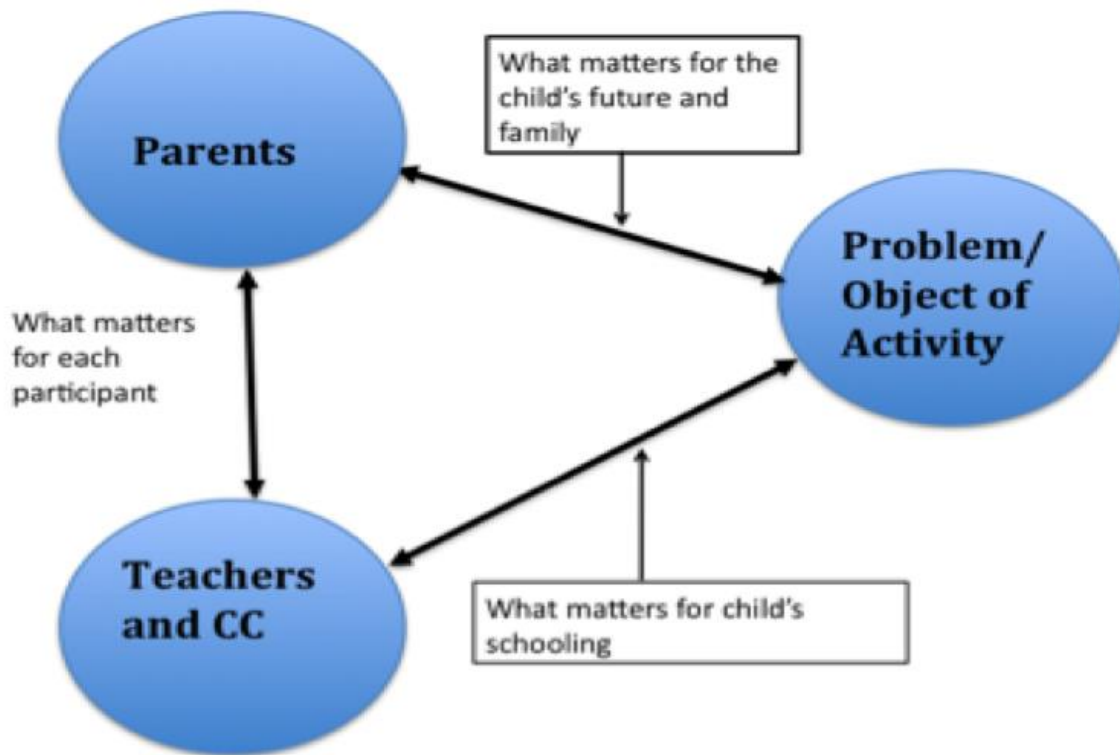


Figure 5:1: Figure representing dialectical engagement between the parents and teachers during TPM

While working on their children's trajectories parents tended to make their social relations (economic, power relations based on division of labour) more explicit. This knowledge about people's intentions, needs and aspirations and their social relations helped teachers to develop a dialectically engaging problem space for working with parents. While in that space the teachers did not compromise their own professional motives, but did bring them in to play to challenge parents' expectations and were themselves challenged by parents' revelations of what mattered for them. Moreover, the common knowledge created there could be used later to mediate joint agentic action when required.

The building and using of common knowledge for complex problem solving can be attributed to following four factors:

1. Focus on the object of activity: In TPM a dialectical engagement between parents and teachers to mutually constitute the object of activity is clearly apparent. The interaction between the teachers and parents while working on the problems in excerpt 5.1 and 5.2 shows that there was an opportunity for parents to bring their subjectivities; intentions, needs and concerns to defining the object of activity. These subjectivities, laden with their social reality and agency made teachers aware of parents' background and what mattered for them in the community.

This consistent focus on the object of activity, in both examples the child's future, facilitated temporal expansion of the problem as the child's long-term trajectory was brought into perspective alongside the immediate problem.

2. Building mutual trust and social networks: The teachers and coordinator consistently revealed their concern for children's wellbeing and long-term trajectories. This helped in building mutual trust where parents felt confident in revealing their motives and concerns about their children's education. The trust gave teachers access to the authentic motives and intentions of the parents. It also helped in developing social networks between school and parents, which parents could use when seeking help from teachers on their children's education.

3. Distributed expertise and building collective intentionality: As teachers worked with parents on problems such as early school drop-out they came with resources. They revealed relational expertise defined as “confident engagement with the knowledge that underpins one’s specialist practice, as well as a capacity to recognise and respond to what other might offer in local systems of distributed expertise” (Edwards, 2011, p.33). The concept, which Edwards (2005, 2010a) has used in her research on inter-professional practices, can help explain the dialectical engagement between the parents and teachers in TPM. The relational expertise of the coordinator and teachers helped engage the parents dialectically with what mattered for the school.

4. Contradiction and reflective negotiations: While working on Azlam’s and Rehana’s case the contradictions, particularly in rules of community life and intergenerational work relations (or division of labour) provided a context to examine the existing tensions. These social and economic relations influenced the children’s social situation of development and hence their schooling. The use of the term contradiction here is not based on an analysis of a specific activity system; rather it refers to how the teachers were able to use a contradiction between established rules of the local community and parent’s hopes for their child, in order to create an opening for a deeper discussion of a child’s life trajectory.

While working alongside parents teachers were gently challenging parents to also reflect on their own ideas and social situations. Both examples showed that the contradictions occurred due to existing rules of community life. To

tackle this problem the school engaged parents in reflective negotiations. Instead of confronting them or preaching a particular line of thought the approach is to help them reflect on their own ideas and actions. Here reflection is used as a tool to negotiate their commitment for their children's education. The common knowledge, which has been already built operates as a resource during these interactions. The analysis of the data also suggests that these reflective negotiations with the parents to question existing rules of community life rests on the already developed collective intentionality to work for the child's wellbeing.

The common knowledge built in these TPM is not limited to conceptualising community life as a resource for children's learning but also as a resource for engaging with their social situation of development, which has clear implications for their participation in schools and learning. Sometimes, these TPM also work as a foundation for broader school-community meetings.

5.4 School-Community Meetings (SCM)

5.4.1 SCM to organise transport for children

Excerpt 5.3

Context: This meeting was organised to discuss the difficulties children faced since the school had moved, requiring some children to walk between 2-5 km to attend. Children had been raising this issue with the school; while teachers were also concerned as children in primary classes got tired after walking a distance in heat and participated with less energy.

Excerpt from the school-community meeting	Analysis
1. Community Co-ordinator (CC): Children have been talking with us in the school for quite some time. As you know the school has been moved to a new location, it has become quite far off for them. Children complain that they get tired coming and going to the school. I am sure they would have discussed this with you as well. It is true that the school is bit far off for them now. It is now approximately 4-5 km for some of them. If you remember before shifting the school we had a meeting and we mentioned in that meeting as well that we would talk with you. So we thought that when children are expressing their problems to us in the school we should talk to their parents and other community members. I should also tell you that we have talked about the problems faced by children at our level (in sharing meetings and school administration meetings) but it seems impossible for us to contribute anything at this point. We had to spend a lot of money in building the new school. We are running the school in very difficult circumstances. If you remember we had a meeting on last 26 January (Republic Day) in the school, you had unanimously asked us to construct the school in the new land, which we did. So we built the school there and it cost us Rs 20-25 lakhs. You know Digantar has no special funds from where we could have invested so much money. So we had to take loan from few people and other organisations. Since April we have been unable to get the funds on time for running the school. So we are in a difficult financial situation. Several things have happened at the same time; we are not able to get funds for running the school for the last few months and at the same time the school invested lot of money in constructing the new building. So we don't have enough funds at this point. Digantar has been working in your village for more than 18 years. We have never asked for any money from you. Children have gone on tours, exhibitions or to participate in sports, we never asked for	CC explains the school's perspective and problems. He tries to highlight that the school is listening to what matters for children and parents

money and even today, we have decided to follow the same principle and we will not take any money from children. We will try to run the school as it has been running in the past but we must understand that these children are facing problems in reaching the school, as they have to walk around 5 km to reach and return from the school. So we are concerned about this situation. The teachers are also facing a few problems due to this but the bigger concern is for the children. So we thought we should talk with you so that the children don't face this problem in the future. Today's meeting is organised to discuss this. I hope the children have shared this problem with you. They are bound to be talking about it with us on daily basis. There are 19 parents whose children are going to the new Gyan Shala from this village. There are still around 120 children who are studying near the village Masjid. We are not talking about them. This is a problem, which children are facing and we are here only because children everyday come to us and ask us to talk with you about this problem. So tell me what do you people think about this problem. There were times when we were in school.. even you went to school.... we use to walk about 10 kms to study but the situation has changed. We have to acknowledge that the situation has changed. 2. Parent 1 (woman): Then let's hire a vehicle, which will drop children to the school. 3. Parent 2 (woman): The children really get tired. We have to arrange something. 4. Parent 3 (woman): There are girls who are no longer kids. How will they go? We should think about some arrangement. 5. Parent 4 (woman): Instead of reaching home at 3pm, now they come around 4pm and they get very tired. They don't even eat anything. 6. Parent 5 (woman): My Sahista is not going to school for the last 1 month, after the school has moved to the new	Parents share their problems and concerns. Aligning with CC's concern they also offer solution to the problem.
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location.	
7. Parent 6 (man): You people (in the school) have to think about it. There are many children who have stopped going. They say the school is far off.	
8. Parent 7 (man): You have to make some arrangement.	
9. Parent 1: They get so tired that they don't eat at all when they reach home. We will have to hire a vehicle for them to reach and come on time without getting tired.	
10. CC: Okay, if you think you want to hire a vehicle then I think you should talk among yourself how you will arrange the vehicle. We are here only to facilitate it. I must also make it clear that we will not intervene in these issues because in the month of July when the school started some girls came to us and even though the school has no arrangement beyond elementary level, (they said they will not take enrolment in any other school) they sought our help to submit registration form for examination as a private student. They requested for a room in the school to study on their own. We got them registered with the intention to help them study further. They came with the money to submit their private application fee for the State board but we have heard that people started to say that now Digantar asks for money. We do not want to get involved in such matters again. So we are saying we will not take money for the bus or for anything else from the children. We are here only to facilitate and help you to decide.	CC is facilitating dialogue between community members in order to understand what matters for them. He uses schools ideological position and philosophy as a tool to emphasize that school is concerned about their children's education.
11. Parent 7: But if you will hire a vehicle then one of you will have to be part of it.	Parents are seeking greater support from the school to solve the problem.
12. CC: No, we will not hire a vehicle. We have just presented a problem, which children are facing. I have already said we are not in a situation to hire vehicle.	
13. Parent 3: No, her point is that if one of you can take the responsibility it will be easy to collect the money from all the parents.	
14. Imran (School staff): Why doesn't one of you take the responsibility. We, from Digantar will not take money from	

anybody. 15. Parents talking among themselves: Someone from them has to take responsibility. Everyone will give money to that person. 16. Parent 8: Let's think about it. So you have said we are 19 (families) whose children are going. So either you divide the money, which we have to pay in 19 parts, or else first add how many children are going from 19 families. 17. CC: Okay, we will give you the list of children coming to the school from your village. 18. Parent 8: See, nobody is against this but we should be clear on how to pay for it. 19. CC: Yes, I understand some families send one child to the school, some send two or three. We will give you the record. 20. Parent 8: So we will divide what each family has to pay on the basis of number of children. 21. Parent 9: We are fine but Digantar will find the vehicle and we will give money. So you find a vehicle in the lowest possible cost. 22. CC: So you are saying we should find the vehicle. 23. Parent 10: See you would have thought about this problem as well. Now, how will children reach the school is also a problem for you. 24. CC: There has been discussion on this in the past as well. Three points have emerged. One, people said arrange a vehicle and they will contribute for it. There were around 60-70 parents on that day but we said that more than 150-200 parents send their children to this school so we should talk with others as well. We should not decide on behalf of others. The second suggestion was that let the children go as they are and we will decide about it at an opportune time. Third suggestion was that people in the community would make record of the parents who are in favour of hiring a vehicle. As an alternative arrangement it was decided that a teacher would accompany children from the	CC tries to reorient the talk and makes his point more explicit. Parents turn this into joint problem-solving and CC responds. The parents also expand the object of activity by bringing new concerns. The CC work towards rebuilding common knowledge and also using already agreed points to reorient
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old village school to the new one. That arrangement is still in place but we will not be able to run this forever. It was an alternative arrangement made for the time being. Few days back we had a similar meeting in <i>Kho</i> where a lady and few parents took the responsibility. We have given them the list. They have decided among themselves about the vehicle. We are not pressurising you to hire a vehicle. If you don't want to hire any vehicle you are free to take that decision as well and let the children go as they are going at the moment. We don't have any problem in that case as well but this was the issue, which children were consistently raising with us so we thought of coming and talking with you on this. 25. Jeetendra (Teacher): Children are talking with us; they are certainly facing a problem. 26. Parent 1: We are ready for the vehicle but who will do it. It should be from Digantar's side only. It will work only when it is from your side. We even do not know how many children will go on that vehicle. You people know better about it. 27. Shyam ji (Teacher): There are around 55 children. 28. CC: Yes around 50-55 children. 29. Parent 1: I am saying you know how many children are coming from which family. So if three children are coming from a family you know that and then can collect accordingly. We cannot do this. I think Digantar should take responsibility. 30. Shyam ji (Teacher): Look, we already have too many responsibilities, now you will have to make a committee of two-three people and look for the vehicle and decide what would be the best possible alternative. So someone from you take the responsibility. 31. Parent 2: It will lead to lot of trouble, as the driver will demand money from each one of us separately. If you will take money from all the children the driver can go to you and get the money and it will run smoothly. 32. Rakesh (Teacher): Shyam ji has suggested something; I do	the discussion and reemphasize school's position. A 'Sparring way' of conversation between the teacher and parents continues. Negotiation revolves on the distribution of responsibility between school and community. They discuss
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deposit the money one month in advance with him. So when the time will come he will give it to the bus owner. Then you again keep the money for next month in advance. So it will work well. 40. A few women supported his statement: Yes this is good. 41. Imran: First decide one person who will take the responsibility for this. 42. Parent 7: This is strange, the person who will take the responsibility will go from door to door collecting money. This is not 43. Imran (interrupted him in the middle): No you don't have to go. All the parents whose children avail of the bus will come to you and deposit the money. 44. Parent 9: People will be comfortable to give the money to the teacher but not to collect it here. It will be a problem. 45. Parent 11: It will create a lot of fuss and can lead to fights amongst us. 46. Shyam ji: You people decide who will be responsible. What is the reason to fight in this? 47. Parent 1 and 3: Somebody from the school will have to become member of this committee. Why not make Imran ji a member. 48. Parent 11: What will happen to the children who will not be able to pay the money. 49. Parent 7: They will go to school on foot. Isn't it Imran ji? (laughs) 50. Imran and Shyam ji together: We will not say this. For us all the children are equal. We are not making arrangements for the vehicle so we will not decide these things. You people decide how to run it. It was a problem, which was discussed between us in the school so we came to talk with you. 51. CC: I can understand you want to say that those who are not paying will not go in the bus but you people have to take these decisions. How to run this service is your prerogative, we will only help you when needed. 52. Parent 10: What will happen when their parents don't pay?	The discussion moves away from the object of activity.
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sitting at some distance and asked them to join the meeting. These women joined the meeting at this point.) 64. Elderly lady: These things are fine but the bus driver should be good. There are many who don't drive properly. You have to choose somebody who understands that he is taking children and must drive slowly. 65. Imran: This is why we are making members from the community responsible. You will take care of these things better than us. 66. Parent 10: There are many new drivers who are not trained yet. They should not be appointed. (After some discussion it seemed that people were ready to hire a mini-bus or tempo for taking the children. CC, few teachers and three-four parents started to write the details so as to decide which vehicle will serve their purpose. On the other hand a discussion about whose vehicle should be hired continued.) 67. Parent 12 (Woman): I feel scared of big buses on these roads. A small vehicle can do two rounds. It will be more safe and better. 68. Parent 2: Okay we can hire even a tempo (small three wheeler). Decide the time when it will come 8, 8:30 or 9 and then it will come accordingly. 69. Parent 4: In bus it is also difficult because these are young children sometimes they don't get ready on time. If they are bit late bus will leave them because he cannot keep track of these many children. 70. Parent 6: But the bus driver cannot go from home to home calling children. 71. Imran: Decide a place where children will gather and bus will take them from that place. 72. Parent 4: Like buses of other schools pick children from multiple stops on the road. We can do the same. 73. Shyam ji: Yes, children from <i>Dher</i> can stand at one place. Children from <i>Badli</i> will gather at another point on the road.	The object of activity is further expanded as new members join discussion. Details of the solution are worked out to respond to the concerns of the participants.
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You people decide it. 74. Imran: The vehicle can start from <i>Karim nagar</i> and then pass through <i>Badli</i> and <i>Dher</i>. (Names of the people who will take the responsibility were decided. The CC agreed that from Digantar Imran would be member of the committee) 75. CC: Okay then we will give you the details of the students in a day or two. (A few parents disagreed with the names of the committee members. They were saying it would be difficult to contact them, as they are generally very busy). 76. CC: Okay then lets make two or three women members of the committee. They stay at home and it will be easy to contact them. Now, is it okay? Once the money is collected you can call Imran and deposit the money with him. (They decided name of three women who will be responsible for collecting the money). 77. CC: As I have said we will not ask money from anybody and we will try (a few women interrupted him in the middle). 78. Few women (together): But how we will do it? 79. CC: We will be in touch with three of you. In fact Imran will stay in touch. 80. Parent 1: You give us the list as well so that we can decide what each one of us will have to pay. 81. CC: We will give you the list by then you decide about the vehicle- bus, taxi or tempo, whatever. (Everyone agreed with CC) 82. CC: All right then, do you want to say anything else. About anything related to school, teaching or something else. (These talks between people about advance payment, bus or taxi went on for sometime. CC again intervened to know if they wanted to say anything else. The meeting went on for another 20-30 minutes discussing details of how to run the vehicle)	Communicating the solution and deciding the future course of action.
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The 'sparring way' (Engeström, 2007, 2008) of dialogic conversation, which was visible in the teacher-sharing meetings in the previous chapter, were also evident in school-community meetings. These sites for conversation were dialogic spaces where school and community members were able to work on authentic problems faced in their children's education.

In his initial statement (turn 1), the coordinator presented the school's perspective and challenges they were facing. He also shows his concern for the problem and notes that the school is listening to the children's worries: "We are concerned about this situation", "these children are facing a problem". He defined the object of activity quite clearly and also positioned parents as important participants in working on it, a strategy that encouraged parents, who shared their concerns and ideas enthusiastically.

It is important to note that before the SCM, the teachers through meeting individual parents did thorough groundwork. Thus, parents were well informed and had discussed the problem among themselves. The outcomes of these prior conversations within the community was quite visible, as parents unanimously wanted the school to be responsible for organising the vehicle in turns 7, 8 and 9. The coordinator further clarified his position and refocused everybody towards the object of activity (in turns 10, 12). Once it became quite clear to parents that the school was not in a situation to run the bus service they started to work on the detail of organising the school vehicle. At this point the parents sought the school's contribution to the work on the

problem (turn 23). It could be seen that both the community members and schools were aware of each other's expertise and provided the opportunity for it to be exercised while engaged in complex problem solving. The community coordinator played a pivotal role in refocusing and orienting the discussion to the object of activity when the participants digressed from it as seen in turn 10, 24 and 37. The school functionaries and teachers were responsive to the needs, histories and intentions of the community and were not led only by the school's needs and goals. This awareness of the motives, needs and intentions of the people worked as a resource for the teachers and coordinator to work alongside parents on joint problem solving. The diagram below shows the stages they went through while working on the problem.

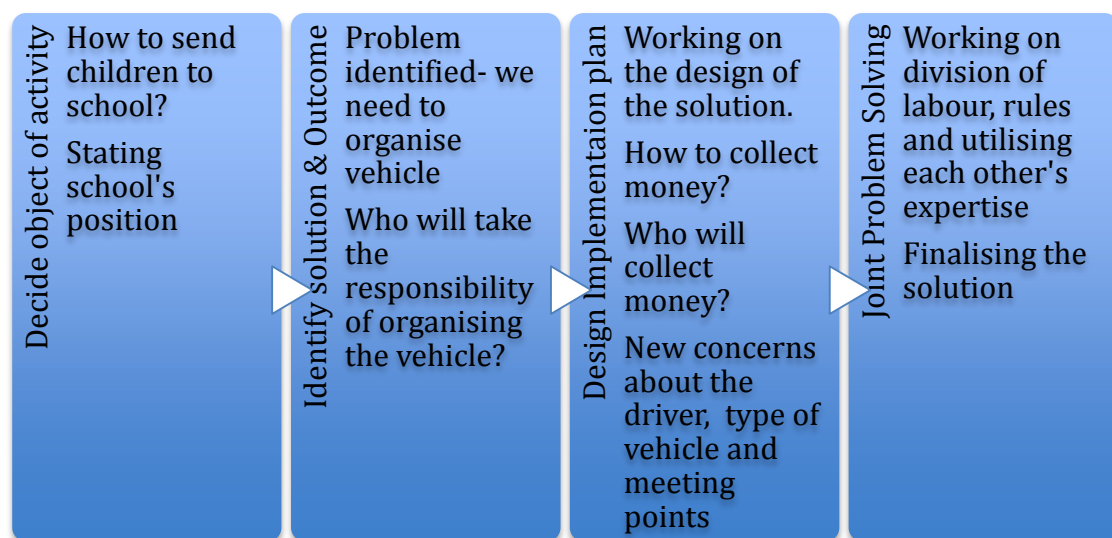


Figure 5:2: Figure representing the stages of problem solving in the SCM

A key element on the role of the coordinator was to moderate the joint problem solving sessions between the community and the school. His first

step was to introduce the problem and detail the school's position. This introduction to the problem helped parents to enter the discussion as they were quite aware of the schools concerns and intentions. When parents intervened between turns 2 and 9 they not just presented solutions but their interventions also gave sense of their motives and engagement with the object of activity. This helped teachers and the coordinator to work on the problem and realign their motives according to the demands of the situation (turns 10, 14 and 24). When the problem was presented to the parents they decided to hire a vehicle as a solution to the problem but as soon as people start to share their concerns and problems the object of activity was radically expanded (turns 18, 31 and 42). Interestingly it did not change the problem but rather presented different sides of the same problem. This expansion of the problem helped people to relate to the object of activity. This later helped in their participation in the joint problem solving.

Moreover, the concern raised by the parents also changed what could be considered as the solution or outcome. The initial concern was only to organise the vehicle. However, during the problem solving the problem was not just to hire a vehicle but was expanded to what kind of vehicle, how to collect money, who will collect money and how to choose driver and meeting points. The solution that emerged was more likely to succeed as it was not just at the level of design but had also been worked on at the implementation level considering the intentions of the participants. Thus, the problem and outcome became the property and responsibility of the group.

Throughout the problem solving exercise the coordinator worked alongside community members mirroring what mattered for the community. The school also moved from their initial position of not participating in running the vehicle because they recognised the importance of supporting the parents in working on the problem. They did so without prescribing any solution; instead a dialogic approach was taken. This helped to develop an advanced discussion on the problem where community members were critically aware of their power in decision making.

These school community meetings have emerged as a ground where people confront problem critically, simultaneously objectify and act upon problems. Freire (1970) cogently puts it as “engagement with praxis: reflection and action upon the world in order to transform it” (p.33). Participation in these meetings also made teachers and parents jointly responsible for shaping children’s potential social situation of development.

Importantly, parents’ participation in these meetings was not limited to the peripheral aspects of schooling like deciding about bus or school time; they also raised concerns about the quality of teaching in the school. The dialogue from another SCM presented below shows parents pointing to what they saw as declining standards of teaching in the school.

5.4.2 Parents' showing concern about the teaching-learning in the school

Excerpt 5.4

Context: This meeting was organised to focus on the problem of water in the school and nearby villages. The discussion was very short as everybody agreed to raise the issue with the water supplier and local legislature. As there was some spare time the coordinator asked parents to share anything they wanted to talk about. During this conversation some of the parents raised the issue of what they saw as the deteriorating quality of education in the school.

Excerpts from the school–community meeting	Analysis
1. Parent 1: The teaching in school is not good. You should do something about it. 2. CC: Okay, you are saying teaching is not good. 3. Parent 2: Teaching is not good that's why many children are dropping out and joining other schools. 4. Parent 3: When children don't study the teacher should punish them properly. It should be conveyed to their parents as well. If you will not beat them how will teaching improve? How will they learn? 5. CC: Alright. You are raising valid concerns. In the past few months there have been fewer teachers in the school and then shifting of school to a new place and what happened around it you know all that, but I still accept that there could be lapses on our part as well. You are right many children have left the school in recent past. But we are not in support of punishing children. I think we had discussed about this in the past as well. We do not believe in corporal punishment. When you start to beat children, you are not considering them as human beings who feel pain. Moreover, it does not motivate	CC accepts the concerns raised by parents and considers it as a legitimate object of activity for discussion. CC explains what matters for them and tries to relate parents with the philosophy of the school.

children to learn. 6. Parent 3: But in our times teachers used to beat children. We stopped going to school but those who went to school hold good jobs in the city. I always tell my child don't leave school even if the teacher beats you. If you can take this today, your future will be bright. 7. CC: You are accepting that you left school because teachers used to beat you. Now, those who are doing jobs in city are not doing it because they were beaten by a stick everyday. It is because they got educated over a period of time. The point is to make children learn. Tell me if you could get something done by your child just by talking to him, would you still beat them? 8. Parent 3: Why will I beat him if he does what I tell him? 9. CC: If he doesn't, then will you beat him? 10. Parent 3: I will ask him again but if he doesn't listen then I could. Sometimes you have to. (Others in the group started to laugh) 11. CC: This is the point. We in Digantar believe that child has his own way of functioning. We should understand him first. He is not a machine, which will work to your command. Don't you think sometimes even you don't go to work? Should your contractor in that case come to you and start to beat you because you did not come? I don't think you will say yes to it. But you can say for children it is important. Now we in Digantar believe in children's ability to learn. It is our responsibility to provide them a facilitating environment and support them from time to time to make them learn. So we don't believe in corporal punishment as a method for teaching. This can only lead to child never coming to school again. 12. Parent 3: But it is very difficult to control children without beating them.	CC engaging parents to critically reflect on their ideas. CC makes parents to reflect on their ideas and action. While working on their concerns CC is bringing the school's philosophy as a tool to explain school's perspective. This could also be seen as building of common knowledge for future.
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13. CC: It is not that difficult. We enjoy interacting with them. That's why they happily come to school... (this interaction between them went for another 10 minutes. Both of them cited examples to explain their point. Ultimately parent 3 agreed that beating child is not good). 14. Parent 11: There is no teacher for English. 15. CC: Yes, there is no teacher for English; there is no teacher for Sanskrit as well. You are right. At this point we.... (Other parent interrupted) 16. Parent 5: Two years back there used to be very good teaching in the school but now people say they will send their children to other schools. There is not much teaching in Digantar. 17. CC: I accept your point that there have been some lapses on our side and there is a need to improve it. You know that we are facing a lot of trouble for the last two years (he is referring to the problem that has come up due to the expansion of Jaipur city and Municipal corporation's move to occupy part of Digantar's school land). 18. Shyam ji (interrupting CC): There has been a situation where parents send their children to some other school taking them out of Digantar and after sometime those children want to come back to Digantar. 19. CC (stopping Shyam ji in the middle): Shyam ji, I think we should respond to their concern than telling them what is happening according to us. You are right! We do have a shortage of teachers for the last 6-7 months. More than six-seven times we advertised in newspapers to appoint English teachers but we did not hear from anybody. Then we decided to pay college level salary to the teacher, so that we could hire somebody. Last time we gave Rs.18, 000 to the English teacher and even	CC is keen to listen to the parents and facilitates parents to explicitly present their perspective on the problem. CC explains that school is concerned about
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then it did not help. Just by giving money we cannot get good teachers. Teaching and teaching with an ability to understand the nature of the subject are two different things. Children's understanding and understanding of the nature of the subject is important for teaching in our schools. We have three teachers for mathematics still we hired another part-time teacher who was paid Rs. 6,000 for only three hours but he stopped coming from the last month. We also advertised for an Urdu teacher. Some of the teachers who we appointed came for 15 days, some for 20 days and then they left; same is the state of Sanskrit teacher. Last week we placed three advertisements to appoint an English teacher, Mathematics teacher for secondary level and a Sanskrit teacher. Not even one teacher continued to come for more than a month or two. 20-30 people come for the interview to the main office but as soon as they see the school after two days they stop coming. We were not giving them less salary. This is a problem for secondary school children. It is a problem for children after they have reached level 5. We also know that this is a problem but we are not getting suitable candidates for teaching in the schools. Now a new law has also come in place that we can appoint only B.Ed (Bachelor of Education training for teaching) holders in the school. This has been a problem for the last two years. I also think it could be the case that those who came in during this time when we were facing problem left because of the troubles around the school. So I hope now we have better facility in new school and teachers will not run away as they used to do in the past.	the problems they have raised. He also explains school's recruitment policy. This building of common knowledge could be of help in future as teacher attrition rate are high in these schools.
20. Parent 5 and 6 together: But something should be done.	Explaining future
21. CC: I accept your point and we have already started to work on that front. The teachers, who are working at present and those who will join in future, will have to uplift the quality of teaching. In the near future the	plan and commitments of the school help to work

functioning of the school will surely change..... There are plans to introduce computer education from an early age and to appoint a teacher especially for art. We are particularly concerned about English and Mathematics teaching and we hope to solve the problem in the future. 22. Several women together: Our older children lose a year due to this. We trust Digantar for good education but if there are no teachers for Maths and English, then what is point of sending them to school? 23. CC: I agree with you, we are trying. Recently we appointed an English teacher paying him a high salary but he has not come for the last four days saying he has meetings and other commitments. Working with children is a big challenge. We will find somebody very soon. 24. Parent 1: I think it should be done on a priority basis. If half of the year goes like this then what is the point of appointing a teacher after 6 months. If the result is bad this year then many children may leave the school. 25. Teachers together: We will do a better job this year.	as a platform for discussion in future. It also gives some hope to parents about school's functioning and gives them sense that school is concerned about their children's wellbeing.
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The initiation of this discourse by the parents shows that the teachers and school functionaries do not govern agenda for the SCM but it is considered a space for joint problem solving where parents can raise concerns about their children's education as well. In turns 1 and 3 when parents wanted to talk about the drop-out rate and related it to corporal punishment, the coordinator accepted it as a legitimate topic for discussion. His efforts in turns 5 and 7 were not only to explain the position of the school but also to engage parents in critically reflecting on their ideas about corporal punishment, mirroring parents' statements: "you are saying you left the school because the teacher use to beat you... tell me if you can get a thing done from your child just by

talking, will you still support beating him?” Critical reflection as explained by Freire (1970) is as one of the prime method to move from the banking model of education as he called for “the reflection and action of men and women upon their world in order to transform it” (p. 33). This has been one of the efforts in the SCM where teachers and parents come together to work on the real world problems.

The participation of the parents was not limited to responding to the problems highlighted by the school but also to engage school in solving problems, which they considered important. The engagement of the community members in the internal functioning of the school showed that the school respected and gave space for parental intentions and aspirations. Thus it was not just the school, which benefited from the mutual trust they have with the community; community members also became aware of the institutional demands in the school. This knowledge helped them take forward the concerns they have in common with the teachers i.e. children’s education. The teachers’ responses indicated that working on this object of activity was a joint responsibility.

In turns 19, 21 and 23 the coordinator revealed the school’s values and concerns by being open about their recruitment problems. It was evident in excerpt 5.3 that established understandings of what mattered created resources for future problem solving. Common knowledge was constructed while joint problem solving, allowing the school and community to

acknowledge and tackle contentious problems of standards and staffing over the long term. This reading of the event echoes Engeström's idea of 'temporal nature of intentionality' in which today's work may be linked with the long-term nature of intentionality.

5.4.3 Review of the discussion on SCM: Space for deliberative community engagement

The analysis so far suggests that the building of common knowledge in TPM and SCM has helped people with different belief systems and priorities to rely on each other to work together to facilitate children's schooling. The SCMs are sites that help both community members and teachers to further understand the motives, beliefs and aspirations of each other. The common knowledge built on the understanding of the social life during the individual teacher parent meetings are used to engage parents in SCMs. Figure 5.C shows the typical stages in SCM during joint problem solving.

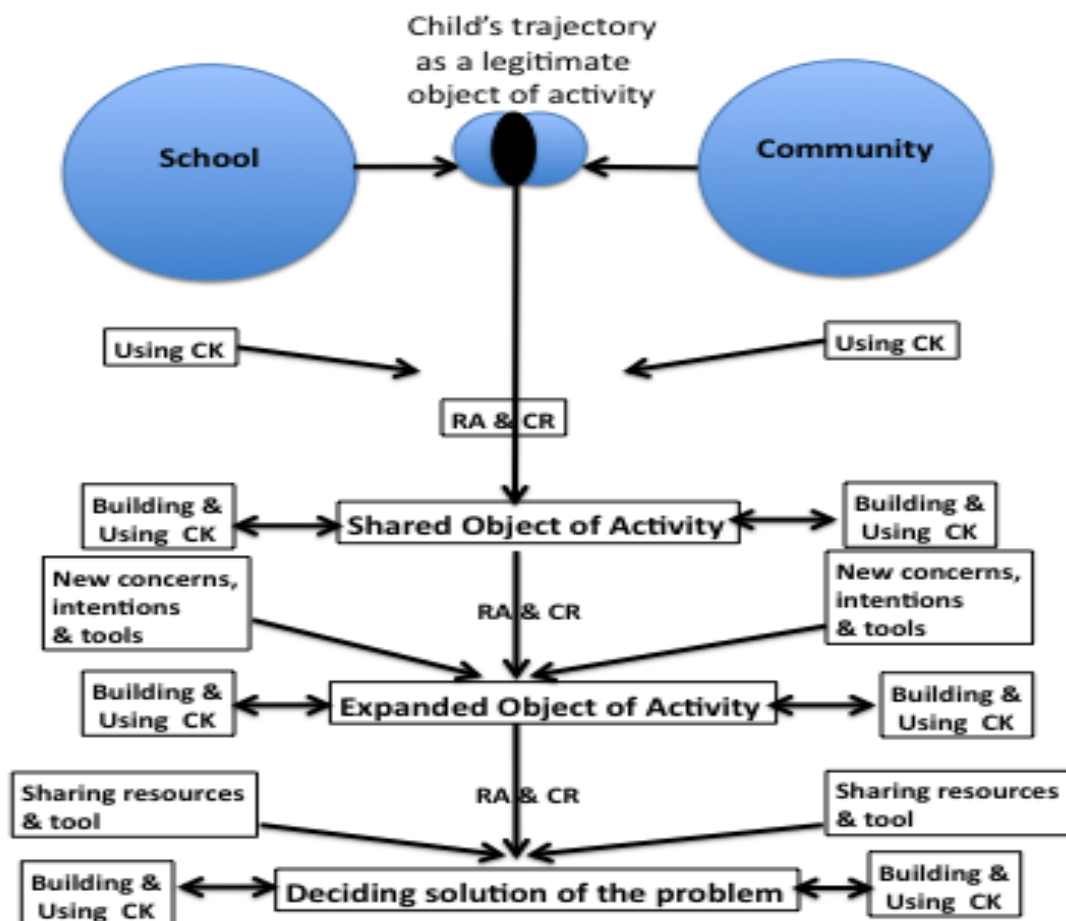


Figure 5:3: Figure representing SCM as a joint problem solving space

Building and using common knowledge can be seen as two-staged process, the first stage of building common knowledge through setting up conversations where motives are made visible is a long-term and continuous process, while the second stage of using common knowledge as a resource in interactions is quick and almost automatic. Although it is important to remark that they are not mutually exclusive and both often happen together.

In this chapter I have suggested the building and using of common knowledge for deliberative community engagement can be attributed to following four factors:

1. **Object oriented activity:** The constant focus on the object of activity made the dialectical engagement between the community and school goal-directed. These focused interactions allowed the SCM to be a platform for joint problem solving, working on broad issues concerning school or community which have bearings on children's education.

2. **Funds of knowledge and children's movement from everyday concepts to scientific concept:** Fleer (2006) and Moll (1990, 2005) have suggested that teaching and learning in school need to be informed by what is valued in children's home environments. Moll and his colleagues propose that teachers accomplish this task through a detailed ethnographic analysis of the funds of knowledge available in children's households and build on the understandings that they have identified in their classroom teaching. Their argument is a Marxist one, that subjective conditions determine people's consciousness. Moll (2005) has also argued that these ethnographic surveys help parents to position themselves in relation to the school in ways that allow them to engage more productively with their children's schooling.

"The household visits, then, can alter parents' relationships with teachers and by implication, the parent's positioning with the school as a social system. In a sense, these parents now have some inside help in dealing with the schools." (Moll, 2005, p. 280).

Moll is at pains to emphasise the two-way flow of knowledge.

“The emphasis would not only be on how parents can accommodate to the routines of schooling, as is usually the case, but on how they can get the school to accommodate their needs, conditions and desires.” (ibid, p. 281).

Thus, Moll’s argument is that when a school tries to access children’s funds of knowledge they also make school’s institutional funds of knowledge more accessible to parents. The present study recognises the importance of the insights brought by Moll and his colleagues, but also recognises the dangers of too strong a dependence on the everyday understandings that are likely to comprise these funds of knowledge. Following Vygotsky, the present study has argued strongly that the iteration between everyday understandings and what Vygotsky termed scientific concepts is central to schooling, and indeed a strong feature in the work of Digantar schools.

The thesis therefore argues that the school engages children as active learners making sense of and engaging with the public meanings that comprise the school subjects they encounter. It is for that reason that the study has introduced the concepts of common knowledge and the space of reasons to capture the efforts made to enhance the conceptual repertoires of the pupils in the case study school.

3. A ‘Sparring way’ of dialogic interaction and space of reasons: An important feature of the SCM was the ‘sparring way’ of dialogic interaction, where reasons were requested and given. The school supported such interactions, providing space for people to disagree and bring their views

for discussion in SCM. Although the 'sparring way' of conversation has every chance of losing focus, a danger clearly visible in excerpt 5.3, discussions were brought back to the object of activity. The refocus and constant engagement with the object of activity was made possible due to common knowledge and the space of reasons that had been created. The idea of space of reasons demands responsibility while consistently engaged in understanding each 'why' of the argument. As Pippin (2000) argued "“Having reasons” in this sense for what you did, having something to say about “why”, in general condition for some event being considered an action of yours at all, and not having reasons means it is very hard to understand any link between you and what conduct you engage in” (p. 179).

Thus, even when a sparring way of dialogic interaction provided space to bring 'authentic' concerns it was moderated through constantly asking 'why' engaging in that idea or concern important for the problem. Thus, it helped in building a problem solving space where people were responsible for solving the problem and aligned their ideas and solutions accordingly.

- 4. Historicity and future-oriented vision of activity:** The historicity of the problem and recognition of future goal directed action was considered essential for work on the problem during both SCM and TPM. The building of common knowledge during these interactions made interaction in SCM relevant for everyone. It also developed a collective intentionality over a period of time in school functionaries and community for working on the problems that mattered for children's education. The temporality also

situated the decisions so that they were action oriented in materiality and did not remain as abstractions.

- 5. Agency and social networks:** The meeting showed that as teachers had transcended the boundaries of the school, so had parents transcended the boundaries of the household. Thus, parents come to view themselves as agents capable of changing their children's educational experience, which is often difficult to see in people who have never been to school. The building of common knowledge during SCM also developed in them an agency that it is not just that they have to accommodate to the conditions and routines of the schools but they can also get the school to accommodate to their needs and desires.

Moreover, eliciting and negotiating their motives and often working to support the activities in the school led to parents developing a capacity for agentic action. They were engaged in their children's education and made use of the institutional networks in school for their children's education (excerpt 5.2). This ability to "know-who" is important for developing a responsive schooling practice. As Lundvall explained, "Know-who involves information about who knows how to do what. But especially it involves the social capability to establish relationships to specialised groups in order to draw on their expertise" (Lundvall, 1996, p. 7).

As the school offered their professional expertise while working alongside community members they also developed as professionals who could make use of the expertise and resources offered by the community members. This ability to recognise and respond to the standpoints of others and build solutions on the basis of what matters for others, helped in developing a responsive professional practice. The teachers also developed a new identity as they accommodated the challenges and uncertainties of children's domestic social situations of development, so finding themselves able to align their professional intentions with the motives of the children inside the classroom. These ideas are developed further in the next chapter, which is primarily focused on the classroom teaching-learning.

Chapter Six

6 Building and Using Common Knowledge III: Teaching and Learning in the Classroom

6.1 Introduction

The chapter is organised around excerpts of verbal interactions, chosen to show how teachers in a Digantar school mediate what matters in the practices of the school so that children can dialectically create their own social situation of development during the teaching-learning process. The data presented in this chapter are mainly video-recordings of classroom interactions, augmented by interviews and stimulated-recall interviews with teachers and a few informal interaction sessions with children. Thus, as already mentioned in Chapter Three the effort has been to present a holistic picture of teaching-learning in Digantar schools.

The chapter is divided into four sections:

6.2. Outline of the analytic focus

6.3. Selection of excerpts and the analysis

6.4. Episodes from the classroom interactions

6.5. Review of the discussion presented in the chapter

6.2 Outline of the analytic focus

The analysis of excerpts of the classroom interaction reveals that the children's learning trajectories were integrated with the pedagogical activities and social relations that exist outside the school. Following Edwards (2010a, 2011, 2012), my argument is that the constant building and sharing of common knowledge at the multiple layers of school-community, teacher-teacher, school officials-teachers, has enabled the development of a responsive pedagogy where teachers were aware of the institutional demands and were constantly working to make children agentic in creating their social situation of development.

An analysis of how collaborative spaces were created during classroom interactions also points towards the temporal development of classroom discourse. It is in line with what Mercer (2008) observed "[w]e do not only need background information about shared experience prior to the observed event, we also want information about the progress of the talk itself" (p. 45). As already discussed, Edwards (D) and Mercer (1987) have argued for the importance of developing what they term common knowledge for better classroom teaching-learning. The sociocultural line they take points towards has been presented in more detail in Chapter Two (section 2.4.4).

The data presented in this chapter describes the building of common knowledge between the teacher and children as they engage with each others' perspectives around subject matter knowledge. However, as I indicated earlier in the thesis, the approach taken by Edwards (D) and Mercer does not help to present the negotiations and alignment of motives that were

clearly apparent in the pedagogical practices in the study school. Here Edwards' (A) idea of common knowledge was found to be helpful as it provides the possibility to recognise the motives and demands that guide classroom discourse. Edwards (2011) has argued that knowledge of 'what matters' for other 'can mediate responsive professional action' (Edwards, 2011, p. 39).

In Chapters Four and Five I have argued how building and sharing common knowledge helps in developing teaching-learning as a responsive practice. Building and sharing it during the Teacher Parent Meetings (TPM) and School Community Meetings (SCM) helped teachers understand children's domestic social situation of development; therefore how they are likely to be interpreting the demands made on them and the resources they can bring to bear when they work on the school tasks. Derry's (2008) extension of Brandom's and Sellar's idea of 'space of reasons', Vygotsky's idea of social situation of development, everyday and scientific concepts and Edwards (A) idea of common knowledge were used to analyse the pedagogical practices in the study school.

6.3 Selection of excerpts and the analysis

The chapter is built around excerpts of verbal interactions in classrooms in the study school. Around 120 hours of classroom video data were recorded during a six-month period. The selection of excerpts presented here are based on two principles: i) they are typical of the pedagogical practices in the Digantar school, ii) they are largely from science and mathematics as lessons

from science, mathematics and social science sessions were making the pedagogical practices of the school most explicit. Some of the excerpts presented in the chapter are very long up to six pages. The purpose is to give the reader a sense of how children's perspectives were woven together in order to teach subject-matter concepts.

Three excerpts from the analysed data are presented in this chapter. The first excerpt of a mathematics classroom is presented in three parts. The interaction that happened over three days to discuss the concept of area is presented here to show the interactive trajectory that was followed during the course of teaching the concept. The second excerpt is from a science classroom where the teacher is teaching children the concept of air-pressure. The third excerpt is from a social science session where the teacher organised the discussion around a lesson focussed on "who will do this work?"

6.4 Episodes from classroom interaction

6.4.1 Excerpt from a Mathematics lesson

Excerpt 6.1 A Mathematics lesson: Teaching the concept of area

The teacher worked on teaching the concept of area for one week. The excerpts from the first three sessions presented here were devoted to introduce the concept to the children. The latter sessions were largely to practice the concept and solve problem based on it. The excerpts are organised in three sections 6.1 A, 6.1 B and 6.1 C. After the third session (6.1 C) an extract from the stimulated recall interview of the teacher and informal interaction with children is also presented.

Context: Pravesh, the teacher had covered the concept of perimeter and in the excerpt below introduces 'area'. The class was divided in three groups. Six children were part of the group whose interaction with the teacher has been presented here. These children were aged 8-11 years. Pravesh asked children to form a semi-circle and sat in the middle with hardboard and a few notebooks. The children were enthusiastic as Pravesh told them earlier in the day that he was going to teach something new.

Excerpt from the Classroom Discourse	Analysis
1. T: Now we have this hardboard (teacher took a small hardboard which children use as support when they write) and let me take these two notebooks. Now all of you come here. Be quick! (Fhatima had an injury in her finger. The teacher showed concern and asked her to get an anti-tetanus injection.) 2. T: Okay, if I have to find perimeter of this hardboard then what should I do? 3. Sabbir (S): We have to measure it first. 4. Rukhshar ®: (pointing towards hardboard) We have to measure (these) two sides. (Other children supported her) 5. T: This is rectangular. Isn't it? 6. Children together: Yes, yes... (Loudly with lot of enthusiasm)	The teacher is making efforts to establish working on the 'concept of area' as a legitimate object of activity to be worked on together. The teacher deliberately seems to use the concept of perimeter (something they already) as this might help him to engage children with the object of activity.

7. T: Alright, now tell me if I have to find its perimeter then what should I be doing? 8. Azlam (A): 2 times length + breadth 9. T: Okay. Do you support him? (Teacher asked Fhatima) 10. Children together ©: Yes, yes, 2 times length + breadth 11. T: Okay, if we talked of perimeter, the sum of all the four sides is perimeter. Isn't it? (Children nodded their head in agreement) 12. T: Till today we were not talking about this space inside the hardboard. We talked only about the sides of this rectangular hardboard but today we will not talk about this. Today we will talk about something else, the space inside these sides of the hardboard. (The children became more attentive and there was less noise.) 13. T: (placing a notebook on the hardboard) Now tell me, how much space of the hardboard does this notebook cover? (The children were puzzled) 14. T: Okay, the space it has occupied is equal to this notebook. Right? 15. C: Yes. 16. T: Lets take another example. Now if we talk of this carpet (in the classroom). It is also rectangular?	The teacher's motive is to create a space of reasons and demand where children can participate in giving and asking for reason as they work on the problem. This helps them to relate their understanding of the concept to engage with the object of activity. The demand to find a solution to the problem, which was beyond their current knowledge helped teacher to present the problem as a legitimate object of activity to work on.
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17. C: Yes. 18. T: Now this carpet has covered the floor beneath it. 19. R: Yes it has covered. 20. T: Now, if I ask you how much space of the floor has it covered. How do you find it? 21. S: Perimeter, we can find the perimeter of the carpet. 22. Sabiha (Sa): Yes we will find its perimeter. 23. A: We will do 2 times length + breadth 24. T: Okay, Perimeter? Sure? Perimeter? 25. R: No, not perimeter. 26. A: We can know its length and breadth and can find its perimeter. 27. T: Azlam, perimeter tells us about these four sides of the hardboard but I am asking how much space is it covering? Perimeter will only tell you how long are the sides of this rectangle. (Rukhsar was consistently supporting the teacher. Sabbir and Azlam were still thinking.) 28. T: Look, I am talking of this entire space and not only about the sides. 29. R: This side is four and this one is two. 30. T: Okay, fine. This side is four and this is two. Then? 31. A: It's 12 then. 32. T: 12 what? 33. S: (After some hesitation) metre No-no, it's centimetre. 34. T: So you are saying it has covered 12 cm of the space? 35. A and R (together): yes 36. T: But you are still talking of the sides of this notebook	The teacher makes the problem more explicit. While doing so he is also trying to negotiate with children that they cannot work anymore with the concepts they already know. Motivating children to find solutions to
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and I am asking how much area this entire notebook has covered. I am not talking about sides only. Tell me how much area this notebook has covered on the hardboard? 37. S: We have to measure it this way (diagonally). 38. T: Okay. Then? (Children had no answer. They started to smile) 39. T: Let me make it more clear. There are two situations suppose I ask you to decorate the notebook with a ribbon only on its side. How much ribbon do you need? What will do in that case? 40. S: We can find perimeter. It is easy. We will add the sides. 41. T: But now my question is to paste a sheet to cover this part (front) of the notebook. What will do now? (Children were puzzled. They talked among themselves for few seconds and did not say anything) 42. T: Is it a different question than putting ribbon? 43. S: Yes. We cannot do perimeter anymore. 44. T: Okay. Now you agree that it is a different problem. Lets talk more about it. 45. T: Let me come back to the hardboard and notebooks. Lets do something else here. Let me put another notebook on this hardboard and then ask how much space are these two notebooks covering. Tell me, am I talking only about sides (of the notebook) now or about this entire space covered by these two notebooks? 46. R: About the entire space covered by notebooks.	the problem with their already existing knowledge helps to engage them with the problem. As children brought the abstract concept to work on the problem it created the possibility for the teacher to further work on the concept. After several trials to solve the task, the learners are stimulated to analyze the demands of the task in relation to their already existing conceptual understanding. The teacher makes efforts so that children can engage with the area problem. It also creates the demand on children to
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(Teacher marked the entire space covered by the two notebooks with a white chalk) 47. T: Can I say that the space covered here is equal to these two notebooks? 48. C: Yes. 49. T: Now, we call this area of the object. So the two notebooks cover the total space on the hardboard. So the area marked in white here is equal to the area of two notebooks. Is that making any sense? 50. C: Yes, yes. 51. T: Now tell me, this hardboard has covered some space on the carpet. It has covered some parts completely. Is it covering this space (pointing to the space outside hardboard)? 52. C: No. 53. T: This (pointing to another side)? 54. C: No. 55. T: Has it covered the carpet below it? 56. C: Yes, yes. 57. T: Okay, (teacher started to mark the sides of the hardboard with a white chalk). 58. S: We can measure it. 59. T: We are not talking about measuring it yet. I am just saying the hardboard has completely covered some space of this carpet and what is this space called? It could be called the area (<i>shetraphal</i>) of hardboard. 60. C: Area (most of them repeated the word). 61. T: Right. The space, which this hardboard has completely covered on this carpet, is its area.	engage with abstract concept, as working with notebooks cannot take them very far.
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62. S: Now we will measure the sides and find perimeter 63. T: No, we are not talking about the sides only. We are concerned about this entire space. If our focus would have been only on the sides of this figure, we could have found perimeter, but here we are talking about this entire space. Which is...? 64. C: Area. 65. T: Now how can we know about the area of this hardboard? 66. C: By measuring it. 67. T: Okay. Sabbir bring the ruler. (There was some negotiation on which ruler to use and teacher also gave few instructions on how to measure using a ruler. The length and breadth of the hardboard were found to be 36cm and 9.8cm. The teacher marked the length and breadth of the rectangular hardboard). 68. T: Now we know the length and breadth of this space but how could we know how much area it has covered? 69. Sa: Measure the entire area. 70. T: We have measured this. Length is 36 cm and breadth is 9.8 cm. 71. A: Add all of them. 72. T: But then it would be perimeter. It will be sum of four sides of this rectangle and we know it is called perimeter. 73. R: We are talking about area. 74. T: Lets do something else. I have few small cards. Sabbir, can you bring them from the box? (Sabbir brought the small square shaped cards)	Teacher agrees to children's idea of measuring the hardboard this leads to space for children to appropriate problem according to their prior knowledge. At the same time the teacher is consistently motivating them and guiding them towards the problem that could generate crisis. The teacher is
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75. T: Lets try to find out how many of these small cards can cover the area of this entire hardboard. (Children enthusiastically participated in this task. It continued for a few minutes) 76. T: So if we talk of this space. Then how many cards have covered this space? 77. A: 50 78. Sa: 48 79. S: 52 80. T: How did you find it? 81. C: We counted. 82. T: Can we do anything else here? 83. C: What? 84. T: How many cards are there in this one row? 85. C: One, two. Three.....Six, Six, Six! 86. T: And how many columns do we have? 87. C: One, two, three, four... Eight! 88. T: So we can multiply 6 with 8 and that makes it? 89. C: 48. 90. T: So there are 48 cards. 91. C: Yes. 92. T: Now the area of this space covered by these cards is equal to 48 cards. Can we say this? 93. C: Yes. 94. T: Because 48 cards have covered this area completely. So its area is 48 cards. Now if we talk of these notebooks	showing new ways of dealing with same problem to make a point about the theoretical concept behind area of the object. As children move from one problem to another the teacher is consistently
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again. Then how many notebooks have covered this area? (The teacher covers the area with two notebooks now). 95. C: Two. 96. T: Can we say that this area is equal to two notebooks? 97. C: Yes. 98. T: Now if we talk about this carpet. Then how to find its area? 99. R: Measure it. 100. T: Okay then? 101. A: We have to find something to cover it. 102. T: Okay, Azlam is saying we have to find something of equal size to cover it. Like we were doing with notebooks and cards here. 103. A: We can do it with notebooks. 104. T: Okay, lets do it then. So lets try to find out the area of half of this carpet. Should I draw a line somewhere? 105. Sa: Yes. (Teacher made a line with a chalk and asked children to use as many notebooks they wanted to find the area of half of the carpet. The children were engaged in organising as many notebooks as possible to cover the carpet. In the meantime teacher went on to another group of children who were working on ascending and descending order.) (All the children counted the number of notebooks used to cover half the carpet. There were some discussions	supporting their engagement. The knowledge of what matters for the children while solving the problem helps him to orient and reorient his engagement with the object of activity. The questions are not evaluative in nature rather their purpose is to expand the object of activity. The expansion in the object of activity is also supported by the sustained alignment and realignment, which the children show towards the object of activity.
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between them.) 106. T: So are you done? Tell me, what is the area of this part of the carpet? How many notebooks are equal to the area of half of the carpet? 107. A: 67 108. Sa: 72 (They counted again) 109. A: 66 110. Sa: (still counting) Let me count. 111. T: Let us count together. Alright? 112. C: Yes. 113. T: Okay, count how many notebooks are there in this column? (Pointing towards the right side) (The children started to count) 114. A: 1,2,...8. Eight! 115. T: There are eight in this column. 116. A: Should we count the next column? 117. T: Don't you think, we can count how many groups (of eight) are there? You have counted there are eight in this column. So we can count the number of columns now. (Children counted the number of columns together and shouted it's eight.) 118. T: So there are eight groups. Eight groups of eight, how many it would be? 119. Sa: 64 120. T: Okay, 64. 121. A and R (together): 64. 122. T: Therefore we can say that this area of carpet is equal to 64 notebooks.	The teacher has consistently managed to maintain the motivation of the children. He created opportunities for investigation and facilitates children to use their already existing knowledge and understanding to respond to the demands of the task.
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123. Children together: Yes. 124. T: But what would you say about the cards? Do you think the same number of cards will occupy this area of carpet? The small cards, which we used earlier. 125. Sa: It could be many thousands in number. 126. T: You mean that we will need many more cards to cover this area. 127. R: Yes, it will be more than copies. 128. T: ...and it will be different. 129. R: Yes. 130. T: So, how to solve this problem? Let me ask this, If we have to find the area of any agricultural field. Then what will you do? Should we be arranging notebooks on the field to find its area? What do you say Farhan? 131. Farhan (F): It would be difficult. No, we cannot do this. 132. T: So, we will have to decide something. 133. A: (Casually) Decide something then. 134. T: But Azlam that's what I am asking, how to do it? Help me. 135. A: You tell us how to decide. 136. F: Yes, how to decide? 137. T: Okay we will talk but before that you collect these notebooks and put them back on the shelves. (The children collected the notebooks quickly and then formed a circle) 138. T: Lets work on something else today and we will talk about it tomorrow. Alright? 139. A and F: No, we want to know now. 140. T: I am saying you think about it. Why don't you try and	At this stage the teacher is able to situate area as a legitimate object of activity to work on. To motivate children's further engagement with
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talk with your father or grandfather how do they decide about the area of their field. We used copy to find the area of this carpet, what do they use to find the area of their fields. Can we do this? 141. R: Yes. 142. A: My father does not know anything. You tell us. 143. T: Azlam, why don't you try to talk with your father and then I will certainly tell you tomorrow. 144. A: Okay. You will have to tell, in case he does not tell anything. 145. T: Yes, sure, I will.	the object of activity deliberately the teacher tries to relate subject matter knowledge with the systems of measurement that exist outside the school in children's own families.
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While trying to situate area as a legitimate object of activity the teacher used the temporality of classroom discourse as a resource. This use of a trajectory of events that have happened in the past to build teaching-learning aligns with the Edwards and Mercer's (1987) conceptualisation of common knowledge. At the same time relational engagement with the knowledge and motives of each other, between the teacher and children, was evident as a component of pedagogical practices. The components of pedagogy were:

1. **Goal directed activity:** In turns 1 to 27 the teacher engaged children to see the 'area problem' as a legitimate object of activity to work on together. In turns 4, 10, 15, 17 and 19 children were aligning with his motive on the basis of their already existing knowledge about perimeter and measurement as a method to solve the problem. The teacher successfully situated the problem in the children's zone of proximal development where they could relate to it but did not have the cognitive tools to solve it. This created a demand on the children to further engage

with the problem. While doing so they were also putting a demand on the teacher to make the problem more explicit so that they might understand his perspective better. In turns 16, 28, 39 and 41 the children started to understand that their already existing concept of measurement might not be sufficient to solve the problem. This motivated them to seek the teacher's support. Between turns 12 and 63 the teacher attempted to define the problem more explicitly so that the demands on children became clearer. As the problem became increasingly explicit the teacher created spaces for children's reasoning, so that they could engage with the object of activity with the help of their prior knowledge and a growing interpretation of the demands.

2. Responsiveness to reasons: The discourse shows that one aim of the teacher's pedagogical practice was to ensure that children engage in classroom activity that has the structure of giving and asking for reasons. His efforts created a space where children and teacher were making their thoughts and ideas explicit. Making reasoning explicit allows children to engage with the ideas, make claims and demand reasons as seen in turns 12, 13, 34, 36, 42 and 45.

3. Relational agency in the teachers' support group: Pravesh mentioned in his interview that planning the lesson and then discussing it with the fellow-teachers is as important as teaching in the classroom. Pravesh explained the distributed expertise in the teacher team and how teachers

seek and offer support to fellow teachers in designing their lessons building common knowledge with the team. He explained, “we take suggestions from fellow-teachers and sometimes also seek help from the academic coordinator while designing our teaching plan.....In Digantar we are very concerned about the child’s social context and nature of the subject.” (Excerpt from the teacher’s interview).

4. Subject matter knowledge at the core of pedagogic engagement:

While engaging children with his pedagogic goal the teacher was governed by two ideas:

- i. to align their thinking with the demands of mathematics teaching.
As he mentioned in his SR interview one of the focus in mathematics classroom is to help children to think with the help of symbols and concepts.
- ii. to help children see the relationship between new concepts and those concepts they have learnt in the past. Pravesh mentioned in his SR interview that his focus was to situate the concept of area in the broader conceptual model of measurement.

In their research on radical-local teaching and learning Hedegaard and Chaiklin (2005) have made a similar argument that “subject matter teaching, aimed at the development of children’s motives and competencies, should be a central and essential goal in education” (p. 18). Pravesh consistently worked

at helping children align their purposes in the task with his motive to teach the 'concept of area'.

5. Using scientific concepts for engaging children in community life: In turns 140 and 143 Pravesh tried to relate the scientific concept of area to children's everyday experiences by asking them to ask their parents how they find the area of a field. His aim was to build a bridge between home and school. The common knowledge constructed between school and community gave him confidence that this was a resource that could be drawn on and that parents would take the request seriously.

Excerpt 6.1 B: A Mathematics lesson: Teaching the concept of area continued

Day 2

Context: The children had been very enthusiastic about the area problem since arriving that morning. Some of them also told the teacher before class that they discussed the area problem at home.

Excerpt from the classroom discourse	Analysis
1. T: How many of you spoke to your parents about the area problem? What did they say?	As the children talk about the information they have collected on units of measuring area, the teacher uses it as an opportunity to relate
2. Sa: I could not talk with my father. He came very late at night. My sister told me it is measured in acres.	
3. R: No it is done in <i>bigha</i> and <i>katha</i> . My grandfather told me. One <i>Bigha</i> is equal to 20 <i>biswa</i> and something else that I forgot.	

4. T: Has anybody else got any other information to share? 5. S: Yes, I read in the book it is done in hectare. 6. T: Alright, but how do they find it? 7. Sa: My grandfather said they measure it through inch tape or long stick. 8. T: And then? 9. Sa: Then what. Then you know it. 10. T: How do they find area? 11. Sa: You tell us that. 12. T: Okay, all of you are right. It could be done in <i>Bigha</i>, hectare or acres. Do you remember, we were saying yesterday that we would have to decide something? The important point is we have to decide something; it could be any of these units. We cannot go with notebooks and measure the area of field because its too large and also because there could be many size of notebooks. So we have to decide a standard way of measuring. Suppose you go home and tell your grandfather that your classroom is equal to 40 notebooks, can he understand how big it could be? 13. R: Yes. 14. T: Are you sure? 15. R: Yes, he can. 16. T: Okay, let me say this. My house is equal to 20 boxes. Can you imagine how big it could be? 17. Sa: Yes. 18. T: How did you find out? 19. Sa: (she stretched her hand to maximum) You said you have 20 boxes. So we can find it how much area it will cover. 20. T: Did I tell you how big are these boxes?	subject-matter knowledge with children's socio-cultural environment. Moreover, the teacher makes efforts to relate the general content of teaching with the children's experiential world. The teacher is negotiating to reorient children's focus on the area problem.
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21. R and A: No. 22. T: Then, how did you make out Sabiha? 23. Sa: In my home I have big boxes. So I thought you have big box as well. 24. T: But I have small boxes Sabiha. They are not big. 25. Sa: Okay. Then your house is also small. 26. T: Do you understand something? 27. Nazruddin (N): What? 28. T: I am trying to say that we cannot go very far using this method of using notebooks, cards and boxes to measure area. 29. N: But why? 30. T: You did not come yesterday when we talked about it. Tell me can you measure the area of your field using these notebooks or small cards. Even if you can, it will take lot of time and how will you tell this to someone? Someone can make big cards or have large notebooks like my register (showed them the register). 31. N: Yes, but then how to do it? 32. T: Sabbir, Sabiha and Rukhshar said something about it. They said we could measure it in acres, hectares or <i>bigha</i>. If I say draw a line of five centimetres can you do that for me? 33. N: Yes (he drew a line of five centimetres in his notebook). 34. T: Okay, if I say Jaipur is 14 kms from here. Do you understand, what is the distance? 35. Children together: Yes. 36. T: And Delhi is 500 Kms. Then? 37. Children: Yes it is far off. 38. T: The point is we decide some standards so that we can communicate with others and also do it conveniently	The teacher makes efforts to negotiate the challenge of relating information gathered by children on different units of area used in the community and the one he intends to teach as a part of subject matter teaching. y Constantly calibrating
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ourselves. 39. S: Okay. 40. T: Measure sides of this notebook. (Children were engaged in measuring the notebook. They found it to be 16.2 cm in length and 11 cm in breadth.) 41. T: Can you measure the length and breadth of your field with this scale? Or distance to Jaipur? 42. Sa: It will take lot of time. 43. N: My father uses <i>inch tape</i> to measure when he constructs houses or doors. 44. T: Yes, Nazru is right. We use different units of measurement. You measure long distances in Kilometres and miles, small objects in centimetre or inch and very small objects in millimetre. We have talked about these units in social science few days ago. Isn't it? 45. R: Yes, we measured various objects then. 46. T: Yes. So we have to decide how to find area of all the objects we see around us. So first we have to... 47. S: (stops teacher in the middle) measure it. 48. T: Okay and then? 49. S: I don't know. 50. T: Okay let us try a problem. Suppose we have this square, which is 4 inches wide and 4 inches long. Can we find its area? 51. R: We will have to decide how many cards can cover it. 52. T: Can we do something else? She is saying we will have to find the shape, which can completely cover this figure. Now if I do what Rukhsar is saying then let me take a square, which is one inch long and one inch broad.	the demands of the subject matter teaching through asking questions helps the teacher to highlight the importance of the concept of measurement to solve the 'area problem'. The children are consistently aligning with the motive of the teacher as they are bringing their own examples. This is very important for the appropriation of the cognitive tools that children can relate and own to develop the concept. The teacher offers children a cognitive tool to solve the
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53. Sa: Why not take a rectangle, which is 1 inch long and 1 inch broad? 54. T: Sabiha if it is equal in length and breadth it would be square. Isn't it? 55. Sa: (gives a smile) Oh yes. 56. T: But lets take Sabiha's question in a different way. If I have a rectangle of size 7 inches in length and 4 inches in breadth; now if we try to take a rectangle of size 2 inches in length and 1 inch in breadth to cover this figure can we entirely cover it? 57. S: One, two,... 58. T: Let's do it. (He marks the figure on the blackboard with the help of children). We can see that three rectangles can cover 6 inches of length and 4 inches on this side (breadth) but how about this 1 inch. Now lets try square of size 1 inch in length and 1 inch in breadth. Does this cover it? (Children tried it in their notebooks.) 59. S: Yes, but they are too many. 60. T: But then you have to take something as standard, which can work everywhere. Isn't it? 61. S: Yes. There are 28 squares. 62. T: So what would be area of this rectangle? 63. S: 28 squares 64. T: We have also said that these squares are measured in inches. So it would be 28 square inches. 65. N: Yes. It is pretty simple. 66. T: Is it? Lets do some more then. (The teacher gave few more questions on area. The children were engaged solving them for the rest if the mathematics session. The children found it difficult when they had to work	problem but at the same time he also gives a few problems, which can make them understand the limits of the method. These step-by-step movements towards the more refined solution of the 'area problem' are designed on the basis of a theoretical model where teacher had clear idea about demands of teaching mathematics.
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on the problems where length and breadth were too large. One of the problems was to find an area of the rectangle with length of 125 cm and breadth of 68 cm and another one in which they had to find an area of rectangle whose length was 0.5cm and breadth was 0.8cm. Children were finding it difficult to solve these problems.)	
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The following components of the pedagogical practices in the excerpt appeared to influence children's learning of scientific concepts:

1. **Inhabiting the space of reasons:** Derry (2008) remarked "[e]ffective teaching involves providing the opportunity for learners to operate with a concept in the space of reasons within which it falls and by which its meaning is constituted" (p. 58). Pravesh recognised that children had not developed a full grasp of the concept of area in turns 3, 7, 16 and 17 and sustained a space of reasons to engage children in the activity of logical reasoning and a growing understanding. His remarkable achievement was that children were not passive recipients of claims and reasons but active participants in the process of offering and receiving reasons. This engagement allowed the teacher to make explicit the conceptual tools he intended to offer.
2. **Ascending from abstract to concrete:** Pravesh used children's funds of knowledge (Moll, 1992, 2005) to engage them with classroom processes. He mentioned tasks where children could interact with the community or family members, motivating them to participate in the classroom, discussing these conversations on return to the classroom. Children were

active participants in the activity where they mutually appropriated intentions and took active participation in negotiating the object of activity as seen in turns 2, 3 and 7.

It was clear that Pravesh made efforts to relate children's larger motive to learn with teaching of the subject-matter knowledge. The learning of concept was further sharpened as children were guided to use the concept learnt in the school as a tool to understand the units of measurement used in their local community.

- 3. Object-oriented activity:** The task given to the children, i.e. to understand the units used for measuring area, relate to the central concept of the object of activity i.e. to work on the 'area problem'. The children were helped to see the conceptual tools offered to them in the mathematics classroom in relation to the complex measurement units used in the community. The knowledge about the societal practice of measuring area helped them to understand the reasons behind standardization of measurement. As they were gaining these understandings they were able to align their grasp of what mattered in the exercises with teacher's motive to teach units of measurement in turns 32, 34 and 38.

- 4. Subject matter concepts at the core of pedagogic engagement:** In turns 52 and 56 Pravesh introduced another way to solve the problem. This solution was based on the longer-term plan, which he was following where

his focus was to relate the mathematical concepts of measurement units, geometrical shapes and measuring area. As he offered children conceptual tools, to help them solve the problem without notebooks and square cards, he also gave problems where the limits of the method could be tested. This dialectical engagement with the object of activity helped in developing conceptual tools with which children could reflect on their solutions. The children became more competent in analysing and solving the problems using existing tools and recognising the limitations of each tool. While engaging with children an underlying principle that governed the pedagogical practice was constant calibration of demand by the teacher as children moved one level of understanding to another.

***Excerpt 6.1 C: Mathematics lesson: Teaching the concept of area
continued***

Day 3

Context: The children could not solve some of the problems on the previous day. They discussed among themselves the difficulties they were facing. After repeated attempts when children failed to answer the question where they had to find the area of a rectangle with length 125cm and breadth 68 cm they went to the teacher.

Excerpts from the Classroom Interactions	Analysis
1. T: Have you solved all the problems that I gave yesterday?	By this time children were motivated to learn, how to solve the problem. The
2. Sa: Yes, we tried to solve them. You gave a few very difficult ones.	
3. T: Really. Which one is difficult?	

4. Sa: The one at the end. 5. T: Did others find it difficult as well? 6. F: Yes, I solved it but it took lot of time. 7. T: How did you do it? 8. F: I marked it on the floor with the chalk but could not solve it completely. It was too big. 9. T: Okay, lets see can we make it easier. Has everybody solved the first one 8cm in length and 3 cm in breadth? 10. R: Yes, its 24 square cm. 11. T: Good. How did you find it? 12. R: I made squares of 1cm in that big rectangle and then counted them. 13. T: Did you count the way I told you? Rows and columns and multiply? 14. R: Not really. 15. N: I did that way. 16. T: So what did you multiply? 17. N: 8 columns and 3 rows. 18. T: Can you see what are you multiplying? It's the same as the length and breadth of the rectangle. 19. N: Oh yes. 20. T: Lets see if its true in other cases as well. 21. S: It is the case in second problem as well. 22. T: and third? 23. S: yes 24. T: Can we say then that if we multiply the length and breadth we get the area of the rectangle? So area of the rectangle is length times breadth.	teacher's effort to constantly situate the problem in their zone of proximal development led to their sustained engagement with the object of activity. The teacher responds to the demand from the children to offer a solution to the problem. While offering tool for solving the problem he again not only gives a new formula to them but also re-strengthens their idea about multiplication as a basic mathematical operation. This helps to situate the concept of area in the larger structure and points towards the Vygotskian
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25. N: Yes. It has become easier. 26. T: Now if you do the last problem to find an area of the rectangle with length of 125 cm and breadth of 68 cm. Can you do it now? 27. Sa: We just have to multiply. 28. T: Don't forget the square cm. 29. F: But how about length= 0.5cm and breadth= 0.8cm. It is smaller than 1 cm square. (The teacher explained about how different units work, conversion to same unit and they could have done that making squares of 1mm each as they did for inch making square of 1inch. Then he again came back to the idea of area.) 30. T: If you have two rectangles one that is 4cm in length and 6cm breadth and other which is 12 cm in length and 2 cm in breadth, are they equal in area? (The children worked on the problem and found its 24 sq cm for both of them) 31. Sa: Yes they are equal. (The teacher gave them more problems. Towards the end they had a small discussion where teacher tried to relate the local units of measuring area with the standard units) 32. T: Now lets talk about <i>bigha</i>. Your grandfather mentioned they measure their field in <i>bigha</i>. They do something very similar. 1 bigha is equal to 20 biswa and 1 biswa is 125 square metre. They are units of measurements as well. Ask your father or grandfather more about it. They measure the sides of the field and then multiply them to find the area. Should we do some more problems to understand it better? 33. Children (together): Yes.	idea of 'scientific concepts'. The teacher maintains the consistent focus on the nature of the subject and social experience of the children to support and guide their learning.
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(The children did more problems on area and they also discussed local units of measurement.)	
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Extract from the Stimulated Recall Interview with the teacher:

Researcher: How did you plan this lesson? What were your central concerns while doing it?

Teacher: We have already worked on the concept of perimeter before this. So my aim was to work with the concrete objects like cards, books etc. to give them the concept of area first before they start to solve the problems from the worksheet. There are a few things that need to be understood. When we talk about numerals they are symbols. As you develop in mathematical thinking you move to more profound levels of abstract thinking but sometimes children find it difficult to understand concept. If I would have just said this is the concept of area and let's do the problems they might not have understood it well. So, I thought, let them engage them with the concrete objects first and then let them understand how they cannot work with these objects forever. What I could see was that they understood the concept better as I gave them example from their life. In mathematics, you can relate with the world either through quantity as in measurement or through logical reasoning and pattern. Building these bridges so that they can start to think in abstraction is important for children of this age. Now there are more points that are essential part of mathematics teaching: one that the relationships in mathematical concept are purely based on logical reasoning; second there is internal consistency in the mathematical reasoning; third there is spiral relationship in the concept. While teaching I try to use these ideas to design my lesson. So when I was talking about area I had to relate it to the concept of perimeter, measurement and multiplication. It helped children to distinguish area from perimeter and also use the already existing knowledge of multiplication and measurement to find area of the object. Thus they can see a complete relationship. When planning and teaching these ideas governed my teaching.

Extract from the Informal interaction with children:

Researcher: Tell me what happened in the class today?

Children:

Azlam: Initially I was confused it was very difficult to understand what is Pravesh ji trying to say. I understood the concept of area when he showed it with two notebooks. I

was very eager to know about the concept, as I did not know how to find area.

Sabiha: I enjoyed when we had to count notebooks. I used multiplication to count it.

Sabbir: Initially I thought for finding area we will first find perimeter and then we will do something else with it. There was a different way to do it. I liked it. My father also told me how they find area. I told him about what we did. He liked my method.

The building and sharing of common knowledge visible in the excerpt above could be explained with the help of following components of pedagogy:

- 1. Deciding and working around the object of activity:** On day 1 (excerpt 6.1 A) the teacher established working on the concept of area as an object of activity. This involved being alongside children to facilitate the mutual appropriation of intention and align their motives with his motive to teach the concept of area. The children tried to use their prior knowledge to solve the problem. The teacher used notebooks, hardboards and square cards and the concept of perimeter discussed in the past, as a shared object to make the 'area problem' explicit. All this helped him to situate the object of activity in a zone where children could respond to the demands of the activity). This enabled children to be agentic in their own learning.
- 2. Responsiveness to reasons to build pedagogical engagement:** Making the problem explicit was important as it helped teacher to develop children's 'responsiveness to reasons' (Brandom, 1994, 2000) i.e. not thinking only in cause effect relationship but rather engage in inferential thinking and align with the intention to solve the problem. Pravesh refrained from offering a concept straight away or giving an empirical description of

the concept to be learnt. Instead he placed the problem in the logical space of reasons, creating the possibility for children to make claims and justify them on the basis of the demands of mathematics classroom. This process resonates with Derry's criticism that teachers often seem to believe that for children to learn a concept "it is necessary to 'make explicit' the connections and determinations that constitute a concept" (Derry, 2008, p. 60).

Once Pravesh engaged children with the concept of 'area', they started to use their prior knowledge to relate to the problem, with Pravesh engaging them in reasoning to refine their existing tools. The common knowledge developed during the Teacher Parent Meeting and School Community Meeting were used to develop a purposeful activity and sustain children's engagement. By relating back to the conversations in excerpt 5.3 it can be seen that by engaging parents and their societal knowledge the school is not only helping children's concept development but is also responding to the parents' demand for better mathematics teaching and giving parents information on what is happening in the school.

- 3. Subject matter knowledge to guide classroom discourse:** Pravesh explained that engaging children with subject matter knowledge was his priority. He built multiple layers of interaction to help children situate and understand the problem in the larger repertoire of academic concepts before offering them the concept of area.

4. Ascending from abstract to concrete: As he tried to relate the concept of area to children's everyday worlds he made it an active concept, which may inform action beyond school and thus change their relationship with their wider social situation of development. The data in this study does not qualify me to make such inferences, as I have not studied children's engagement outside school. Nonetheless, studies by Hedegaard and Chaiklin (2005) point towards the fact that "subject matter knowledge can become 'personal' (i.e. an active part of a person's thinking), and thereby transforming everyday knowledge" (p.34). As Pravesh related subject matter content to the shaping of the object-oriented activity the children were able to use their prior knowledge to contribute in building a collaborative intentionality that was not only governed by the teacher. The engagement of children in their own learning helped to make academic concepts relevant to them and potentially mediating action and participation in their social context (Hedegaard and Chaiklin, 2005).

5. Children's agency at the core of teaching-learning: Pravesh calibrated demands learners had to respond to the new potential object of activity. There were moments of transitions where old connections did not work and children had to make new connections i.e. learn such as when they moved on from solving the area problem with perimeter tools. Throughout the excerpts the teacher raises the demands on students to see the problem in a different way. As they find ways to respond to the revised problem the demand was increased again. Thus it led to creation of spaces where

children had to develop new links to cope with the new demands. The teacher was constantly upping the ante by keeping children's agency at the centre of teaching-learning process.

The next excerpt from a science classroom emphasises on these points further.

6.4.2 A Science lesson: Air pressure

Excerpt 6.2: Excerpt from a Science lesson on air pressure

Context: This is an excerpt from a science class taught by Pravesh. The focus is air pressure. The group of 21 children aged 7-12 participated. Pravesh started with an activity and later gave children a worksheet in groups of four. They were then given another worksheet to work individually, which was matched to children according to their conceptual level.

Excerpts from Classroom Discourse	Analysis
1. Teacher (T): Observe this carefully (teacher waving two sheets of paper). 2. Children (C) (together): Yes I can see it! Yes I see it! (Tausifa got up from her place and moved near the teacher to see the papers. The teacher showed her the papers and asked her to sit. She went back to her place) 3. T: Okay. This is a paper. Observe it carefully. (The teacher stood and dropped the paper from his hand. The paper remained in the air for a while and then reached ground.) 4. T: Okay? (To confirm everybody saw what had	The teacher organises the activity to generate curiosity and motivate children to externalize their understanding based on their observation of the activity. The teacher wants children to align with his motive of teaching the concept of air pressure.

happened.) 5. C: Yes! (Two girls said that they also want to drop the sheets. Teacher said we will do it again and everybody will get a chance to do it and he moved on). 6. T: (now taking two sheets) Now this is similar to the one I used. 7. C: Yes. 8. T: Are they of equal weight? 9. C: Yes, equal, equal. (Now teacher compressed one of the sheets into a paper ball.) 10. Shabbir (S): (As the teacher was compressing the sheet) Now when you will drop them, the ball will come first (others were just observing). 11. T: Hmm... Let me ask others as well. Okay, tell me which one of them will reach the ground first? (There was a divided opinion, some suggested the ball would reach first and others said both would reach at the same time). 12. T: Let us do it and observe what happens? (The teacher dropped the paper and ball together from the same height). 13. Children (together, pointing to the ball): This has come first. 14. Teacher: I left them from the same height, which of the two came to the ground first? 15. Children: It was this (pointing to the ball shaped paper). 16. Imran (I) (shouting in excitement): The ball became heavier and came to the ground first!	Mutual appropriation of intentions by the teacher and children is evident as the children are finding the task engaging. The activity helps in creating a shared psychological space to organise discussion. The teacher mentioned in
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(A few children supported Imran.) 17. Faizan (F) (in disagreement): It was not heavy but when you made a ball out of paper it became fat so it came earlier. 18. Sabiha (Sa): (Interrupted Faizan) The sheet of paper is lighter and ball is heavy so the ball came first. 19. Asifa (A): The sheet of paper is stopped by wind because it is lighter while the ball is heavy so wind could not stop it. 20. T: You remember we discussed before I started that both the papers are of same weight. So both are still of equal weight. Isn't it? (Some of the children were not convinced and asked teacher to do it again. Teacher drops the paper and ball again.) 21. A few children together: You are dropping the ball early that's why it is coming first. 22. T: Okay, any one of you come here and do it. (Tausifa came and she dropped the paper and ball (teacher asked her to keep them at the same height and then let them go together. Children observed it again) 23. T: Now has she dropped them at the same time? (Some of them said yes but others were not satisfied yet. They did not say anything. They had a small group discussion among themselves.)	his stimulated recall interview that one of the purposes of organizing the activity was to train children in the observation as a scientific method. Moreover, he also considered that the activity would help children to understand his motive of teaching them scientific concept of air-pressure. The reasons children offer at this point are largely cause-effect relation based. They are trying to resolve the crisis posed by teacher's question on the basis of their empirical observation. The children are puzzled to see one of the papers falling faster. One of the
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24. Nazruddin (N) (after discussing with his friends): Why don't you drop two papers and show us what happens then. (The teacher agreed and showed them two papers and then dropped them from the same height. A few children were making sounds (tring...tring...tring) as the papers came down) 25. T: They reached the ground at the same time. Isn't it? Why do you think this happened? 26. S: It was because of the air. 27. T: But why? 28. Arbaaz (Ar): Because air brought them together on the floor (A few children started to play with papers.) 29. T: (to bring everybody back to the discussion) All of you will get a chance to do this. Lets talk first on Arbaaz's point. 30. T: Yes Arbaaz. 31. Ar: Due to air it waved for a while and then came down on the floor. 32. T: Okay, I don't know. You tell me, what do others think? (No response came from others) 33. T: Okay I have few more things to show. (Children shouting parachute, parachute, parachute as teacher took out a parachute made of cellophane sheet. Children started to discuss about parachute. Somebody said I have seen a parachute flying, another said I have also seen parachute. The teacher dropped the parachute from the same height as well.) 34. T: Now you saw parachute coming down as well. Was it coming in the same way as this ball was coming?	children later in the informal interview mentioned that they knew that the crushed paper will fall faster but they were not sure about why it happens. Nazruddin thought if one of the papers landed earlier than other then we could say that teacher was not dropping them at the same time but that did not happen. As the children's reasons exhausted their participation in the activity also became peripheral. The teacher triesto re-engage children with the basic question he intends to raise about how air pressure influences flight of different objects. Using a parachute the teacher makes his point more
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35. Children: No (Some waved their hands to show how it came down) 36. T: Let me tie this ball (the same which he made out of paper) with this parachute and lets see what happen then? (The teacher throws the parachute in the air... The children were observing the movement. They shouted and clapped when it came down. Teacher did it several times.) 37. T: Tell me what happened when it went up and what happened while it was coming down once the parachute was open? (He did it again on the children's request and asked the same question.) 38. S: When the parachute was not open it was heavy and then it became light once it opened. 39. T (Paraphrasing his statement): You are saying when it was not open it was heavy but when it opened it became light. Is this what you mean? 40. S (Shabbir realised his mistake): No, no. When it was not open it could not get space to fly but when it opened it got space to fly. 41. T: Okay lets do it again and observe. 42. A few children said together: When the parachute goes up and opens, air enters the space and fills it. Then it comes down slowly but while going up it was not open so air could not enter. (The teacher gave cellophane sheets and thread to the children to make parachutes. He asked them to see how parachutes behave outside the class and how is it different from what they have observed inside the class. He also	explicitly. While engaging children with the object of activity he is demanding explanations/ reasons so that children can position themselves with the new problem he intends to pose to them. The teacher performed the same activity of throwing the parachute a number of times so that children can be engaged and made to observe what is happening. The teacher is motivating children a number of times to give reasons to explain the activity. Over a period of time in the process of giving and asking for reasons the children recognise that their reasons are not able
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gave them a sheet asking questions on air and air pressure. The sheet contained questions like Which other things come to the ground like paper? Try to drop a small stone from a height. How fast does it come? Have you ever played flute? Why do you think you hear a sound? Then they also read a chapter on Sunita Williams in space. Then teacher asked them to why Sunita Williams was wearing a unique dress in her spaceship. At this point the teacher explained to children the concept of air that we are surrounded by air. He mentioned even in this room air is all around. It is everywhere. Then he went on explain that air pressure changes from place. Apart from this he also told children about the importance of air-pressure in changing weather.)	to explain what they are observing. The teacher decides to up the ante as he asks for better explanations of the phenomenon every time children observe the parachute going up in the air.
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Teacher's stimulated recall interview

Researcher: Can you tell me what factors guided your teaching plan?

Teacher: If you remember the sharing meeting where you were present. I discussed with my colleagues that I am planning to teach air pressure. They suggested incorporating a few activities. In fact what I did today was suggested by one of the fellow teachers. As I mentioned to you at some other point as well that the purpose was to engage children. There are two principles that guided my planning. One is children's present understanding and ideas that are at the core of science teaching. So my prime effort in this session was to engage them with the methods of doing science: like observation, classification, measurement, trial and error or hypothesis building. As I focus on these processes I don't have to lecture them this is law of gravitation and this is the theory of air pressure you have to remember. I am presenting in front of them a few simple experiments so as to show how things in our world work. Once they have been engaged in observing it and engaging in logical reasoning with it, the rest can come very easily. As you would have seen they were very enthusiastic about making parachutes but that is not the whole purpose I was doing it in science class so I must focus on the concept of science as well. The worksheet I gave and the discussion they organised in their group was to keep them focused on learning the concept. I will take it forward in the next session and we will

discuss it in more detail in a later session. I organised the activity so that children become curious to know why one paper is coming before other. A colleague of mine suggested me to do the activity in this way in our teacher-sharing meeting. If you would have seen children were engaged with the theme of the class. I kept Sunita Williams story to give them extreme example of air-pressure.

Informal interaction with the children after the class:

Researcher: How was the session? Tell me something about it.

Sabiha: It was very good. I enjoyed it. We made parachutes and then went into the field to play with it. The parachute was coming faster when we attached a small piece of stone to it.

Shabbir: I liked the paper dropping activity. I know it was happening because the paper was stopped by more air but when it was crushed in a ball less air stopped it.

Arbaaz: The teacher asked many questions, I liked that. We got a chance to say something about our observation. We also had a discussion later. I told that we play kites when the wind blows with high speed. In summer it is hot the air does not blow much. During monsoon it is very stormy. It is even difficult to ride your bicycle.

The following components of pedagogy were found in evidence:

- 1. Space of reasons:** Pravesh created space for the discursive engagement of children with the concept he intended to teach. The experiments with paper and parachute was to incite curiosity and engage children with the object of activity. By constantly asking 'why' questions, he calibrated demand in order to sustain interest. Mastering these discursive practices, as Brandom (1999) argued, are matters of knowing. As one engages in discursive practices the fine structure of the arguments become explicit. This idea of involving children in expressive and pragmatic rationalism, according to Brandom, could be seen as hallmark of education as he argued that the distinguishing feature of thinking being is its

responsiveness to reasons. The space of reasons created by Pravesh became a site where he could calibrate subject matter knowledge demands on children.

2. **Children's agency and responsiveness to reasons:** Another very important dimension of developing a space of reasons is that the children, while participating in giving and asking for reasons have the opportunity to create or influence their social situation of development. Thus, it offers them the agency to influence their own learning. This seems to be possible by consistent engagement of children with the object of activity, as they inhabit in space of reasons.
3. **Subject matter knowledge as a tool for engaging children:** Pravesh organised the session to develop children's understanding of the concept of air-pressure. He mentioned in his SR interview "I organised the activity so that children became curious to know why one paper is coming before the other.....I kept Sunita Williams story to give them extreme example of air pressure." Once the children had read the story he organised the discussion on the basis of their observation and reading. He then offered them the concept of air pressure and its relationship with weather, height and space.
4. **Ascending from abstract to concrete:** The data do not allow me argue how this influenced children's relationship with their social situation of development but children did mention in their informal interaction that they fly kites in the wind. They also mentioned how wind does not flow much in summer while the weather get stormy in monsoon and it becomes difficult to ride a bicycle. These relationships show that they were using the

concepts given in the classroom to engage with the reality around them, changing their relations with the world.

- 5. Situating the object of activity:** The children commented while Pravesh did the experiment. Their alignment with his motive of engaging them with his experiments was visible in turns 13, 16, 18 and 19. Children's interest in the activity and becoming active participants in it helped in sharing intentions and mutually working together on the object of activity. The children were guessing and trying to influence the activity in turns 21 and 24. This space for children's to share their observations expanded the problem. Pravesh had to drop papers again to convince children that it was not the time of dropping that influenced the rate of fall. This shows children's agency playing out in deciding the shared object of activity. This opportunity to influence classroom practices motivated children to participate in the discourse and be agentic in their own learning.

In the next excerpt, from a social science class, we see how engagement with what matters for the children in their social life could be used as an opportunity to facilitate their learning.

6.4.3 A Science lesson: Photosynthesis

Excerpt 6.3: Excerpt from a Science lesson on photosynthesis

Context: This is an excerpt from the session where Shradha (the teacher) introduced the concept of photosynthesis to the children. Nine children aged between 6-9 years were part of the group.

Excerpt from the classroom discourse	Analysis
1. T: You must have seen a millet tree? 2. Children (C): Yes, Yes. 3. T: Plant...not a tree...its plant not a tree. 4. T: Okay...how many of you like millet's <i>roti</i> (Indian Bread)? 5. C: Yes, Yes (some children raised their hands). 6. T: <i>Roti</i> made from millet...how many of you like to make it and eat it? (A few children raised their hands) 7. T: The millet seeds are ground to make flour and then <i>roti</i> is made from it...isn't it? (A few children start to talk with each other about millet bread) 8. C: Yes...Yes <i>roti</i> is made	The teacher has made efforts to develop an instructional conversation where she is taking a non-expert role and inviting children's understanding about millet which is very much part of their everyday world. She is using children's 'funds of knowledge' to engage them with the classroom teaching.
9. T: Okay...lets imagine that this is a millet plant (she starts to draw a plant on the blackboard)...I am trying, lets see if I can make one here. 10. Tabassum (Ta): Millet.... see <i>didi</i> is drawing millet. 11. T: Is it fine? Does this look like a millet plant? (A few children said yes, many of them were not satisfied) 12. Salman (S): No...its not. 13. T: But I have tried to make the millet plant (with an expression that she has failed to an extent). (The teacher went on to make a few more modification in the diagram.) 14. T: In winter when these millet seeds are ripe, we take a sickle (she drew a sickle on the blackboard and then marks a cut on the plant) and cut the upper part of the plant and then we get the seeds form it...isn't it?	The teacher has been trying to develop a shared 'object of activity'. Drawing the plant and sickle on the blackboard created the possibility for children to engage with teacher's narrative. It could be seen that children could sense the teacher's motive and they start to

15. C: Yes, yes.	participate in the activity.
16. Fhatima (F): <i>Didi</i> , its cut fully, not just the upper part 17. T: Yes, but do you use this lower portion for any purpose? (Points towards the lower part)...this lower one remains there; it's not of much use. 18. F: No <i>didid</i> ...I am telling you, cattle eat it. 19. T: Okay...you are right. (Other children also supported Fhatima). Now see this millet plant, we cut the upper part and there is a machine which removes the seeds and they are used as a food. 20. S: <i>Didi</i> the seeds are sown again and again millet grows from it. 21. T: Yes someone told me...Yes! Fhatima's grandmother told me that if we sow the millet seeds in the field, then large number of millet plants could grow. Does that happen? 22. C: Yes... yes... it does.	The children share their knowledge about harvesting and planting millet.
23. T: I am wondering why does that happen? Suppose, I bring some millet seeds and throw them on this ground (pointing towards the school's cemented pavement). Then what do you think? Will the millet plants grow here? (Some of the children said yes, a few others were convinced it would not grow. Some of them were not sure and engaged in talking to their neighbours.) 24. T: Yes? <i>Murada</i> is saying, yes it will grow. Who else thinks it will grow? (Some children raised their hands) 25. Akram : No...no. It will not. 26. T: Listen...Akram is saying no. Okay Akram, why do you think it will not grow here? 27. Akram: Pigeons will eat the seeds. 28. T: He is saying that pigeons will eat all the seeds...so	Once the children have started to participate in the activity, the teacher increases the demand. Now she is trying to move them towards the scientific concept of plantation and photosynthesis. The children expand the object of activity with their experiences.

pigeons will not come in the field? 29. Salman: Oh! <i>Didi</i> in field they remain covered.	
30. T: Okay. How do they get covered there? 31. Salman : In soil (as if it was so obvious.) 32. T: Okay...lets see... one is our school's ground and other in the field. Where can the plant grow? 33. Mohsina (M): In the field. Because soil is needed for plants to grow and pigeons cannot eat them there. 34. Salma (Sl): But if we will keep the seeds over the soil, then also pigeons can eat them. 35. T: Now she is saying that if we will keep the seeds over the soil then also pigeons will eat them so we need to sow them under the soil. 36. Fhatima: <i>Didi</i> first we move a tractor over the field then we throw the seeds and then we level it.	As teacher is calibrating demands with her questions children are creating space for their learning. They are sharing their already existing knowledge to understand the concept.

for plants to grow. Hmmm ? 50. T: Lets think	
51. C: We don't know (some said) no... no ... we know (a small group asserted)... Air... sunlight... open space (Salman, Sohail and Fhatima together) 52. T: All right, air and sunlight... but I wonder what will air and sunlight do the plant? 53. C: You tell us, we don't know (children responded after sometime). 54. M: Whatever we knew we told you, now you tell us. 55. T: Yes, yes, sunlight is also very important for plants to grow. Like us plants also need food to live and sun helps the plants to prepare their food. There is a different way in which plants make their food and do you know what do we call that process? It is called photosynthesis and for that plants need sunlight. . Now we will go outside and see the trees planted by Imran ji. Have you seen that? 56. C: No. (Some of the children raised their hand and said yes).	The children now recognise their inability to respond further questions from the teacher. It is at this point teacher introduces the concept of photosynthesis.
57. T: Do you remember Imran ji planted some trees around our school? 58. C: Yes... yes 59. T: Today is our turn to water them so now we will go to the back and water those trees. And we will talk about photosynthesis later. (They talked about photosynthesis next day)	The teacher also relates what has been taught in the classroom with children's everyday experiential world.

Excerpt from the teacher's stimulated recall interview

These days I am working mainly on the topic of plants. In this class I wanted to talk to them regarding what all is needed for plants to grow but many other concepts also came in. I specifically choose the example of millet because that is something they eat everyday and many families here grow millet but I was not aware that they know so much about it. Since the very beginning I planned to take a non-expert role. It is something, which these children know very well. You must have seen that....I realized later that I could have shown them the plant itself to talk about it. I generally draw things on the board so that they can see and talk about them. It

becomes clearer when you see things.

Excerpt from children's informal interaction

Fhatima: *Didi* drew the millet plant on the board and asked us how do we grow this plant. If we throw its seeds in the soil and put them inside it, then many plants can grow. When we pour water and if sunlight is there then they get big and then you can cut them.

Tabbasum: But Didi has come from city she do not know much about agriculture. It is practice in our homes so we know it. We told her about it. But she told us how plants make their food. We were not aware of this. It was fun when she was asking do we eat millet's bread. We make it as well. We talked about lot of things, which we know and do. We talk a lot about what we do in our homes.

In this episode the interactive trajectory of the classroom interaction clearly shows that a constant effort was made by the teacher to move children from their everyday understanding and give them scientific concept of photosynthesis.

At the level of planning it was specifically designed by the teacher to use children's funds of knowledge and their everyday experience. As most of the children's families do farming and children also have some exposure to agriculture, it helped teacher to engage children with the objective of the classroom activity. The classroom interaction involved use of pedagogical practices like assuming non-expert role, using explicit reference (drawing) to involve children, constantly seeking children's approval, variety of uses of Questioning (to initiate, to involve and assist, to continue dialogue, probing), paraphrasing to emphasize and draw children's attention detailed discussion on children's everyday experiences. Thus helping children to create their social situation of development.

In the initial part of the episode there was a constant effort by the teacher to link the discussion with the children's everyday experiences. She asked them questions about whether they like millet bread (turn 4) and also discussed the process involved in making the millet bread along with gestures and actions (turn 11). Children's responses and level of participation showed that they were able to make connections. As Vygotsky (1934) remarked that "the development of scientific concepts becomes possible only when the child's spontaneous concepts have achieved a certain degree of development"(p. 13).

The teacher drew the sickle on the board and marked the points from which the crop is cut (turn 11-14). This helped to understand the purpose of the activity and engaged children with the task. The children occupied the centre-stage as teacher was facilitating the discussion. As teacher mentioned in her stimulated recall interview that she was aware that children knew a lot about planting millet and this could help her to introduce the concept. It could be seen that the process of knowledge construction was not simply the transfer of information from the teacher to the children or children doing their own experiment like naïve scientist but children were co-participants in the process of construction of knowledge. Instruction by the teacher and constant calibration of demands were important components that helped children to create their social situation of development. Understanding a child's motive and what matters for him/her in an activity is an important tool for organizing classroom practices.

The pedagogical practices of the school are more nuanced here as they consider a child's cultural background to be important but at the same time the purpose of schooling is not to orient itself to the characteristics of the child's environment, rather to understand the relations and demands this setting puts on the child in order to engage them in their learning. Thus, constant building and sharing of demands and motives of engagement with the schooling help the children to see that their relation with their community is not a fixed category but rather a dynamic situation where understanding of this relationship creates future possibilities for education as their understanding of spontaneous concepts become part of their engagement in the school. These children had motivation to further engage with the teaching-learning in school.

Interestingly, questioning is used by the teacher for variety of purposes, often as a tool for seeking consensus or agreement from children after she or any child provided any information (turn 25, 30, 33). Questioning was also used to generate curiosity and to invite views; to make children think by framing the question in a way as if teacher was also one of the learners engaged in finding the answer of the question posed by her (turn 35, 43). Questions were asked to create space for giving reasons, (turn 41, 45) allowing children to reflect on their own and others responses.

Towards the end of the discussion, once the children reflected their understanding about the need of water for plants, the teacher tried to take them to the next level. That was interesting reflection of Vygotskian idea of

ZPD where the teacher waited for the right time and constantly created the zones of opportunities and challenges for the children. Then the teacher again posed the question to open the discussion about the third factor (sunlight) needed for plants to grow. The teacher waited for a while for children's response but realizing that children were not ready or equipped to respond to it she herself elaborated on the point. She introduced a new concept (photosynthesis) to them about which she did not discuss in detail.

As children engaged with the teaching-learning process with their ZPD, they also appropriated the scientific concepts associated with the topic under discussion. At the same time the motives of engaging in the school's practices were reinforced. Constant effort to involve children by making things explicit and underplaying authority helped in creating an expansive learning space where children's ideas helped in the construction of knowledge, some of which was beyond the intended focus selected by the teacher. The space of reason and the teacher's acknowledgement of children's view helped in creating a space where teacher was constantly realigning her motives and intentions according to both, the demands made by the learners and her curricular goals. The diagram below could represent the pedagogical practices followed in the classroom.

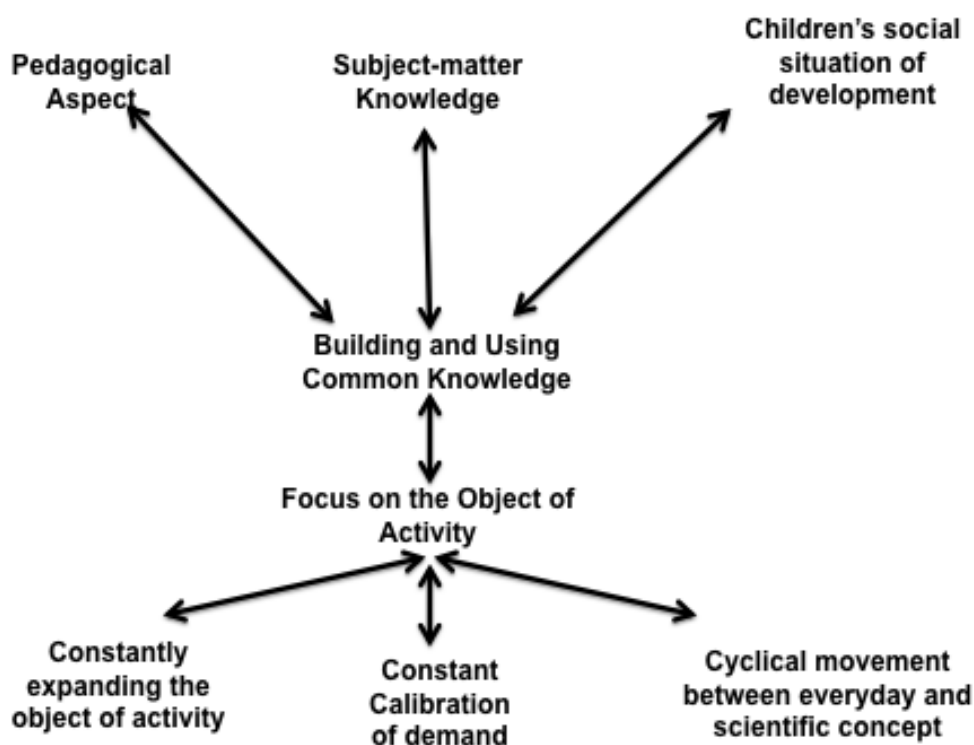


Figure 6:1: Figure representing pedagogical processes involved in classroom teaching-learning.

6.5 Review of the discussion in the chapter

The following five components of pedagogical practices were found to facilitate this building and using of common knowledge and hence a responsive pedagogy in the study school:

1. ***Object-oriented activity and goal-directed learning actions:*** The pedagogical practices in the school are so organised that they create space for children's perspectives to be evident when working on the object of activity. At the same time as there was space for pupils' social worlds to cross the classroom boundaries, the activity of the classroom was directed towards the learning of scientific concepts. The possibility for children to bring their motives and perspectives as they engaged in the classroom

teaching-learning allowed for an expansion of the object of activity. The teacher and children then worked upon this expanded object of activity together. The efforts to relate school knowledge with the everyday world of the community and with the long term trajectory of classroom interaction has helped learners to be progressively more agentic and able to negotiate the demands of classroom practices.

2. *Children's social situation of development and demands from the institutional practices:* Vygotsky (1998) explained "the social situation of development is nothing other than a system of relations between the child of a given age and social reality (p.199)." Hedegaard (2012) brought 'Mill's concept of institutional demands for conduct' (p. 24) to develop this concept, giving importance to the idea of 'demand' to bring the analyses of dynamic forces from institutional practices into the object of enquiry. On similar lines Bozhovich (2009) argued:

"[C]hildren's positions are determined by two conditions: first, by the demands of the social environment that have developed historically and are placed on children of a particular age (from this perspective we can talk about the position of the preschooler, the schoolchild, the working adolescent, the dependent, etc.); second, by the demands the people around them place on children based on the individual developmental features of a particular child and on the specific circumstances of the family." (Bozhovich, 2009, p. 78)

The classroom interactions in the school created a space where children's motives and intentions met the demands of social systems of relations. The common knowledge built during the Teacher Parent Meetings (TPM) and School Community Meetings (SCM) informed teachers' understanding of

the children's social relations and their demands. This knowledge in turn informed the organisation of classroom activities to ensure children's sustained engagement with the teaching-learning practices in the school.

3. *Responsiveness to reasons:* One of the strong themes throughout the classroom excerpts is that the pedagogical practices in the school involve engagement in a social practice that has the structure of giving and asking for reasons. The architecture of this space became more explicit in the excerpts. At this point I simply highlight the salient features that lead to construction of this space:

- a) Making your arguments explicit: While engaging in teaching-learning processes the teachers were constantly trying to show what follows from applying a particular concept, what would be valid evidence for it and what is incompatible with the line of argument which children are presenting.
- b) Social articulation of the space of reasons: The pedagogical practices of the school makes it clear that the focus of engagement is not only on the internalization of what has been discussed in the classroom. Instead a concerted effort was made to ensure that children participate in the activity and make their arguments. Thus, the space of reasons was not seen as a mental and psychological space but rather a social space of action.
- c) Giving and asking for reasons: The pedagogical practices in the school have been consistently directed to create spaces of reasons which

demand consistent engagement from each participant to understand the ‘why’ of the argument and also commit themselves to a stand in that space of reasons.

4. *Subject matter knowledge and use of ‘scientific concepts’ at the core of pedagogic engagement:* It is important to point out that the building and sharing of common knowledge that happened in the sharing group meetings and workshops and interaction sessions with the academic coordinator have shown that the prime motive of teaching is children’s mastery of subject matter concepts. The excerpts in this chapter show that subject matter knowledge stays at the core of designing the classroom pedagogy. The activities and tasks are so organised that children develop ‘scientific concepts’. It is in line with the understanding of Vygotskian scholars that “the process of students’ learning to be properly organized only if it leads to the acquisition of scientific knowledge” (Karpov, 2003, p. 69).

5. *Cyclical movement from concrete to abstract and then from abstract to concrete:* The teaching-learning in the school recognised children’s questions, interests and experiences as the starting point for learning. A thorough understanding of children’s social situation of development and understanding their motives of engagement with schooling helped teachers to design activities that were situated in children’s zones of proximal development (ZPD). Concepts were not

developed on the basis of reference or relatedness to a child's environment but knowledge of their social worlds was a resource to engage children in their learning. Once the concept was mastered concepts were related back to local social practices. Thus the abstract concepts offered in the school, worked as tools for engaging with activities in wider world. This backward relationship of bringing abstract to the concrete often helped to sharpen children's understanding. Edwards (in press) also argues that learning involves: "[a] cyclical process of conceptual development from the abstract and back to the concrete" (Edwards, 2013, in press).

Chapter Seven

7 Synthesis and Critical Reflections

7.1 Introduction

This study has allowed the development of insights into how common knowledge is built and used to develop a responsive pedagogy in Digantar schools. Taking the cultural-historical approach, the aim was to reveal the negotiations and alignments that happen as teachers interact with each other and the school's community and help pupils engage as learners in the study school.

The final chapter is divided into four sections. The first section discusses some of the points made in the introductory chapter. The relationships between the drop-out rates, quality of teaching in the classroom and quality of teacher education in Indian classrooms and how building and sharing of common knowledge between the communities and schools could be one of ways of tackling the problem are explored in this section. The second section addresses the research questions. The aim is to consider the analyses that have been developed in chapters four, five and six in order to present a case for how the building and using of common knowledge underpins the organisation of pedagogical practices in the study school. The third section

presents contributions of the study to the present literature on cultural historical approaches to designing pedagogy. The fourth and last section looks at the limitations of the study and future research possibilities.

7.2 Some of the Challenges of Education Sector in India and the Rationale for the Study

The Hindu, 13 April 2013, discussing the current state of education in India reported that “[w]ith eight million children never having stepped inside a school and 80 million dropping out without completing basic schooling, the United Nations Children’s Fund has described the situation as a national emergency and called for equipping the government and civil society to implement the Right of Children to Free and Compulsory Education Act, 2009.” Govinda (2013) remarked, “while gender disparity in enrolment across social groups had gone down, this did not help in controlling the dropout rate significantly. It had come down marginally to 27% at the primary level and 41 % at the elementary level.” The statistics collected by NUEPA in 2011-12 also show that 13 per cent of students did not transit from the primary to upper primary level.

The ASER 2012 report indicated the problem in relation to learning outcomes, revealing that there has been a decline in children’s attainment in reading and mathematics: 31.4% children were reported as not able to read words in their own language; and 70.1% children could not solve a two-digit subtraction problem. ASER 2011 had also pointed towards a particular decline in rural

education in India. All these indicators reveal the persistence of the poor quality of teaching-learning in many Indian classrooms and the low priority given to formal education, particularly in rural areas. As I indicated in Chapter One, these were some of the challenges that led to my engagement with the question of education in primary school classrooms in India.

In Chapter One, I also mentioned that the successful example of Digantar school was selected as the site of the present study in order to critically analyse their practices, using resources supplied by Vygotskian theory. The focus was to analyse how these schools managed to engage children and the community with their ideas of schooling.

The pilot study revealed multiple layers of negotiations which demanded a robust conceptual grounding that attended to how these negotiations were achieved between practices of schooling and family life and how the understandings gathered there were used as resources to engage children with the school curriculum. As I have shown, Hedegaard's (2008, 2012a) framework, identifying the embedding of activity settings within institutional practices, provided an organising heuristic. Within that framework her ideas on (i) the importance of the demands made on learners within practices; and (ii) a focus on activities in activity settings in order to understand children's learning and development were particularly important for the research design. The purpose of working in a Digantar school was not to simply document what was happening there; rather the aim was to undertake a critical analysis of the features of teachers' pedagogical work in and around the study school in

relation to both the practices of the community and the practices of the Digantar school system. The intention was to make explicit the components of the pedagogical practices that create the possibility of children's active engagement in their own learning. It was also hoped that the research would help in sharpening some of the analytical tools employed during the process of examining a responsive pedagogical practice.

7.3 Responding to the research questions

Edwards (2010a, 2011, 2012) has introduced a variant on the notion of common knowledge. For Edwards common knowledge consists of the concepts that matter for people who are potential collaborators. The term 'what matters' is used to signify that they have an affective element (personal communication 2013). She has observed that we know very little about "how common knowledge is built at the boundaries of systems or practices" (Edwards, 2010a, p.34) and has suggested features of practices that lead to the building of common knowledge in the inter-professional work that was the focus of her research. The findings of the present research extends her work to an educational context, particularly to teaching-learning in schools and shows that building and sharing of common knowledge can help in developing a responsive pedagogy that recognises and promotes children's agency in their development as learners.

7.3.1 Building and Sharing Common knowledge

Research Question 1: How is common knowledge built between teacher-teacher, teacher-children and school-community?

Chapters four, five and six have dealt in some detail with how common knowledge is built and shared as teachers, school officials, parents and children work on children's long-term trajectories and their wellbeing. The schematic diagram 7.A presented on the next page shows how a constant building and sharing of takes place as school and parents engage with each other to facilitate better education for the children.

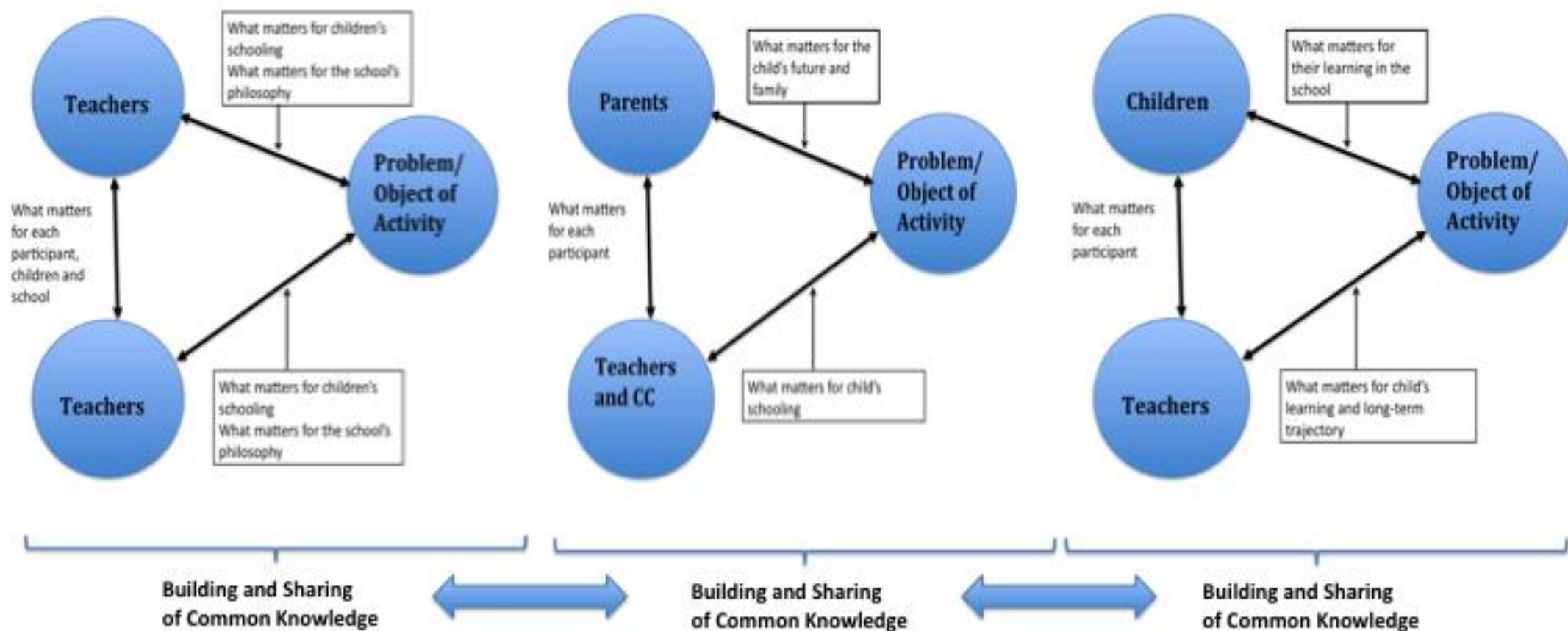


Figure 7:1: Figure representing building and sharing of common knowledge during the school, community and children's engagement with the teaching-learning in the school.

Edwards has already discussed some of the points that have arisen in this research (Edwards, 2010a, 2011, 2012). This study adds to the body of work in two ways: one it puts more weight behind her findings on how common knowledge mediates interactions across practices; and second, it reveals and presents for detailed scrutiny several of the components of the concept, helping to strengthen it as a conceptual tool.

The following features of the practices in the study school were found to contribute to building common knowledge. They are presented primarily using the same or similar labels to those used by Edwards et al. (2009) in their summary of concepts employed in the process of inter-professional working and referenced as Edwards (2010a) in Chapter Two of this thesis. These labels did not shape the enquiry, yet they reflect the work of the Digantar teachers as they negotiated across practices and provide a useful organising frame for discussing the construction and use of common knowledge.

1. Focusing on the long-term trajectory of the child and children's

wellbeing: It is evident in Chapters Four, Five and Six that the teaching-learning practices in the Digantar School were not simply a matter of curriculum delivery. The teachers were at pains to create and sustain a discursive space in which they, children's families and the broader community could discuss the purposes of education and each could gain access to what mattered for actors in each practices in relation to longer term plans for the child. This space of reasons helped to create the

common knowledge that was then deployed when there were difficult problems to address.

This effort was visible when the teachers were discussing children's attendance and their learning in Chapter Four or when they were negotiating a child's long-term engagement with school in discussion with her parents in Chapter Five. As seen in excerpt 4.2 and 4.3 the teachers in conversation in a teachers' meeting attempted to situate the problem by bringing information from the multiple institutions the child participated in and the demands these practices may put on a child's engagement in the school. This expanding of the problem shows a nuanced approach to solving the problem where the focus was to constantly understand 'what matters' for the child.

The emphasis was on the child's long-term trajectory and analysing the institutional demands from the various practices that children participate in. Instead of drawing conclusions based on a simple line of causation common knowledge was both used and developed in these meetings. There the focus was exploring the intentionality of the child and his or her relationship to that of the school, so that work could be done on helping the child and family align their intentions for the child with those of the Digantar system.

2. Goal directed activity and making the motives of engagement

explicit: Teachers' engagement in Teacher Sharing Meetings (TSM), Teacher Parent Meetings (TPM), and School Community Meetings (SCM) were found to be goal directed. The goal in the meetings were not just to

explain a problem or develop a causal analysis with a quick solution, rather a long-term view of the problem was taken. Questions which centred on 'where to' and 'why' (Engestrom, 2007) were constantly asked as the object of activity was explored in the TSM (see for example, excerpts 4.2 and 4.3).

Seeing children's learning and development as a long-term trajectory and recognising their own role in sustaining it encouraged the teachers to share their experiences and work on problems together. This discursive engagement created the possibility of developing a shared intentionality between the teachers that could be used as a resource to work on the problem in question and later problems of a similar nature. 'Where to' and 'why' questions also underpinned exchanges with families as teachers offered models of alternative futures for their children to families, helping them, in the Wartofsky sense, to inhabit these as tertiary artifacts, or imagined futures, (Wartofsky, 1970) with a strong emphasis on the reasons for opting for the new alternative.

3. Understanding oneself and one's professional values: In the Initial Teacher Education Programme (ITEP) there was considerable emphasis on teachers reflecting on their already existing ideas about knowledge, education, children and schooling. This had implications for how they visualised their role in the school practices. The discursive engagement during the teacher training workshops and TSM also helped the school's philosophy and values to become explicit so that teachers could use them

as resources to engage with the institutional goals and purposes. Moreover, the space for teachers to challenge or question some of the existing stands of the school showed that the knowledge built within these practices was not simply a transfer of information from one group of people to another; rather was the product of a more dialogic process of the building and sharing of the knowledge that existed in the school. Thus it was not that teachers had to come together to follow an already existing rule or set of principles but rather to engage in discursive practices, which demanded engagement with each other's motives and goals in light of the institutional demands.

- 4. Collective Intentionality:** In excerpt 4.2, 4.3 and 4.4 it could be seen that teachers seek each other's support and also seek it from teacher trainers and coordinators. Recognising the larger system of distributed expertise that exists around them, they were able to develop what I term 'forms of collective intentionality' to engage with the problem at hand. Similar processes were visible in Chapter Five, for example in excerpt 5.2, where a mother sought the help of the community coordinator and teachers to ensure so that her daughter could continue attending the school. The institutional structure in the school facilitated these engagements and thus created the possibility for teachers and the community coordinator to be aware of the demands on children from the other institutions they participated in. This wider knowledge also helped teachers in navigating solutions and participating alongside parents to support their children's education.

5. Being responsive to the needs of other: In the TPM and SCM, while engaging with the object of activity, the teachers were consistently responsive to the needs of the community members. As we shall see, this ability to recognise and respond to the standpoints of others and build solutions on the basis of what matters for others, help in developing a responsive pedagogical practice. Analysing the TSM also revealed the extent to which teachers gave support to each other, recognising the problems working with them.

A strong element in the creation and use of common knowledge was the capacity of the teachers to place the child's well-being as a learner as their super-ordinate motive. Consequently in excerpt 4.2 they put the child's needs before that of the school, by suggesting she can leave their school roll and join another one nearer her home. In excerpt 5.3 we see even more clearly how the teachers put the needs of others before their own authority when they backed down in their argument that the community should be responsible for the school bus and agreed to collaborate with them over its provision. This professional risk-taking revealed that their status in the community was not based on the 'God' like nature of their role outlined in Chapter One. Instead they recognised and valued the rationalities of the parents and were able to take a risk, often avoided by professionals, of agreeing that they were wrong.

6. Reflective negotiations: Often while working on the object of activity teachers engaged parents in what I would call 'reflective negotiations'. Instead of confronting them on their decision or preaching a particular line of thought the approach was to encourage them to reflect on their own ideas and actions and, as I have already indicated, possible alternative futures for their children. Here reflection is used as a tool to negotiate their commitment to their children's education and new ways of being. The common knowledge, which had been built in previous encounters worked as a resource during these interactions, while at the same time the discussions augmented understandings of what mattered for each party. From the analysis of the excerpts (for example, in excerpt 5.1 and 5.2) it can be argued that these reflective negotiations with the parents aimed at encouraging them to safely challenge the existing rules of community life and to include parents in a wider collective intentionality to work for the child's wellbeing in a modern India.

7. Responsiveness to reasons: One feature, which is strongly evident throughout the excerpts from all of the meetings, is an engagement in a social practice that has the structure of giving and asking for reasons. While inhabiting the 'space of reasons' (Brandom, 1999), the teachers were constantly trying to show what follows from applying a particular concept, what would be valid evidence for it and what is incompatible with the line of argument being presented. During community interactions and TSM the focus on 'giving and asking for reasons' (Brandom, 2000, p.163) helped to make it clear 'what matters' for each of the participants. Thus,

strengthening common knowledge that could be used as a resource to act on problems.

Brandom (1994) suggested that commitment was integral to the existence of these spaces of reasons. Just by being object-oriented or creating a space to give and ask for reasons cannot, he argued, guarantee that practices will be responsive to what is revealed. The common knowledge built in the school and revealed in the analysis had a strong element of shared commitment and responsibility to the long-term wellbeing of children. There was a parallel strong commitment from families to the moral/ value-laden practice of the school. Thus, building of common knowledge demands an engaged agency (Taylor, 1989) and deliberative engagement.

7.3.2 Using common knowledge for organising pedagogical practices

Research Question 2: How do teachers use common knowledge within their repertoires of pedagogic actions in order to align the motives of the school and the child in classroom activities?

The response to this question largely draws on the Vygotskian concept of social situation of development and role of a teacher in assisting children so that they can create their personal zones of proximal development. The dialectic nature of learning evidenced in the study school ‘calls for attention to both the demands of practices and the intentions of the actors within them’ (Edwards, in press).

1. Cyclical movement of everyday to scientific and scientific to

everyday concept: Vygotsky (1978) argued that in school instruction concepts follow a different path of development than they do in child's everyday experience. His argument was not that the children's everyday concepts will disappear once scientific concepts have formed; rather everyday concepts would be enriched. The building and sharing of common knowledge at school-community and teacher-parent layers often helped teachers to organise pedagogy in the classroom. This could be seen in excerpt 6.3 where teacher mentioned that she discovered more about Millet in one of the teacher-parent meetings and used it as an example in organising the classroom teaching. Another example was when the teacher in excerpt 6.1 asked the children to test their half understandings of area against the everyday expert knowledge of their families in measuring their fields. Thus, using common knowledge helped in mediating the scientific knowledge of the curriculum to connect with the everyday understandings of the children and their families.

Teachers' awareness of where a child is coming from, i.e. their everyday understandings, gives them insight into how a child is making connections to the practices they are inhabiting. These insights can help support children as they create their own social situations of development as sense-makers, taking forward their own learning. This awareness and support requires the teacher to be able to align their pedagogic intentions with the demands in the tasks that they set and to the needs and capabilities of the children.

Children's agency in their learning has been central to the Vygotskian understanding. "Vygotsky consistently argued that the function of the teacher is to organise and be part of the social environment so that learners might create relationships with the environment which are conducive to their conceptual development (Edwards, in press)." In the study school the teachers constantly calibrated demands so that children could make their understanding of the focal concept explicit. These calibrations led to meaningful engagement of children in school practices which, according to Hedegaard (in press) is necessary for children's learning.

Moreover, as Daniels, drawing on Wardekker (1998) points out "concept development should not be seen solely as a cognitive endeavour. For him [Wardekker] the development of scientific concepts also includes a moral dimension. He argues that 'scientific (or 'scholarly') concepts as the products of reflection in a practice that includes choices about the future development of that praxis are, in that sense, of a moral nature" (Wardekker, 1998, p. 143) (cited in Daniels, 2001, p. 55).

The moral element was also important to the practices of the school; common knowledge built between the school and community involved a strong component of giving and asking for reasons. In doing so it helped teachers to challenge the existing division of labour that sometimes prevented children from participating in the school. These conversations about a social justice were also noted within the classroom between the teachers and pupils. This

concern was also reflected in the school's philosophical commitment to developing a democratic and morally just society.

2. Relying on and contributing to each other's expertise: The motive of the school to develop a self-sustaining group of teachers who supported each other in their practices helped in developing a system of distributed expertise where teachers saw each other as resources to draw on to sharpen their pedagogical practices. The building and sharing of common knowledge during TSM, TPM and SCM and workshops among teachers help them to support each other when they faced complex problems. What has been visible in the excerpts from TSM, TPM and SCM that the teachers have profound knowledge of 'what matters' for each child and thus can support them in the process of learning. The building and sharing of common knowledge created the possibility for teachers to rely on each other's expertise and to collaborate on children's long term trajectories, encouraging their long-term engagement with education.

It has been evident that as teachers have transcended the boundaries of the school, so have parents transcended the boundaries of the household. Thus, parents have come to view themselves as agents capable of changing their children's educational experience, which is often difficult to see in people who have never been to school. Moreover, eliciting and negotiating their motives and often working to support the activities in the school led to parents developing a capacity for agentic action. They

appeared to feel engaged in their children's education and development and made use of the common knowledge developed during these interactions for their children's continuous commitment to schooling.

- 3. Social articulation of the space of reasons:** The excerpts show that while engaging in giving and asking for reasons may look like a purely psychological or cognitive process of reasoning, it is not the case. While arguing their perspective children and parents were also making their systems of wider social inferences clear as well. Thus responsiveness to reasons makes explicit the commitments and responsibilities acquired being part of the wider social life of that community.

The space of reasons is an important object of activity to be worked upon in the classroom according to Derry (2008). Brandom (1995) particularly points to its social nature, arguing that the essential dimension of this space of reason is its social articulation, arguing that the logical space of reasons "is a social space in which rational agents operate... This a space between us not within us" (Tindale, 2011, p. 384-385). Brandom has argued that meaningful interactions in the space of reasons are possible only when the person commits his or herself to the practices they are engaged in.

The argument in this thesis is that building and using common knowledge as a component of collaboration and joint action in the classroom helps

children to inhabit the space of reasons which in turn helps them in learning or grasping scientific concepts. According to this argument learning a concept necessarily involves inhabiting a space of reasons where the concept and its wider system of inferences is open to discussion. “Effective teaching involves providing the opportunity for learners to operate with a concept in the space of reasons within which it falls and by which its meaning is constituted (Derry, 2008 p. 58).” The child may not have the full grasp of the concept but acting in the space of reasons recognises “that the grasping of a concept (knowing) requires committing to the inferences implicit in its use in a social practice of giving and asking for reasons (p. 58)”.

Derry is echoing Vygotsky who argued “To think of some object with the help of a concept means to include the given object in a complex system of mediating connection and relations disclosed in determinations of the concept” (Vygotsky 1998, p. 53). As Derry (2008) has cogently put it “following Brandom, and Hegel, in order to understand, it is necessary to ‘make explicit’ the connections and determinations which constitute a concept (p. 60).”

As people engage in the act of giving and asking for reasons they also represent the demands and needs of their engagement in the object of activity, revealing to, for example, the teacher where help is needed in building a robust system of inferences. Brandom’s idea of material

inferentiality reminds us that we think in concepts and implicitly that concepts are used to understand or share motives in the process of building and sharing common knowledge, concepts and motives are intertwined in the idea of 'what matters'.

7.4 Contributions of the study

This section is divided into three subsections. First delineating theoretical contributions of the study. The second subsection focuses on methodological contribution of the study and the third presents the empirical contributions of the study.

7.4.1 Theoretical Contributions of the study

7.4.1.1 Common knowledge as a concept to organise pedagogical practices in schools

The study has largely used Edwards' (2010a, 2011, 2012) concept of common knowledge throughout this thesis but here I would like to bring in Edwards (D) and Mercer's concept of common knowledge for discussion as well. Edwards (D) and Mercer, taking a sociocultural line, have discussed developing common knowledge for successful classroom practices. As they argued "...our central concern is how teachers and pupils establish shared understandings of curriculum content, so that our examination of various sorts of classroom communication is oriented to the ways in which information, arguments, ideas or analysis are expressed" (p. 128-129). Thus, the primary

question of interest for Edwards (D) and Mercer was to unravel the relationship between language and learning.

On the other hand the cultural historical line, which I have followed after Edwards (A) (2010a, 2011, 2012), considers common knowledge as engagement with motives and intentions of other as people engage to work on the object of activity. Edwards (A) has argued “[r]elational engagement with the knowledge and motives of others can produce a form of common knowledge which comprises a partially shared understanding of what matters for other contributing experts and the know-how associated with revealing, accessing and working with the knowledge of others in a common, if perhaps slightly differently interpreted, endeavour” (Edwards, 2010a, p. 57).

The present study used this idea to investigate the building and sharing of common knowledge in school setting and thus provides a theoretical extension to the Edwards (A) strong argument in favour of building and sharing of common knowledge for responsive professional work.

Edwards has located her work with in CHAT but has particularly drawn on Hedegaard’s emphasis on practice (Hedegaard, 2008, 2012a). The data in this thesis has consistently pointed towards some of these ideas. The focus on practice and institutional demand during the discursive engagement (in TPM, SCM and TSM) provides the opportunity to examine the practice in some depth and interpret the mutual alignment by the teacher and children or

teacher and parents as they come together to work on a problem. The common knowledge built in the TPM and SCM were not limited to conceptualising community life as a resource for children's learning but also as a resource for engaging with their social situation of development outside school, which has clear implications for their participation in schools and learning.

7.4.1.2 Responsiveness to reasons and discursive commitment

Brandom has used the concept of discursive commitment as part of his account of a space of reasons. In this section I will employ the term as an important component of responsive practice that was often visible in the school. I would like to argue that even if the professional practices are embedded in the constant building and sharing of common knowledge and space of reasons there are chances that they might not develop into the responsive practice. Building a responsive professional practice also demands a value-laden commitment. This responsibility or commitment for action also sustains people's engagement with the long-term goals and purposes of the organisation.

The discursive engagement between teachers, school officials, parents and children, which was discussed in Chapters, Four, Five and Six became possible only because of the space of reasons that existed between those practices. The findings of the thesis suggest that responsiveness to reason is an important component of building and sharing common knowledge. Brandom (1994) argues that one of the tasks of philosophy is to make explicit

what remains implicit in our practice. In his larger agenda of developing a pragmatic rationality he argues that there are two dimensions to our being: one is normative and other is rational. As a normative being what set us apart is to commit ourselves, our worry about whether we are entitled to those commitments whether it is cognitive commitment (how things are) or whether it is practical commitment (how things shall be?). We are discursive beings and our normativity is inferentially articulated. We are beings who are engaged in 'giving and asking for reasons' (Brandom, 2000, p. 163).

So inhabiting a space of reasons is not only a matter of employing rational arguments but also to commit oneself to those reasons. Each time we give a reason we assert our position it changes our position in terms of the commitment and what we are entitled to because of the change in commitment. Thus, the practice of building and sharing of common knowledge is not only about sharing opinions and concerns but rather navigating rationally between different opinions, projects and plans. The focus is to understand each other's position. While working in these spaces of reasons as people explain their perspectives they also make visible the multiple institutional demands on them and how they intend to negotiate them (excerpt 5.2).

The reasons people present while engaging with the object of activity also makes their commitments explicit. Common knowledge the way in which Edwards (2010a) argues is not about something in common which each of the

participants knows but rather an understanding of each other's motives and commitments with the object of activity. It is to say what Brandom argued that you know what I am committed to and thus you keep track of what I am entitled to and *vice versa*. So, language and discourse are not only means of cooperation and sharing knowledge or building arguments as Edwards (D) and Mercer (1987) have argued but also more importantly getting clear about what each other's commitments are. Thus it helps to see the demands on the participants and how they are negotiating while engaged in working on the object of activity.

7.4.1.3 Reciprocal recognition of the object of activity

Teachers, parents or children's engagement with an object of activity is not only about working on the problem together or whether their participation will lead to expanding the object of activity. After Brandom (1994) I would also argue that it leads to the development of a reciprocal recognition of the object of activity. This is not a short-term recognition but rather a long-term commitment (Edwards, 2010a). Brandom, while arguing for the social articulation of the space of reasons, introduces the Hegelian concept of reciprocal recognition.

Reciprocal recognition is about making oneself responsible by doing something, which makes other people hold one responsible. The idea of commitment does not make sense when others do not hold the actor responsible. It could be argued from the arguments developed in Chapter Five on school-community engagement that over a period of time the building and sharing of common knowledge has given parents an agentic capacity to ask

questions and hold the school responsible for their commitments. This is very evident in excerpt 5.4 where parents were demanding the recruiting of English and Mathematics teachers. The reciprocal recognition of each other's demands and motives appears to contribute to the development of responsive pedagogy in the study school. The constant engagement with the school's goals and purposes were made possible by the mechanism of giving and asking for reason and using common knowledge that was already available to reposition discussion around the object of activity.

Similarly, as teachers were recognising and engaging with objects of activity they constantly built a rational and logical space by 'giving and asking for reasons'. This practice of giving and asking for reasons helped to make teachers' motives and resources explicit. It helped the fellow teachers to mutually align with the demands posed by others while working on the problem. Thus it was an important component of building and sharing of common knowledge in the sharing group meetings. The inductive and reflective nature of discussion assured a participative discussion that helped in empowering and developing a sense of responsible agency among the teachers.

7.4.2 Methodological contributions

The study does not contribute anything radically new to the already existing methods in the cultural historical tradition. It uses the dialectical-interactive approach developed by Hedegaard (2008) as a method for collecting and analysing data. The ideas explicated by Fleer (2008) helped in analysing video data and understanding motives of the participants. My approach is

summarised by Hedegaard as follows: “Therefore a theoretical outline of learning and development that can be seen as a wholeness approach will focus on children’s activities in activity settings located in institutional practices that have a history embodied in traditions and framed by societal conditions.” (Hedegaard, 2012a, p. 11)

This focus on activities in activity settings while developing a strong understanding of the practices in which these activities occurred called for the collection of data at the different levels outlined in Hedegaard’s heuristic framing (see Hedegaard’s model in Chapter Two, Figure 2.A for details). A major challenge was therefore an analytic one: how to integrate data collected through multiple methods to understand the phenomena under investigation. I now outline how this challenge was addressed and the potential learning for the researchers that might arise from these efforts.

As already mentioned in Chapter Three, one of the challenges in the study was to capture the inter-play between the different layers of analysis offered in Hedegaard’s heuristic. The approach taken in the present study gives particular attention to the activities and the institutional practices in which they are located - the activity settings. As Hedegaard argued “[b]ecause it is in the activity setting within a practice that the relations between objective and demands from institutional practice traditions can be studied in relation to person’s motives and demands in the setting on both other person’s and material conditions” (Hedegaard, in press).

Thus to understand how demands of the multiple institutional practices teacher and children participate in may influence the pedagogical practices and their engagement following Hedegaard (2008, 2012) I too have focused primarily on the layer labelled activity setting and the activities that occur in it. I have also recognised that activity settings can also be places where different practices meet, such as when a teacher talks with a parent about early marriage. Edwards alternatively refers to them as sites of intersecting practices (Edwards 2010a). Hedegaard has argued for the importance of a focus on the activity setting, explaining that “[i]t is by using the concept of activity setting that learning and development can be seen as a unity of person and environment” (Hedegaard, in press).

Therefore in the study reported here teachers were followed across multiple activities settings so as to understand their perspectives and motives of engagement. Participating in these multiple institutional practices gave access to how teachers negotiated and refined their approaches by aligning their motives with the motives and demands of parents and children. Consequently the perspective of children and parents were also seen as very important. The alignment could not, I suggest, have taken place without the store of common knowledge that had been built and was constantly being renewed. This focus on activity settings and the purposes and resources found in the activities within in them helped provide a core coherence to the analysis allowing the broader structure and purposes of the different practices to be recognised in the analysis.

To conceptualise unity between the person and environment Hedegaard argues, “it is in the activity setting within a practice that the relations between objective and demands from institutional practice traditions can be studied in relation to person’s motives and demands in the setting on both other person’s and material conditions” (Hedegaard, in press).

Contrary to the Edwards (D) and Mercer’s (1987) research where they focussed on historicity of classroom talk, Hedegaard’s big insight was to follow people as they participate in multiple institutional practices. Thus, developing a more robust data set to understand people’s motives of engagement.

7.4.3 Empirical Contributions

In Chapter One of the thesis, I presented some of the challenges that the education system in India faces. These challenges have been one of the reasons for my engagement in this research. At this point I would like to revisit the three big concerns I raised initially regarding drop-out rates, teacher education and development, and the poor quality of teaching-learning in the Indian classroom. The focus would be to respond to some of the challenges by using the findings from this study.

7.4.3.1 The challenge of high drop-out rates

The analysis presented in the Chapter One shows that significant proportion of Scheduled Caste and an even greater proportion of Scheduled Tribe and Muslim children continue to remain out of school. It has been argued in the position papers in relation to National Curriculum Framework 2005 that until children relate to the classroom processes there is little possibility that they will stay in the system for long. Vasavi (2000) has argued that teachers have this tendency "...to simply accept poverty as the reason for the absence of many children and to see poverty as an unavoidable and inevitable factor that leads to high absenteeism and dropout rates...teachers see conditions such as that of bonded child labour, migration of children during school, the retention of children for domestic chores...as unavoidable family circumstances that cannot be addressed by any policy or programme..." (Vasavi, 2000, p.36). The NCF 2005 and NCFTE 2009 have offered limited guidance for dealing with these challenges. To address some of these concerns NCF 2005 makes an argument that there is a need to bridge the gaps between the lived experiences of children and formal school knowledge. Taking a cultural historical approach, Fler (2006) has argued for building cultural and institutional intersubjectivity. Following her position it can be argued that there is an urgent need to build intersubjectivity between different cultural communities and educational institutions. As she has stated

"Building institutional and cultural intersubjectivity gives teachers permission to move away from an evolutionary model of development and towards a revolutionary model, thus eliminating the perspective that any difference to normalized western development would be constituted as a 'disease' of normal child development (Vygotsky, 1998, p. 191)." (Fler, 2006, p. 138).

Taking this line of argument forward it is important to ask how these intersubjective spaces might be constructed and supported. The response explored in this thesis is that at least part of the answer might be the building and sharing of common knowledge between school and community so that the long term shared intentionality of the children's engagement with education could underpin approaches to teaching-learning in the schools.

In Chapter Five it is evident that in the study school, teachers were engaged with 'what matters' for the parents and community members in the village regarding their children's schooling. The common knowledge that has been built in the TPM and SCM served as a resource to develop a responsive practice where children's social relations were considered important for their schooling. On very similar lines Edwards (2004) has argued "early education would be better served by a version of psychology which takes context seriously and allows us to see how it is more than a phenomenon to be analysed for clues about the individual, but is something that shapes and is shaped by those who participate in it' (Edwards, 2004, p. 86). The long-term shared intentionality developed between the community and the study school shows that children's position in the social system of relations was seen as important to enhance their engagement with classroom teaching-learning. Thus, it helped in countering children's absenteeism and drop out.

7.4.3.2 Teacher training and development

Teacher training in India has remained largely an unarticulated and unaddressed concern. As Batra (2009) mentioned, “[t]he agency of the teacher, which ties together an appropriate school curriculum and an adequate teaching-learning environment, continues to be an unarticulated concern throughout the sector. This denial of the critical role of the teacher is reflected in recent developments in educational reform that have fostered the deployment of para-teachers who lack both the essential qualification and training to function as professional practitioners” (Batra, 2009, p.11).

The study school presents a holistic approach to recruiting, developing and supporting the teachers in the school. Here I would like to pick up at least two points that can contribute to the development of teacher education and development for the Indian schools.

1) The long-term trajectory of teacher training and development:

The NCF 2005 and more recent NCFTE 2009 projects school teachers as passive agents of the State who need to be trained to translate the vision of the national curriculum framework in schools. There has been limited guidance on how teachers could be prepared to respond to the new demands in Indian classrooms. The support for teachers once they are employed is generally in terms of short-term in-service training, on the other hand there have been limited efforts to revitalize the pre-service teacher education. Children’s long-term wellbeing and developing teaching as a professional

practice does not lie at the heart of preparing teachers in India; rather an organisational professionalism (Evetts, 2009) is visible.

In contrast, with a strong focus on developing teachers' collegial structures through trust and discursive commitment the study school presents a model, which largely represents developing occupational professionalism in teachers. Developing their decision-making expertise helped teachers to respond to the complex situations they encountered in the community and classrooms with ideas and potential solutions. The findings of the study also put more weight behind the Edwards (2010b) argument that "more time should be spent in teacher education on how to interrogate the 'whys' and 'where tos' of teaching" (p. 71). She has also argued that teacher must also engage with the question of what matters for people in the society to make practices more responsive to the needs of the learners, so that teacher can connect the classroom teaching-learning with the broader social concerns (p. 71).

2) What kind of teachers for what kind of society?

It has been very evident in the study school that the process of teacher education and development has been to respond to the larger motive of democracy, social justice, children's wellbeing and equity. Thus, developing a unique kind of professional identity in teachers where they were concerned not only about the children's learning in the school but also with children's long-term participation in the school and their future lives. Thus, they also recognized the resources parents and community members can bring to

support their children's education. It has been argued in Chapter One that it is not only that schools push children out due to their pedagogy or curriculum, often children pull out of the system as well because of the family and societal reasons. The teachers' consistent engagement with the community and parents in such a case was aimed at enhancing their long-term wellbeing and their sustained engagement with the school.

7.4.3.3 Teaching-learning in the classroom

The poor quality of teaching-learning in Indian classroom has been discussed as one of the challenges facing Indian education system in Chapter One. The arguments presented in this thesis show that building and sharing of common knowledge (Edwards, 2010a, 2011, 2012) can help to develop a pedagogic practice embedded in an education system, which has as its core the development of scientific concepts and children's empowerment as agentic actors in their worlds. The children in the study school were brought into practices in the classroom which were knowledge and value-laden. It was often seen that children's everyday understandings were used to mediate children's engagement with subject-matter knowledge. The examples discussed in this thesis, and those that have not been presented, all suggest that there is much to be gained from organising pedagogy in the activity setting of the classroom so that they centre on subject-matter knowledge. They also indicate how the approaches taken by the teachers involved their constant calibration of demands so that the children could use the tools offered to them to create their own social situations of development and take forward their learning.

A major insight from the study is, therefore, the value of creating institutional demands that facilitate 'responsiveness to reasons' (Derry, 2008) and the constant building and sharing of common knowledge that can mediate pedagogical practices. Other approaches go a long way towards achieving this insight, but I suggest not quite far enough.

Engestrom's (2007) argument for developing a 'sparring way' of conversation and revealing contradictions as a way of bringing about change in system, which was discussed in section 5.3 of Chapter Five, offers a way of conceptualising the processes of argumentation, but does not help us to see the role of engaged and deliberative agency in shaping learning. One argument in this thesis is that if the practices in which the activities are located lack 'commitment to reasons', sparring or dispute may not succeed in developing a responsive pedagogical practice; instead it may lead to disorientation. Equally, the argument developed by Edwards (D) and Mercer (1987, 2008), although important, lacks the focus on object motives of people and focuses largely on the linguistic transactions and their long-term trajectory for creating intersubjectivity.

I have therefore found the ideas of Derry (2008) and Edwards (2010a, 2012) particularly helpful in my attempts to delve into the complexity of people, practices and learning to understand what happens in the institutional practices that help in children's learning.

The problems of Indian schooling are enormous, and cannot, I suggest, be dealt with by superficial solutions. In examining the Diganatar system I hoped to bring to the surface some of the key components of their success in order to label them and make them visible for others. The process of doing so has been daunting. I am therefore not offering a simple solution to these problems, but hope that by at least revealing their complexity and the importance of commitment to education as valuable for citizens as well as the nation, the thesis makes some small contribution.

7.5 Limitations and future research possibilities

The limited time frame of DPhil research and the consequent decision to focus only on one school certainly limits the possibility of any generalisability of the findings in this research. Nonetheless, the theoretical concepts that have been developed in the study to make visible and label the practice of Digantar schools can be offered as tools for examining and developing pedagogical practices and the engagement of children in schools. However, the pedagogy of the study school involved engagement with a fairly homogeneous community. Often in more urban areas the population is more heterogeneous, raising questions about the general applicability of the emphasis on common knowledge. A further study could examine the use of these ideas in very different social settings.

As already mentioned in Chapter Three it was initially planned to conduct case studies of children as well, to better understand how they create their social

situations of development. These studies would certainly have added to the project, and remain an important gap. The present study has, however, now laid the groundwork for such a study, this too could be a further line of enquiry.

The study largely uses the concepts developed in the cultural historical tradition to analyse and present data. Brandom's work on Sellars' idea of 'space of reasons' has only been used as a concept for explaining the act of giving and asking for reasons. The concept of 'space of reasons' along with the concept of 'discursive intentionality' has potential to be developed as a concept for designing pedagogical practices. Discursive intentionality as explained by Brandom (2011) is "exhibited by concept-users in the richest sense: those that can make judgments or claims that are *about* objects in the semantic sense." (Brandom, 2011, p.3). As already pointed by Derry (2008), these ideas align with the Vygotsky's focus on abstract rationality in scientific concepts; while the present study suggests that they may be another area for future study.

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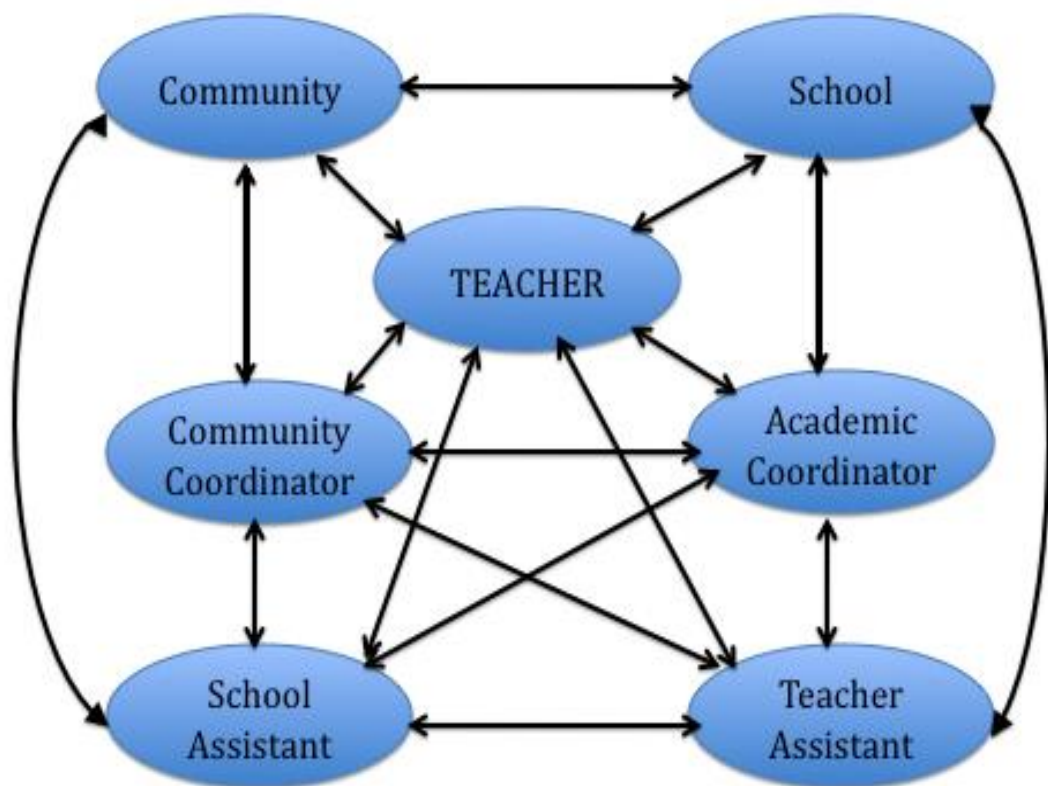
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Appendices

Appendix 1

Figure showing the dialectical relationship and interaction patterns in Digantar schools



Appendix 2: Clarification Note submitted as part of Transfer of Status

The method of data collection and data analysis were not very concrete at some places at the time of submission of Transfer of Status papers. This short document attempts to address some of the points in light of the insights that have emerged from the discussions with Prof. Hedegaard at the University of Copenhagen during a Doctoral school meeting in early September.

Data Collection

Taking a cultural-historical perspective the present study is premised on the understanding that meaning is created between the researcher and the researched persons in the social situations of the research. It is the meaningful understanding emerging from these interactions that becomes data. Given the objectives of present research, the focus will be to participate in the children's social situations of development primarily in school, but also to an extent at home, to gain insights into the interactional patterns. As the research design suggests the study uses multiple methods. The idea here is not triangulation of data but the approach reflects the view that different methods will reveal different aspects of participants' everyday life, to produce a rich data set. It is important to remark that a lot of data collected will serve as a context for analysing negotiations taking place at various layers and will not be analysed using techniques like video-analysis.

Recognising the fact that six months data collection using video recording and other methods will end result in excessive data, which could be difficult to manage; I have decided to do video recording only twice a week for 3 hours. Sometimes 3-4 days recording in a week could be done depending on the importance of the classroom discourse at that point for the research. Moreover, only a few lessons probably science, carpentry, community interaction sessions and Hindi language will be recorded. The choice of these subjects is based on the observation from the pilot study that cultural and institutional interactions are more vivid in these lessons.

To understand home practices and their influence on creation of intersubjective spaces for teaching-learning in classrooms four children and their families will be observed. Two high achieving and two not so high achieving children will be chosen on the basis of teacher's view. The families of the children will be informed about the research and their consent will be taken before observation starts. An application for CUREC 2 approval has therefore been made.

The data on stimulated recall will be collected only from the teacher and not with children. It was found that the children reflect and respond better on their experiences during informal interactions than during stimulated recall sessions. During the pilot study it was seen that most of the time children started laughing or feeling shy after watching their own video. This was also seen to curb their natural behaviour in the classroom later. So I have decided to collect data on children's perspective on teaching-learning process using informal interactions after lessons are over.

Data Analysis

The data analysis plan is based on the Hedegaard's (2008) level of analysis model already mentioned in Table 01 on page no. 41 of the Transfer draft. She has developed this model to study children from a cultural-historical perspective. There are two big challenges for data analysis, one is to overcome methodological hurdles i.e. to tap meta-perspectives, present lived experiences and the historical foundations of the participants' behaviour and to then relate data coming from multiple methods. The second challenge is to relate negotiations occurring at different layers. Hedegaard's model helps in developing a data analysis plan, which could help to meet the above-mentioned challenges.

In her analysis Hedegaard first tries to understand the activity from the child's perspective. In situation where multiple children are involve the effort is made to take each child's perspective is taken to understand how each child creates its social situation for development while functioning in the institutional practices they live. A thick description is developed before making any inference about motives of the participants. In this study, I take a slight departure from the Hedegaard's approach. Considering the research objectives, it will be analysed how teacher mediates according to what matters in the practices of the school so that child can create their own social situation for development aligning with the broad motives and practices of

the school. Thus, to understand as the child creates their social situation for development and the dialectic through which they navigate in different institutional practices they participate would be at the core of analysis. We cannot make inferences about the mediational interaction before beginning to identify the motives. The table below presents the tentative data analysis plan:

Structure	Process	Some Questions that will guide interpretation	Preliminary data coming from the pilot study
Societal	Beliefs about teaching-learning	• What are the cultural beliefs about teaching-learning? • What are the beliefs about the role of teacher and child?	• Differences between the idea of teaching-learning in school and home • Role and Position of teacher • Role of the child in teaching-learning • Functioning of the school
Institutional	Practices	• What are the various practices child and teacher participate in? • How is daily life of the child organized? • What are the motives evident in the school practices? • What does the teacher do to move children from home practices to school practices? E.g. their movement from everyday to scientific concepts.	• Teacher training • Daily schedules of children and parents • Deciding on syllabus • Children's magazine • Community-school meetings
Activity Settings	Social Situation of Development	• What are the activity settings child and teacher participate in? • What are the problems and conflicts that arise during teachers-child	• Within activity negotiation • Deciding on activity • Carpentry entering science classroom and

		and child-child interactions? How classroom interactions are facilitated by various pedagogical practices?	vice versa
Person	Activity	What characterizes the motives of the participants in activity settings in relations to different institutional practices?	- Data coming from stimulated recall interviews - Semi-structured interview and informal interactions with parents and teachers

The data analysis will be three-step process:

Step 1: At this step the approach will be to interpret person's motives and intentions in activity settings. This will involve gathering data on teaching pupil interactions over time for each of them. At the same time data will be gathered from community-school meetings and from the family of target children to identify salient community motives in relation to education.

Step 2: The attempt will be to: i) look across the data on interactions in classrooms to begin to identify the motives recognized and pursued by both teachers and target pupils and ii) to identify patterns in teachers' pedagogies in relation to aligning these motives.

Step 3: It will involve comparing community motives with teachers' motive and children's motives and to examine the dialectic that occurs as motives are negotiated by teachers in and out of the school.

Appendix 3: Excerpt from initial analysis of classroom data

Episode (<i>BAJRA AND WATERING PLANT</i>)	Sequencing and Interplay of modalities	Pedagogical / Organizational practice/aspect/ dimension	Mediation through Conceptual Tools	Relational Orientation (Relationship as developing in interaction)
1) T: You must have seen a millet tree? 2) C: YES... YES 3) T: Plant ...not a tree...its plant not a tree 4) T: Okay....how many of you like millet's <i>rotis</i> (Bread)? 5) C: YES... YES (some children raise their hands 6) T: <i>Roti</i> made from millet.....how many of you like to make it and eat it? (Children raised their hands) 7) T: The millet seeds are ground to make flour and then <i>roti</i> is made from it... isn't it? (Few children start to talk with each other about millet bread) 8) C: YES..... YES <i>roti</i> is made 9)T: Okay.....lets imagine that this is a millet plant (she starts to draw a plant on the blackboard) ...I am trying to	Visual Diagram (Teacher made bajra plant on the blackboard) Verbal questions while drawing bajra plant Gesture (non-authoritarian...)	Teacher is questioning to draw attention and building consensus Efforts to bring visual recall (build that connect) (creating interobjective plane- bringing children's everyday experience to the classroom) Community of practice.. learners taking responsibility... moving from periphery to centre of the activity	Millet plant Agricultural practices Everyday practice/ experience— bringing concepts from children's everyday life	Teacher as facilitator Teacher in non-expert role Children enthusiastic and participative Children as teacher for a while Teacher not as authority (he failed to draw millet tree)

make it 10) Tabassum: Millet.... see see <i>didi</i> is drawing millet 11) T: Is it fine? Does this look like a millet plant? 12) C: Yesno 13) Salman: No....its not 14) T: But I have tried to make the millet plant (with an expression that she has failed to an extent) 15) T: When its winter, we take an sickle (she draws a sickle on the blackboard and then marks a cut on the plant) and cut the upper part of the plant and then we get the seeds form it....isn't it? 16) C : Yes 17) Farzana: <i>Didi</i>, its cut fully, not just the upper part	drawn sickle Action of cutting bajra plant (creating act/ practice), attempts to create a visual imagery			
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Intersubjectivity and Pedagogy

Interview Consent Form (teacher consent form)

- I have read and understood the information provided about the study and I have been provided with an opportunity to ask any questions that I have.
- I understand that I can withdraw from the study at any time simply by informing the researcher
- I know who to contact if I have any questions about the study
- I understand that this evaluation has been reviewed by and received ethical clearance through the University of Oxford Central University Research Ethics Committee

I agree to take part in the research:

Name of participant	
Date	
Signature	

Name of researcher	
Date	
Signature	



Intersubjectivity and Pedagogy

The teaching-learning spaces in a classroom constitutes of the various teacher-child and child-child interactions. These interactions are crucial as they are foundations of any teaching-learning process. The present research is an attempt to understand the interactional dynamics in the classroom and analyze how teacher and the child create shared spaces for teaching-learning in the classroom. The study also investigates parents' and children's cultural beliefs about teaching-learning process and their role in the creation of shared spaces for teaching-learning. This involves observing them in various settings such as the classroom, home or play.

Field work

The study will be conducted at *Digantar Shiksha Evam KhelKud Samiti*. Digantar is working in the area of education for rural children since 1978 with focus to make the child a self-motivated and independent learner with the ability to think critically. The schools philosophy to emphasize on learning as a dialogic process with components of mutual understanding, respect and negotiation to make the child a self-motivated and independent learner makes it an ideal place to conduct my research on intersubjectivity and learning.

What will it involve?

- Semi-structured interview with teacher primarily dealing with some questions on teaching-learning processes in the classroom.
- Observation and video-recording of the classroom processes.
- Stimulated recall interviews seeking your explanation and ideas on short video-clips of 15-60 seconds (approximately). It will be clip(s) of the classroom teaching-learning only.

The data collection also involves informal discussion with children and a semi-structured interview with parents. The focus of data collection and data analysis will not be to analyse individual child or teacher and his/her behaviour or performance.

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Intersubjectivity and Pedagogy

Consent Form (parent opt-in consent form)

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I agree to take part in the research:

Name of participant	
Date	
Signature	

Name of researcher	
Date	
Signature	



What will it involve?

– The present research is on children's learning and classroom pedagogy. Apart from understanding the classroom teaching-learning process the study also involves understanding cultural beliefs about learning and teaching. Considering this I will collect data on your daily schedule and social practices. I will only make record of my observation and you can access my observation records at any time. I will also share my observation details with you. Moreover, I will also like to talk with you regarding teaching-learning of your children. The interview will not be to test your parenting practices or knowledge but to know your views about teaching and learning.

Moreover, informal interaction with children and interviews with teachers will also be part of the data (for details please read the parent information sheet). The study will be conducted at *Digantar Shiksha Evam KhelKud Samiti*. Digantar is working in the area of education for rural children since 1978 with focus to make the child a self-motivated and independent learner with the ability to think critically. The schools philosophy to emphasize on mutual understanding, respect and negotiation to make the child a self-motivated and independent learner makes it an ideal place to conduct my research on intersubjectivity and learning.

I hope to receive your support in conducting my research. Read the information sheet attached for further details.

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