The Role of Teachers' Beliefs in the Implementation of Learner-centred Education in India

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Author's Declaration

I, Suzana Brinkmann, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Abstract

International education has witnessed a widespread push for promoting Western-originating 'learner-centred' approaches, often without adequately considering the challenges involved in crossing cultures. Like many developing countries, India for decades has been attempting a paradigm shift from predominantly 'teacher-centred' to more 'learner-centred' classrooms, particularly through in-service teacher education, yet most Indian classrooms remain dominated by rote-learning. One possible reason suggested by scholars is that Indian teachers' pedagogy is grounded in deeply-rooted cultural beliefs resistant to change. However, research and training have rarely attempted to identify and address these underlying beliefs.

This study explores how Indian teachers' beliefs relate to their practice, whether there are prevalent beliefs that conflict with a learner-centred paradigm, and how these can be addressed within teacher education. The beliefs of 60 government primary teachers in 3 Indian states are explored through questionnaires, semi-structured interviews and open-ended life-narratives, while their pedagogy is analysed through classroom observations. Insights are also drawn from interviews with 73 teacher educators.

Findings suggest eight prevalent beliefs that contradict learner-centred assumptions of policy documents, and that indeed correlate with less learner-centred practice. These include beliefs about equality, democratic relationships, diversity, knowledge, purpose of education, responsibility for outcomes, professional commitment, and change. A critical realist lens is used to analyse causal mechanisms accounting for teachers' beliefs, practice, and the relationship between the two, revealing many of these beliefs to be rooted in dominant caste ideology. Drawing from transformative learning theory and Freirean problem-posing, the study proposes a new framework for Indian teacher educators seeking to empower teachers as rational agents capable of bringing changes in their own beliefs and practices. This research offers insights for teacher educators and policymakers in India and other developing countries, regarding the need for engaging with teachers' beliefs, the need for contextualising Western-originating progressive pedagogies, and suggestions for doing both.

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Glossary

ABL	Activity-Based Learning
ANOVA	Analysis of variance
ASER	Annual Status of Education Report
B.Ed.	Bachelors in Education
B.El.Ed.	Bachelors in Elementary Education
BERA	British Educational Research Association
BJP	Bharatiya Janata Party
BRC	Block Resource Centre
CR	Critical Realism
CRC	Cluster Resource Centre
D.Ed.	Diploma in Education
DIET	District Institute of Education and Training
DISE	District Information System for Education
DPEP	District Primary Education Programme
EFA	Education for All
EVS	Environmental science
GDP	Gross Domestic Product
GoI	Government of India
HDI	Human Development Index
HM	Headmistress/ Headmaster
HSTP	Hoshangabad Science Teaching Programme
IAMR	Institute of Applied Manpower Research
JRM	Joint Review Mission
KSSP	Kerala Sasthra Sahithya Parishad
LCE	Learner-centred Education
LCP	Learner-centred Pedagogy
LC	Learner-centred
MHRD	Ministry of Human Resource Development
MLL	Minimum Levels of Learning
M.Ed.	Masters in Education
NCERT	National Council for Education Research and Training
NCF	National Curriculum Framework
NCTE	National Council for Teacher Education
NGO	Non-Government Organisation
NPE	National Policy on Education
NUEPA	National University of Educational Planning and Administration
OBC	Other Backward Classes
PROBE	Public Report on Education
PTR	Pupil-Teacher Ratio
RIVER	Rishi Valley Rural Education Centre
RQ	Research Question
RTE	Right to Education [Act]
SC	Scheduled Caste

SCERT	State Council of Educational Research and Training
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
TE	Teacher Education
TLM	Teaching Learning Material
TP	Transformative Problem-Posing [approach]
TPTE	Transformative Problem-Posing Teacher Education
TMSA	Transformational Model of Social Activity
TTC	Teachers Training Certificate
UN	United Nations
UNCRC	United Nations Convention on the Rights of the Child
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund

Chapter 1 – Starting at the Roots

> This research comes down to our concept of teaching: Is teaching about knowledge, or is it about relationships? The notion of just seeing teaching as 'practice' needs to change.
>
> – (Interview with educationist, 26/06/09)

1.1 Introduction: We teach who we are

This thesis is about the power of beliefs. At its core is a question about the extent to which teaching is a matter of technique, or also a matter of who the teacher is as a person – including the beliefs that lie at the core of his or her identity, that drive his or her mission and purpose in the world. In the words of Palmer, 'We teach who we are…Good teaching cannot be reduced to technique; good teaching comes from the identity and integrity of the teacher' (1998, p.2,10). If beliefs shape teachers' identity and ultimately their actions, then what are the consequences for pedagogy? If teachers' beliefs are in turn shaped by a much wider culture, one shared across millions of people and numerous generations, could this help explain why Indian teachers' pedagogy has been resistant to change? These are the kinds of questions that this thesis sets out to explore.

Like many developing countries, India has been trying to bring a paradigm shift from 'teacher-centred' to 'learner-centred' education (LCE) for decades. Various efforts have been made towards pedagogical reform: the District Primary Education Programme (DPEP) implemented in 1994, the *Sarva Shiksha Abhiyan* (SSA) programme since 2001, the National Curriculum Framework (NCF) 2005, and the Right to Education Act (RTE) 2009. These frameworks have envisioned a pedagogical approach involving 'learning through activities, discovery and exploration in a child-centred and child-friendly manner', where children are 'free from fear, trauma and anxiety, and…express [their] views freely' (RTE 2009, 29.2).[1] In-service teacher training[2] in particular has been promoted as a key vehicle for bringing this paradigm shift. SSA spent almost US$400 million from 2001 to 2010 to provide 20 days of

[1] In this study, 'learner-centred education' is used to refer to specifically to the educational paradigm advocated in NCF 2005 and RTE 2009, which currently stand as two central guiding frameworks for educational reform throughout India.

[2] The terms 'teacher training' and 'teacher education' are used interchangeably in this thesis, as in Indian education reforms, although there is an implicit different between them. As suggested by Peters (1967), training usually implies the acquisition of a skill through some amount of drill, without necessarily an understanding of the principles involved. In contrast, education involves also developing knowledge, understanding, and a deeper cognitive perspective – a distinction perhaps significant for teacher education in India, discussed further in Chapter 9 (Section 9.4).

annual in-service training for government teachers across india, much of which has focused on transforming teachers' pedagogy (GoI, 2010).

However, fifteen years after the inception of SSA and eleven years after NCF 2005, a look at the majority of the country's classrooms reveals that SSA's annual country-wide teacher training programmes have for the most part failed to bring the kind of pedagogical shifts envisioned. In 2010, SSA's 11th Joint Review Mission reported that despite enormous investments in quality improvement initiatives under SSA, NCF's vision was still a long way from being translated into classrooms:

> The 'chalk and talk' or teacher instruction still dominates the classrooms…After a number of years of implementing in-service teacher training, it is not clear what type of impact such training has had on improvements in the classroom processes. (GoI, 2010, p.35-37).

There are various factors possibly contributing to the low impact of teacher training programmes in India, such as whether the training methodology reflects the approach it seeks to promote, practical constraints faced in the classroom, lack of systemic alignment around LCE, or the top-down nature of the reforms. However, one crucial but largely unexplored issue is that of the prior beliefs that teachers bring to their training programmes, and their influence on teachers' classroom practice.

After decades of reforms, reformers and commentators are only starting to realize that the problem is not merely one of finding the 'right techniques', pouring in more money, conducting more trainings. The barriers may lie deeper – in people's hearts and minds. They lie perhaps in a dominant cultural ethos that does not necessarily support the lofty vision presented in policy frameworks. The ideals of the NCF 2005 – like those of the Indian Constitution – may remain abstract ideas unless the wider culture provides a conducive soil in which they can take root.

Could one reason for the low impact of teacher training programmes be that they have mostly focused on imparting technical skills, failing to address the underlying cultural values that shape existing educational practices? This thesis explores the relationship between teachers' practice and beliefs, and the extent to which pedagogy is embedded in teachers' deeper beliefs – beliefs about human nature, relationships, learning, purpose, work. If teacher education programmes fail to engage with dominant cultural beliefs that may contradict the assumptions of policy frameworks, these programmes may continue to fail to have their desired impact of helping teachers implement learner-centred education.

1.2 Context: Indian realities and global reform agendas

Educational inequalities in India largely reflect wider societal patterns of discrimination, occurring especially along lines of caste, class and gender. In particular, the caste system[3], unique to India and Nepal, has led to deeply embedded social hierarchies that are manifested across various facets of daily life and social interactions, including schooling. Despite several decades of policies and programmes aimed at universalization of education and greater inclusion of all learners in the education system, deep educational inequalities remain. The past two decades have seen tremendous increase in enrolment in government schools among children from communities who for centuries were excluded from education altogether. Today many of the children attending government schools are from these socially marginalised communities – particularly from Scheduled Caste (SC), Scheduled Tribe (ST), Other Backward Class (OBC), and Muslim communities. The no-fee government school sector, the largest elementary education provider in India, accounts for about 60.19% of enrolment among 6-14-year-olds in India (NUEPA, 2015), of which 89.09% is of children from disadvantaged communities (19.80% SC, 10.47% ST, 44.44% OBC, and 14.37% Muslim). However, over half of these children drop out before completing elementary school – much higher shares than those from more privileged communities (Technical Support Group, 2012).

Moreover, learning levels in government schools remain very low: ASER's (2014) study found that an astounding proportion of children across Classes 3-8 could not read a Class 2 level text: 75.4% in Class 3, 51.9% in Class 5, and 25.4% in Class 8. Though learning levels are low across social categories, they are even lower among children from marginalised communities. A study by Deshkal Society (2012) in Bihar found that in the districts of Gaya and Katihar, 46.02% and 47.12% of SC children in Class 2 could read nothing at all, in contrast to 22.37% and 23.64% respectively of dominant (upper) caste students. Socially marginalised children also continue to face exclusion in their day-to-day experiences within school. Nambissan (2009) found that SC children in Rajasthan faced various forms of discriminatory attitudes from teachers: they were denigrated or ignored, and assigned tasks like sweeping classrooms or cleaning toilets. Exclusionary practices were also evident at meal times and in seating arrangements ('weaker' students, typically from lower castes, were made to sit at the back). Ramachandran & Naorem (2013) report that such experiences were common among both SC and ST children in six states surveyed across various parts of India.

Alongside these social realities that influence India's attempts at pedagogical reform,

[3] The caste system, rooted in ancient Brahmanical (Vedic) texts, hierarchically arranges Indian society into four broad castes (*varnas*): *brahmins* (priests), *kshatriyas* (warriors/aristocrats), *vaishyas* (cultivators/traders), and *shudras* (those who labour for others – termed 'Other Backward Classes' or OBCs). The fifth (lowest) group, *dalits* ('untouchables', termed Scheduled Castes or SCs), along with tribal groups (Scheduled Tribes or STs), are considered 'outcastes' (Thapar, 2004). The caste system is described further in Appendix-1.1, and its impact on teachers' beliefs discussed in Chapter 7.

are global educational trends that also shape india's reform agenda. In recent decades, LCE has been promoted around the world as the preferred model for primary education, increasingly treated as a travelling policy by international aid agencies working in developing countries. Governments and aid agencies now tend to unequivocally assume that improving education quality implies moving towards learner-centred approaches. On the other hand, some scholars have critiqued the 'policy borrowing' of LCE as a 'one-size-fits-all', decontextualized best practice, and question whether it should indeed be recommended for education systems across the globe (O'Sullivan, 2006; Schweisfurth, 2011; Tabulawa, 2003; Vavrus, 2009). These scholars cite the apparent lack of conclusive evidence for LCE resulting in improved learning outcomes, as well as numerous stories of failure in its implementation, particularly in developing countries. They identify various constraints that may render LCE inappropriate in these contexts. The global context of LCE reforms including its critics and challenges are discussed further in Chapter 2.

While the motivation for LCE has most often been improved student learning and more democratic classroom processes, LCE also promotes an inclusive pedagogy that can stand in opposition to the discriminatory practices described above. It may well be that the teacher-centred pedagogy that dominates many Indian classrooms may be perpetuating oppressive relations in Indian society, as put forth by Paulo Freire (1970). This brings us back to the question of whether there exist cultural barriers preventing learner-centred, inclusive pedagogy from taking root in Indian soil, and whether LCE presents an appropriate policy choice to help combat discriminatory attitudes in Indian schooling and society.

1.3 Rationale: The need to address teachers' beliefs within learner-centred reforms in India

To understand the limited success of LCE-oriented training programmes in India, one must heed the growing body of international research pointing to the central role of teachers' beliefs in teacher education and reform efforts. As early as the 1970s, Fenstermacher (1978) predicted that the study of teachers' beliefs would become the single most important construct in the field of educational research. Indeed, a growing research body suggests that teachers arrive at teacher education programmes with deeply-held beliefs about teaching and education, shaped by thousands of hours spent in classrooms as students, which act as filters to how they interpret training content. For example, Bruner (1996) points to the 'folk pedagogy' or deeply-ingrained beliefs about teaching-learning that teachers acquire through their prior experiences. Any effort to change teachers' pedagogy, he argues, 'had better take into account the folk theories that those engaged in teaching and learning already have', since

these innovations will need to 'compete with, replace, or otherwise modify the folk theories that already guide both teachers and pupils' (p. 46).

Indeed, while analysing teachers undergoing a professional development programme, Smylie (1988, p.23) found that 'teachers' perceptions and beliefs…are the most significant predictors of individual change.' Munby (1984) similarly points out that if teachers' existing beliefs are at odds with the assumptions underpinning the reform effort, what results is a mismatch between the intended change and what is actually manifested in the classroom. These and various other scholars (Diviney, 2003; O'Riordan, 2006; Pajares, 1992; Richardson, 1996; Richardson et al, 1991; Tatto, 1996) suggest that training programmes, educational reforms or new curricular frameworks that seek to promote new pedagogies will only be effective if teachers have thoroughly accepted the beliefs underlying the innovation. They all agree that the 'failure to recognize the role beliefs play in practice will destine these educational initiatives to failure' (Cantu, 2001, p.150), and that engaging with teachers' beliefs 'must serve as the primary currency of teacher education' (Sanger & Osguthorpe, 2011, p.572).

Despite the growing international concensus around the centrality of teachers' beliefs, in India there has been no systematic investigation into the role of teachers' beliefs in pedagogical reforms. Although a few authors have pointed to the idea that pedagogy in India is shaped by broad cultural mindsets, these have been passing references rather than the focus of in-depth research. For example, Dyer et al (2004) and Clarke (2003) both found that LCE-oriented training programmes failed to have their desired impact because they failed to engage with teachers' underlying beliefs and cultural models which deeply influenced their teaching. These models prevented teachers from engaging deeply with the attempted reforms, resulting in only superficial changes in their practice, without fundamentally altering the prevailing teacher-centred paradigm. Similarly, several others like Batra (2009), Clarke (2001), Gupta (2006), Rao, Cheng & Narain (2003), and Sarangapani (2003) have pointed out that Indian teachers' traditional pedagogy is grounded in deeply-rooted cultural attitudes, particularly regarding caste, social inequality and hierarchy, which make it difficult for existing practices to change.

Educationist Krishna Kumar has repeatedly argued that the reason teacher training programmes have failed to alter teachers' practice is their failure to address the culturally-rooted values in which teachers' practice is grounded:

> On values and attitudes, the training process makes no impact; indeed, it is not intended to. The values imbibed from the dominant worldview of society are never challenged, so the young, trained teacher does not relate to policies which require a radical shift in values and attitudes. For instance…the dominant Darwinian view that only a few have talent is contradictory to the policy framework, yet it prevails because schools are rooted in it. (Kumar, 2008a, p.40)

Kumar points to various other prevalent beliefs in Indian society preventing classrooms from changing: a notion of children as passive receivers, a belief that 'only the so-called bright or smart children matter and deserve education of the best quality', and the low status of children and women (and consequently teachers) in Indian society (Kumar, 2008a, 2008b). Kumar concludes: 'in such a social ethos, any government will have difficulty in pushing radical educational reforms' (Ibid.).

However, to date, strong engagement with teachers' beliefs has not found its way into either educational research, teacher education programmes or reform efforts in India (Jha & Jhingran, 2005). Jha & Jhingran's study, which identifies teachers' and officials' cultural attitudes as the root of the discrimination still faced by deprived children in India, argues that if at all, these have been addressed only in short one-time training workshops in very peripheral and minimalist ways, hardly adequate for breaking deeply entrenched social values and practices. Such discriminatory attitudes toward low-caste and tribal children are rarely if ever required to be delved into by teacher educators or educational administrators who continue to perpetuate these attitudes. Deshkal Society's (2010) study of discrimination in schools similarly decries that contemporary education debates have largely treated this as a 'technical issue' of finding the right teaching practices or 'pedagogic tricks': 'We have only scratched the surface of a far more complex and deep-rooted problem' (p.27). Discriminatory practices are rooted in entrenched cultural beliefs about diversity, caste, gender, poverty, language and religion. The report concludes that inclusion in India's education system cannot be achieved without much greater school-based research to understand teachers' beliefs and behaviour, and to orient teacher education towards re-examination of teachers' beliefs about diverse learners.

It may well be that unless Indian teacher education begins to address not only skills but also the deeper cultural beliefs in which teachers' practice is grounded, it will not be successful in transforming teaching practices. Indian teacher educators and policymakers have continued to struggle with these obstacles, but with little empirical research evidence on the role teachers' beliefs play in shaping teachers' practice, which specific beliefs among Indian teachers may be restricting a shift towards LCE, and how teacher education programmes can engage with these beliefs. It is this gap in the literature that this study seeks to address.

1.4 Personal motivations and research questions

I went into the study of education, perhaps naïvely, because I wanted to help transform Indian society. Having grown up in India surrounded by beggars and slums, it was unfathomable to my childlike faculties why there should be such extreme disparities between

me and *them*. As one of the few able to benefit from India's exclusionary education system, I went on to pursue undergraduate and graduate studies in Canada and the US. It was here that I first encountered the writings of Paulo Freire, whose description of 'banking education' sounded much like the schooling I and millions others experienced in India. In his writings I found the words to articulate a vision for how a change in pedagogy could effect the transformation of society (Andrade, 2007). Reading Freire, I encountered an educational theory and practice explicitly committed to the liberation of oppressed populations and to the transformation of societal structures impeding the democratic participation of all people (Darder, Baltodano & Torres, 2003). Freire's 'critical pedagogy' views students not as passive receptacles to be filled with decontextualized information, but as potentially active Subjects who can construct knowledge about their social world and act to reconstruct that world, through a process of dialogue, reflection, and action – which he termed *conscientization*. I began to envision the potential that these ideas could have for transforming oppressive features of Indian education and society.

Armed with these ideals and academic tools, I returned to India to see how these could be applied, and spent three years just trying to wrap my head around the complexity of the situation. I worked at both the grassroots level (at a non-profit school seeking to provide quality education for the poor), and at policy levels (consulting to the Government of India's education department, the Ministry of Human Resource Development, for the SSA programme). Interactions at diverse levels with policymakers, administrators, teacher educators, teachers, and educationists, reinforced the insights sparked by my observations and confirmed by the literature: that there are deeper 'mindset' barriers obstructing pedagogical change, but that people are unsure about how to address them.

These experiences prompted me to pursue doctoral research in order to investigate these issues. Review of the existing literature on Indian teachers and on teacher beliefs globally, discussed in Chapters 2 and 3, led me to refine the following four research questions:

1. Are there certain beliefs held by Indian government primary teachers that conflict with the assumptions underlying the learner-centred pedagogical paradigm advocated by Indian educational policy documents (NCF 2005 and RTE 2009)?
2. How do these beliefs relate to teachers' pedagogical practice?
3. What factors shape the formation of teachers' beliefs, and their enactment into practice?
4. How can Indian teacher education programmes contribute to changes in both teachers' beliefs and practice?

It is hoped that the findings of this research will generate useful insights for teacher educators, administrators and policymakers in India, to better understand teachers' beliefs, their role in the implementation of learner-centred pedagogy, and ways to begin engaging with these beliefs within teacher education programmes. The fourth question especially seeks to bring the research findings directly into the realm of practice, by providing concrete

recommendations for teacher education programmes seeking to shift teachers' beliefs and practice towards a more learner-centred paradigm. It is also hoped that this research will contribute to the teacher education literature both internationally and in India, by throwing further light into the relationship between teachers' beliefs and practice specifically within the Indian context, which has not been explored thus far. Finally, the findings will also have broader implications for education reform in other countries, particularly in the global South. The study highlights the importance of engaging with local culture and beliefs and how these shape teachers' pedagogy, the importance of addressing these beliefs within teacher education and reform efforts, and the need for questioning and contextualising Western-originating pedagogies in light of local cultures, in order to ensure the success of these reforms.

1.5 Defining beliefs and pedagogy

Venturing into the realm of teachers' beliefs is a tricky undertaking in light of the conceptual ambiguity that has shrouded this 'messy construct' (Pajares, 1992). Not only is there no agreement on a common definition of 'beliefs', but one also comes across a variety of terms used sometimes synonymously with beliefs. Mason (2004) captures this in a creative if somewhat cynical lexicon of the A-Z of synonyms used for 'beliefs': from 'A is for attitudes, affect, aptitude and aims' through 'E is for emotions, empathies, and expectations' to 'Z is for zeitgeist and zeal' (p.347). In a field so riven with lack of conceptual clarity, precision of language is essential, and Pajares thus warns of the importance of clearly outlining one's definition and assumptions regarding the nature of beliefs, which is what this section attempts. At the same time, I acknowledge that others may conceptualize these terms differently, and these are merely my stipulations for how I am utilising these terms in this thesis. Since beliefs and pedagogy are the two central constructs in this thesis, this section lays out the definition of both terms as they are being used in this study.

Beliefs

> In the present study, my definition of beliefs agrees with Borg (2001) in seeing belief as:
>
> a proposition which may be consciously or unconsciously held, is evaluative in that it is accepted as true by the individual, and is therefore imbued with emotive commitment; further, it serves as a guide to thought and behaviour. (p.186)

This definition encompasses several key dimensions of beliefs. Firstly, while not all beliefs may be immediately thought of as propositions (e.g. belief in God, in justice, or in the importance of family), most beliefs can be stated as propositions that are held to be true (e.g. a belief that God exists, that we must strive towards greater justice, or that family is important).

However some of these beliefs may be closer to values rather than empirically verifiable factual propositions. Secondly, people may or may not be aware about particular beliefs they hold, raising a methodological conundrum of whether beliefs should be gleaned from people's words or inferred from their actions – a challenge discussed in Chapter 4. Moreover, as Nespor (1985, 1987) suggests, many beliefs rely on affective and emotional components and may take on compelling, emotionally-laden dimensions, making individuals reluctant to give up their beliefs because of the dissonance that could ensue (Eisenhart et al, 1988). Finally, beliefs serve as a guide to but do not necessarily determine action. While beliefs influence decisions relating to action, actions may not always align with one's beliefs. The relationship between the two is complex and dependent on many factors, as discussed in later chapters. But sufficient evidence exists to suggest that beliefs influence one's interpretation of new information, and one's planning, decisions, and predispositions to act in certain ways, whether or not these end up translated into action (Clark & Peterson, 1986; Pajares, 1992).

In terms of the nature of beliefs, according to Pajares (1992) a person's belief system can be likened to an atom, with beliefs of varying intensity distributed along a central-peripheral dimension. Many researchers agree in distinguishing between core beliefs and more peripheral beliefs (Green, 1971; Nespor, 1985; Rokeach, 1968). Core beliefs include beliefs about the nature of oneself and one's physical and social world, and are often fundamental to an individual's identity or personality. They are typically formed early in life, taken for granted, reinforced by societal norms, unaffected by persuasion, and are thus extremely difficult to change. Usually if change does happen it is likely because of a conversion from one authority to another or a gestalt shift, rather than because of reasoning or evidence (Nespor, 1987).

Two important constructs that closely intersect with beliefs are values and dispositions. In fact, several of the beliefs explored in this thesis have been discussed by others under these labels. In this thesis, values are conveived of as an individual's esteem of what is good, important or desirable (for example, ethical values or asthetic values). Values tend to endure over time and across situations, and are central in that they are connected with and shape many of a person's beliefs. The influence can be bi-directional – a persons' values and desires can be shaped by their beliefs (e.g. religious beliefs), while one may choose to believe or not believe something based on what they value or desire (Brinkmann, 2013a). Dispositions[4] are seen in this study as more concrete, situation-specific and action-oriented than either beliefs or values – they can be seen as an attitude, motivation or will to act. Dispositions are rooted in and intersect with beliefs, but have a more affective dimension. A person's beliefs about an object or situation shape the person's disposition towards that object

[4] Raths (2001) and Murrel Jr & Foster (2003) advocate studying teachers' 'dispositions' instead of 'beliefs', since they see dispositions as more directly linked with observable behaviours, and thus easier to prescribe, assess, and alter – though I would argue it would be difficult to change dispositions without changing beliefs.

or situation, which in turn inclines them to certain emotions, intentions and behavioural patterns towards that object or situation (Fishbein and Ajzen, 1975). Dispositions in some ways relate to the intersection of belief and practice. In this study the central focus will be on teachers' beliefs, but it will also look at values and dispositions insofar as they intersect with beliefs.

Pedagogy and learner-centred education

My understanding of 'pedagogy' is similar to Alexander's (2001, 2008, 2009) view of pedagogy as embodying 'the act of teaching together with its attendant discourses, ideas and values' (2009, p.13). This thesis rests on an assumption similar to Alexander's that pedagogy involves both practices and beliefs, shaped by a wider culture:

> Pedagogy is not just a matter of disembodied technique. It reflects and manifests values. In turn these are not merely the personal predilections of individual teachers, but the shared and/or disputed values of the wider culture. (Alexander, 2008, p.19)

However, to facilitate clarity and ease of communication for the purpose of this thesis, I will use the term 'pedagogy' to refer only to observable teaching practices, using Watkins & Mortimore's (1999) definition of pedagogy as 'any conscious activity by one person designed to enhance learning in another' (cited in Alexander, 2001, p.540). This distinction is made precisely because my purpose is to explore the relationship between observable teaching practices and their underlying beliefs, to determine whether both must be implicated in attempts at pedagogical change.

Similarly, my understanding of learner-centred education (LCE) implies both a set of pedagogical ideas and ensuing practices, as argued by Schweisfurth (2013). However, the term 'learner-centred pedagogy' (LCP) or 'LCE pedagogy' will be used here to denote only observable practices, based on the hypothesis that LCE cannot be reduced only to practices, but is inextricably embedded in an accompanying set of beliefs. For the purpose of this study, LCE is used to refer to the educational paradigm advocated in the NCF 2005 and the Right to Education Act 2009, currently the two guiding frameworks for educational reform throughout India. NCF 2005 advocates a pedagogical approach that gives 'primacy to children's experiences, their voices, and their active participation. This kind of pedagogy requires us to plan learning in keeping with children's psychological development and interests'[5] (p.13). This definition is similar to Schweisfurth's view of LCE (2013):

> A pedagogical approach which gives learners, and demands from them, a relatively high level of active control over the content and process of learning. What is learnt, and how, are therefore shaped by learners' needs, capacities and interests. (p.20)

[5] I acknowledge that LCE can be applied to learners of different ages; however in this study I use the concept as presented in NCF 2005, which discusses LCE principles specifically as applied to children.

Since child-centred and constructivist perspectives are both underlying NCF 2005 and both terms are used colloquially in Indian educational discourse to refer to this paradigm, in this thesis these terms will be used interchangeably with LCE. I am however aware that each of these have distinct historical trajectories and theoretical nuances.

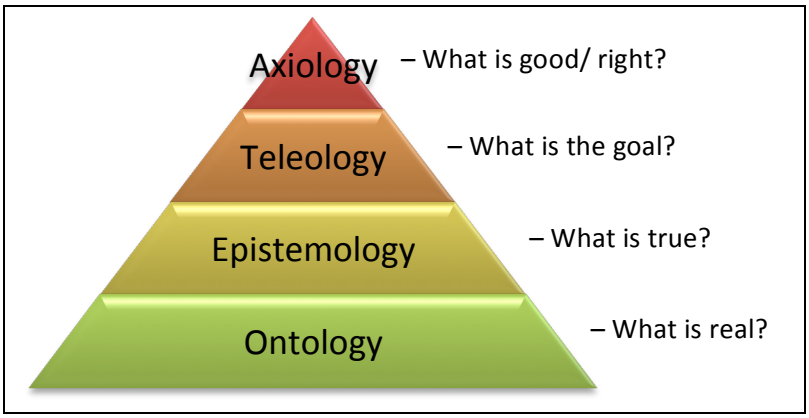
1.6 Conceptual framework and relationship between key constructs

There are several other key constructs that are also central to this study and closely related to beliefs, and that therefore need to be differentiated from beliefs – namely, worldview, ideology and culture. Rokeach, who dedicated his life to the study of human beliefs, warns us that for any study of these constructs to be scientifically fruitful, it must meet certain conceptual criteria: key terms should be clearly defined, and similar concepts should be carefully distinguished from and yet systematically related to each other (1973). In the attempt to heed Rokeach's warning and enable precision of thinking and analysis, this section defines these closely-related constructs and discusses how they are related to but different from beliefs, thereby laying out the assumptions undergirding this study's conceptual framework.

Worldview

The term *worldview,* first introduced by Immanuel Kant (German *Weltanschauung*), has been used in various disciplines (summarised in Naugle, 2002) such as philosophy (Kant, Hegel, Kierkegaard), psychology (Freud, Jung), sociology (Redfield, Foucault), theology (Naugle, 2002; Sire, 2004), and to a limited extent in education (Cobern, 1994; McKenzie, 1987; Walker, 2004). My definition is adapted from Cobern (1989): a culturally shared, generally subconscious, unified framework of beliefs about the universe and human existence (particularly relating to ontology, epistemology, teleology, and axiology) which shapes an individual's or group's perceptions, interpretations, motivations, and actions. This definition assumes four characteristics generally agreed upon by scholars (Cobern, 1989; Kearney, 1984; Olsen, Lodwick & Dunlap, 1992; Sire, 2004; Stevenson & Haberman, 2004; Vidal, 2008). Firstly, a worldview is a unified framework of beliefs relating to four fundamental philosophical questions (see Figure 1.1) to which different groups have responded differently over time, giving rise to distinct cultural or religious worldviews. One's beliefs about ontology (the nature of ultimate reality, God, human beings) shape beliefs about epistemology (source and nature of knowledge and truth), teleology (purpose of life, work and history), and axiology (nature of values [what is good] and ethics [what is right]). These assumptions are not always clearly articulated, but often embodied by key images, stories or metaphors which provide a relatively coherent way of thinking about the world and one's place in it.

Figure 1.1: Central questions that shape a worldview
(adapted from Brinkmann, 2013b)



Secondly, a worldview is typically shared across a group and learned through socialization, stemming from a shared religious, philosophical or cultural set of assumptions regarding the fundamental questions of existence. Thirdly, worldviews involve core beliefs that are typically sub-conscious, taken-for-granted, and rarely questioned, since they are learned as children from trusted mentors (parents, elders, peers). We thus become committed to our worldview, may ignore or reject contrary evidence, and do not easily change them except through radical events like conversion, culture shock, or confrontation with difference. Finally, a worldview serves as a lens influencing much of how group members interpret reality, act and interact with each other (Kearney, 1984; Olsen, Lodwick & Dunlap, 1992). In this research, the focus will be on unpacking some of teachers' worldview beliefs, which influence their other beliefs and ultimately practice.

Ideology

The definition of ideology used in this study is adapted from Hamilton (1987): a coherent system of collectively held normative and reputedly factual ideas, beliefs and attitudes advocating and/or justifying a particular pattern of social relationships, arrangements, and/or conduct, that its proponents seek to promote, pursue or maintain. This definition also implies four characteristics (supported by Hunt, 1990; Knight 2006; Mullins, 1972; Olsen, Lodwick & Dunlap, 1992; Roucek, 1944; Säther, 2003). First, an ideology presents a coherent, stable system of thought presented in contrast to opposing systems of thought, consisting of a set of *ideas* (about what *is*) elaborated in light of certain normative *ideals* (what *ought to be*). Secondly, in contrast to worldviews, ideologies are more action-oriented and presented in order to legitimise a certain programme of collective action for the maintenance, alteration or transformation of society.

A third distinct feature of ideology is its implied power analysis, particularly as conceived within Marxist traditions. In this view, an ideology is promoted by a particular social group (e.g. a particular class, race or ethnic population), in order to further certain powers, privileges, actions or goals. Ideology focuses on the power of ideas, as observed by Marx that 'the ruling ideas of each age have ever been the ideas of its ruling class,' and by Gramsci that 'the foundation of a ruling class…is equivalent to the creation of a *Weltanschauung*' (in Bates, 1975, p.351). Finally, like worldviews, ideologies become collectively and often sub-consciously shared across a group, but unlike worldviews this is furthered by an analysis of how this becomes internalised precisely in order to support certain unequal power relations – a process known as hegemony. In this research, teachers' beliefs will be viewed through the lens of ideology and hegemony specifically in the context of caste and Brahmanism and their role in Indian society, discussed in most detail in Chapter 7.

Culture

This study's definition of culture draws from Giddens (2001):

> The [dynamic, often taken-for-granted] ways of life of the members of a society, or of groups within a society…[that] comprises both intangible aspects—the beliefs, ideas and values which form the content of the culture, and tangible aspects—the objects, symbols or [behaviours] which [reflect] that content. (p. 22)

This definition again encompasses four key dimensions (which align with aspects of definitions by Geertz, 1973; Shweder, 2000; Alexander, 2001; Schultz & Lavenda, 2005). First, in contrast to worldview and ideology which focus primarily on internal belief systems, culture includes both internal beliefs and their external manifestations in societal objects (e.g. literature, songs, architecture, institutions), symbols (artefacts, icons, heroes), and behaviours (customs, relationships). Giddens describes how a culture's abstract values or norms provide guidance to how members interact daily with their social world. Secondly, cultural beliefs[6] and behaviours are also socially learned, and thus shared across a group which allows communication and a common context in which members operate. However Giddens does not assume a single culture across a society, and points to the existence of sub-cultures or sub-groups.

Two more features of culture as viewed in this study have been added to Giddens' original definition. First, like worldviews and ideologies, culture is typically imbibed sub-consciously and remains taken for granted and unquestioned, often until confronted by difference (Cornbleth, 1989, cited in van Harmelen, 1998). Finally, culture (like worldview and ideology) is not viewed as fixed, solidified or intractable, but as fluid and dynamic, leaving room for human agency and the possibility of change. As Bruner (1996) argues,

[6] The term 'cultural beliefs' will be used throughout the thesis to denote beliefs that are socially learned and shared across many individuals in a given cultural context.

> it is no longer a very useful fiction to conceive of 'a culture' as an established, almost irreversibly stabilized way of thinking, believing, acting, judging. Cultures have always been in the process of change. (p.97).

Keeping in mind this fluidity and the power critique offered by ideology and hegemony, one must view culture as a continuing site of struggle open to critique. Global development or educational agendas like LCE have sometimes remained polarized between those supposedly promoting 'Western'[7] values in developing countries, and critics who argue for preserving indigenous cultures. However, while indigenous cultures must be respected, cultural beliefs may well be legitimating unjust social relations, and must thus also be critiqued from the perspective of those potentially oppressed by dominant cultures.

Relationships between terms

To enable conceptual clarity, it is important to map the similarities, differences and relationships between the four related constructs of belief, worldview, ideology and culture, in relation to pedagogy. This necessitates consciously making certain reductions and generalizations, as with any theoretical discussion – constructs are never as clear-cut in real life. Firstly, all four constructs influence people's actions directly or indirectly, and thus this study examines all four in the attempt to understand what shapes teachers' practice. All four are formed early in life, often sub-consciously, and provide individuals with a sense of identity, stability, and place in the world, making them difficult to change. All four are typically shaped by one's mentors, defined as epistemological sources whom one trusts – whether family, religion, teachers, social leaders, philosophers, media, peers, or experience (Brinkmann, 2013a). However the primary source may differ for each: typically worldviews originate from a religious or philosophical mentor, ideologies from a political and often dominant social group, while culture and beliefs are shaped by both worldview and ideology and passed on through socialization by various mentors such as family, teachers, peers, experience, media. In terms of level of sharedness, beliefs could be unique to a single individual, whereas worldview, ideology and culture imply a more collectively shared or socially constructed dimension. Moreover beliefs may be conscious or sub-conscious, whereas worldview, ideology and culture typically carry a more sub-conscious, taken-for-granted connotation (though not necessarily).

In terms of constitution, while beliefs can be about anything and comprise the building blocks of worldview, ideology and culture, worldview refers specifically to a set of beliefs that provides a coherent answer to the fundamental questions of existence; ideology refers to a set of beliefs used to justify certain social ideals and practices, while culture encompasses a

[7] 'Western' is itself a problematic term, given that it is unclear what 'Western' comprises in the modern world, whether divisions are being made along geographic, socio-cultural or economic lines, and that the origins of what we consider 'Western' are themselves not always entirely Western.

broader collection of all beliefs *and* practices shared within a group. Moreover, while beliefs, worldview and ideology tend to be more internal, culture includes both internal beliefs and their external social manifestations in practice. Any worldview can be turned into an ideology by a specific group, but the two differ in important ways: unlike worldviews, an ideology is intentionally formulated and propounded by its adherents for a specific political purpose. Secondly, worldviews usually make more explicit their fundamental beliefs whereas an ideology may obscure these or present them with strong emotional appeals. Thirdly, ideologies are more proactive in dictating prescriptions for collective action, whereas a worldview is primarily a perspective or explanation of the way things are (Olsen, Lodwick & Dunlap, 1992).

Finally, the relationship between these four constructs is viewed as dynamic and mutually influencing each other. Broadly, worldview informs ideology and the two together influence culture. These three together shape an individual's core beliefs and values, which in turn influence their peripheral beliefs and ultimately their practice. The main vehicle through which worldview, ideology and culture influence an individual's beliefs is through the mentors described above (e.g. family, religion, media). Culture influences not only individuals' beliefs, but also shapes the environment or context in which individuals operate, which then influences their practice or ability to enact their beliefs. At the same time, I believe individuals can possess the personal agency to choose or change their beliefs, actions or context and thereby influence the larger culture, as well as the agency to propose new ideologies or worldviews. Herein lies the possibility of cultural transformation.

Having outlined this study's conceptual framework, I am now in a position to elucidate how it will be used in designing and analysing this research. Firstly, this study will focus not only on teachers' educational beliefs (which has been the focus of much of the teacher beliefs literature, as reviewed in chapter 3), but on wider worldview beliefs (ontological, epistemological, teleological and axiological beliefs), which are seen as central in influencing teachers' other beliefs including educational beliefs and practice. Secondly, the focus will be not on examining individual teachers' idiosyncratic beliefs (which again is the case in most teacher belief studies), but on shared, sub-conscious, cultural dimensions to these beliefs, and on the ways in which they may have been influenced by dominant ideologies. Although culture includes a wide variety of beliefs and though India itself is made up of many diverse cultures and sub-cultures, I will be focusing specifically on those cultural beliefs that reflect dominant ideologies operating within Indian society (primarily Brahmanism) to analyse what function these cultural beliefs serve in Indian society, who benefits from them, why and how they have been sustained, and implications for efforts aimed at changing these beliefs.

1.7 Critical realist worldview underlying this study

The ontological and epistemological underpinnings of this research align most closely with critical realism (CR). CR is a philosophical paradigm initially expounded by Roy Bhaskar (1998a, 2008), often seen as a middle way that confronts the assumptions of both positivist and interpretivist paradigms (Zachariadis et al, 2010)[8]. CR is 'realist' in that it believes the world (physical and social) exists independently of humans' ability to know it, thus avoiding the potentially solipsistic view of radical interpretivist paradigms that reality exists only as a subjective creation of the observer. At the same time, it is 'critical' in its view that knowledge of the world is always fallible and that not all structures of experience may be observable (Scott, 2007; Zachariadis et al, 2010), thus avoiding positivism's 'naïve realism' of seeing reality as completely apprehendable, and knowledge as generalizable independent of context (Guba & Lincoln, 1994). Although knowledge concerns realities independent of the mind of the knower, it is never itself independent of the knower. CR acknowledges that we all possess a certain worldview that shapes our understanding of reality and thus mediates any knowledge claim or research – but which itself can be constantly open to critical reflection to bring closer alignment with reality. CR thus opens up a valuable dialogue between disparate methodologies, paradigms and disciplines. Bhaskar argues there are different levels of knowledge, ranging from objective truths or intransitive knowledge independent of human perception (e.g. gravity, death), to subjective truths or transitive knowledge – shaped by individuals' interpretation, values and social position. Arriving at unmediated 'absolute' truths about reality may be impossible, but one can attempt to get closer through a process of critical dialogue and reflection in order to make increasingly provisionally accurate statements about reality (Lipscomb, 2008).

Although critical realism has gained momentum in social theory in recent decades, its emancipatory potential has been relatively less explored in educational research in general (Shipway, 2011), and even less in the Indian context. CR provides a holistic, ontologically-grounded theoretical framework from which to explore the role of teachers' beliefs in the implementation of learner-centred pedagogy in India. Specifically, it lays out a strong theory of causality which examines underlying mechanisms and structures (beliefs, worldviews, ideologies) that generate empirical behaviour (teachers' practice). CR's theory of causality will be used to not only examine how teachers' practice is influenced by their underlying beliefs, but also how beliefs themselves are shaped by wider ideologies, how dominant ideologies become perpetuated, and how beliefs interact with teachers' contexts to either enable or constrain their implementation of learner-centred pedagogy. Moreover, CR focuses on the

[8] Although CR is a multi-layered philosophy that has undergone three major phases of development (First Wave CR, Dialectical CR, and Meta-reality), I will not engage with CR in its entirety, but only with First Wave CR and specifically those CR concepts that help further my analysis of the relationship between teachers' beliefs and practice.

interaction between both structure and agency as central to an understanding of social events and processes (Scott, 2007). Teachers' practice cannot be understood without looking at both their agency in exercising their individual beliefs and actions, and the larger cultural and ideological structures that shape these beliefs and the environment in which they act. I agree with CR's ethical stance, and its acknowledgement that while the production of knowledge is shaped by individual values, it still involves a responsibility to strive closer towards reality.

While critical realism straddles the positivist/ interpretivist divide, it is also grounded in a critical theory paradigm which frames its teleology. I accept critical theorists' view of research as a political, transformative activity that seeks to challenge power inequalities for 'the emancipation of individuals and groups in an egalitarian society' (Cohen, Manion & Morrison, 2007, p. 26). For Giroux (1981), this involves challenging educators' 'hidden' assumptions (teachers' beliefs), particularly those shaped by dominant discourses and cultural biases, which may be contributing to educational practices that reproduce social inequalities. The goal of the critical researcher is not only to understand such practices, but to change them. The values motivating this research are rooted in an ontological belief that humans are born equal, and a teleological belief that the purpose of research and of education is to contribute to a more just society. These assumptions are influenced by a Biblical worldview, which sees every human as created in the image of God, and thus possessing equal value and rights which must be affirmed and fought for, especially for the most marginalised – 'the least of these'.

The ontological, epistemological and teleological assumptions described above lead to specific axiological assumptions about what constitutes desirable pedagogical practice. My assumptions are shaped by the pedagogical descendant of critical theory – Paulo Freire's critical pedagogy. Freire outlined a pedagogy explicitly committed to the liberation of oppressed populations and to the ideal and practice of social justice within schooling and society. He denounced 'banking education', where teachers deposit knowledge into the 'empty' minds of passive students, and proposed instead a democratic education that views students as active subjects engaging in reflective dialogue and action (Freire, 1970). Thus my view favours learner-centred education (which has elements of critical pedagogy) above the 'banking' education prevalent in India, while simultaneously going beyond LCE. Freire does not prescribe a fixed set of pedagogical best practices, but rather advocates a particular ethical and political orientation towards the world, human beings, and education (Roberts, 2000). Whether specific practices (including LCE) will prove to be liberating or oppressive 'depends on who uses them, in favour of what or whom, and for what purpose' (Freire, 1993, p.93). Thus LCE itself must be constantly re-questioned to determine what would be truly emancipatory for marginalised learners in India.

1.8 Thesis map

Chapter 1 has laid out the context, rationale, questions and theoretical concepts driving this research. Chapter 2 next fleshes out the background to India's pedagogical reforms. It explores the global context of LCE reforms, and critics who have questioned LCE's appropriateness for education systems in the global South. The chapter then traces the history of learner-centred education in India – first as an ideal among educational philosophers, and then in recent educational reforms. It examines five key factors that have presented barriers to the implementation of LCE in India, the least explored of which has been that of cultural beliefs.

Chapter 3 maps the existing literature on teachers' beliefs, starting with a historical overview of the field. It then takes a closer look at the range of beliefs that have been studied in relation to teaching, and research findings on the relationship between teachers' beliefs and practice. Next, I examine literature that looks specifically at the role of culture in shaping teachers' beliefs, and the limited research available on teachers' beliefs in India. This examination of the literature provides a foundation for the current research, while also highlighting the persisting gaps in the literature which this study can help address. I conclude by reviewing various methodological approaches and challenges in studying teachers' beliefs, which inform methodological decisions for the present study. Chapter 4 further elaborates the methodological complexities involved in studying the beliefs of Indian teachers. I map the methodological approach and research methods used in the present study, including the specific belief and pedagogy dimensions I chose to investigate in this study. The chapter also discusses the study's sampling, data collection, analysis, and issues of ethics and subjectivity.

Chapters 5, 6 and 7 form the core of the thesis in terms of laying out my empirical findings and analysis of these findings. Chapter 5 explores eight key beliefs among teachers that contradict the learner-centred assumptions of LCE policies, and that indeed correlate with less learner-centred practice. These include beliefs about equality, relationships, diversity, knowledge, purpose, responsibility for outcomes, professional commitment, and change. Chapter 6 goes on to examine the relationship between these beliefs and teachers' pedagogical practice, drawing primarily from quantitative data. Finally, Chapter 7 examines what conditions enable teachers' implementation of learner-centred pedagogy, through cross-case comparisons and in-depth case studies exploring different categories of teachers based on their beliefs-pedagogy relationship. It presents a critical realist analysis of the causal mechanisms that shape teachers' beliefs and practice, including an in-depth discussion of Brahmanical ideology, and its complex interplay with teachers' beliefs, dispositions, professional identity, competencies and context in determining teachers' pedagogy.

Finally, Chapters 8 and 9 turn to practical recommendations for educators seeking to put these insights into practice. Chapter 8 considers the case for engaging with teacher beliefs

within teacher education programmes in light of this study's findings, and goes on to explore what factors within teacher education programmes could help contribute to changes in teachers' beliefs and subsequently practice. Chapter 9 concludes by revisiting the questions initially posed by the literature, drawing out implications for a possible way forward for pedagogical reforms in India, for international efforts to promote LCE in developing countries, for teacher educators attempting to engage with teachers' beliefs, and for research on teacher education in general.

Chapter 2 – The History and Challenges of Learner-Centred Education Globally and in India

> The point is that it's not out of ignorance that these things are not changing – it is not out of lack of being told. There is something deeper. The making of a teacher is something much deeper than our institutions acknowledge.
>
> – (Interview with educationist, 05/05/09)

This chapter presents the context that shapes India's attempts to implement learner-centred education. It begins by examining the international roots of the concept of learner-centred education, and the possible political motives underlying this global agenda. It then turns to explore the history of LCE within India. This begins with tracing the presence of learner-centred ideas among Indian educational philosophers, to attempts at trialling them on the field, their subsequent adoption in national policy documents in the 1980s, and implementation in reform programmes from the 1990s onwards. Finally, the chapter examines five possible barriers hindering the successful implementation of LCE both globally and in India. Among these, the least explored factor in the Indian context has been the role of deeper cultural beliefs that may conflict with the learner-centred paradigm, which presents a rationale for the present research.

2.1 Background: Global context of LCE reforms

It is useful to place Indian LCE implementation efforts in the context of the wider international rise to ascendancy of LCE as an ideal for countries around the world. This section looks at the historical and political factors shaping LCE's increasingly global promotion, and recent critiques raised thereof.

International history of LCE

Learner-centred principles were found in apprenticeship learning models in many parts of the ancient world, and in thinkers as early as Socrates who millennia ago envisioned the teacher as an interlocutor guiding the student's own reasoning process:

> I shall only ask him, and not teach him, and he shall share the enquiry with me: and do you watch and see if you find me telling or explaining anything to him, instead of eliciting his opinion. (Plato, 380 B.C.)

However it was not until recent centuries that LCE became more fully developed as an educational philosophy. Although many consider Rousseau the first significant proponent of

child-centred education (Darling, 1994; Doddington & Hilton, 2007; Schweisfurth, 2013; Tabulawa, 2003; Thapan, 2006), one could argue that over a century earlier, Czech educator Jan Amos Comenius (1592-1670) already emphasised many elements of modern-day LCE in his philosophy. These include making learning practical to students' real-life needs, based on children's natural stages of development, built on their previously acquired knowledge, first arousing the learner's interest, and teaching students to 'examine everything oneself, without submitting to authority;…that the pupils themselves seek, discover, discuss, do and repeat…by their own efforts' (in Piaget, 1993, p.7).

Thereafter Rousseau (1712-1778), considered 'if not the founder of child-centred educational theory,…unquestionably the most brilliant of its early exponents' (Darling, 1994, p.6), proposed in his widely-read 1762 book '*Emile'* a comprehensive philosophy of education centred around children's natural instincts and interaction with their environment. Like Comenius, Rousseau advocated designing education around children's natural development, emphasising learners' own initiative and freedom to reason for themselves rather than relying on others' authority. In the century and a half that followed, several Europeans continued to build on this child-centred foundation, most notably Pestalozzi (1746-1827), Friedrich Frobel (1782-1852), Maria Montessori (1870-1952) and Susan Isaacs (1885-1948). By the early 1900s, child-centred ideas were also taken up in the United States. John Dewey (1859-1952) in particular extended the child-centred discourse by exploring the relationship between education and democracy, emphasising critical thinking skills to prepare students to actively participate in democratic life.

What some have marked as a transition from the 'child-centred' tradition to a more 'constructivist' paradigm (van Harmelen, 1998) came with the advancement of cognitive psychology, particularly as elaborated by Swiss psychologist Jean Piaget (1896-1980). Reacting to the earlier behaviourist understanding of learning as the result of conditioning demonstrated through outward behaviours, Piaget focused on understanding how the mind works to construct new knowledge, by using language to organise and restructure new experiences in light of prior experiences to create meaning out of them. Piaget became central in shaping the early form of constructivist theory known as 'psychological constructivism', in contrast to later versions of 'social constructivism' which emerged with theorists such as Vygotsky and Bruner (Phillips, 2000; Richardson, 2003). Lev Vygotsky (1896-1934), a Russian 1920s contemporary of Piaget whose work only became known in the 1960s, emphasised the social dimensions of the construction of knowledge. He recognised knowledge as socially- and culturally-situated, constructed through interactions with one's social world in diverse settings. Building on Vygotsky's work, Bruner (1915-2016) described 'scaffolding' as the process of building on learners' existing capabilities by offering nurturing support to help them attain their unique potential (Schweisfurth, 2013). Social constructivism moved beyond its predecessor to also look at critical theory issues of status, ideology, politics and power underlying different

forms of knowledge, focusing on how the development of bodies of knowledge is socially constructed and shaped by economic, social and political forces (Richardson, 2003). This critical power analysis in education was taken considerably further by Paulo Freire (1921-1997), who as described earlier presented a radical analysis of how education contributes to social oppression. His proposed pedagogy emodied many principles of LCE, though going far beyond standard conceptions of LCE.

Context and critiques of promotion of LCE worldwide

In recent decades, LCE has been increasingly encouraged across nations, particularly in developing nations under the sponsorship of international aid agencies. In the 1990s many aid agencies from Canada, US, UK, Denmark and Norway advocated LCE as supportive of democratisation, funded LCE-oriented projects, and sometimes prescribed LCE as a condition for structural adjustment packages (Tabulawa, 2003). Schweisfurth (2013) points to the powerful aura that has begun to surround LCE, increasingly enshrined in international agreements at a supra-national level. For example, the UN Convention on the Rights of the Child guarantees children the right to access 'modern teaching methods' (UNCRC, 1989, Articles 28, 29), while international initiatives such as 'Education for All' (EFA) tend to assume that improving education quality implies moving towards 'active and participatory approaches' (UNESCO, 1990, Article 4). LCE is also increasingly promoted by multilateral organisations; for example UNICEF's Child-Friendly Schools see a key marker of quality education as 'the extent to which child-centred teaching methods are embraced' (UNICEF, n.d., p.4).

To understand the rationale driving this global promotion of LCE as a 'policy panacea', Schweisfurth (2013) offers a useful categorisation of three broad lines of argument typically used by LCE's proponents. The first is the cognitive argument that individuals learn better when given initiative and freedom in structuring their learning with help from a facilitator. The second is an emancipatory perspective, highlighting LCE's potential to free people from oppressive forms of control that seek to stifle independent thinking and critical questioning. The third perspective, which would be opposed by the second, views LCE as an appropriate preparation for building the flexible self-directed learning needed for modern working life in a changing economic world order. However, Schweisfurth points out, all three strands of argument have been rooted more in rhetoric than in evidence. The second and third strands do not even attempt to draw from evidence, using a rights-based perspective to assume its own justification in the case of the second, or requiring essentially a leap of faith in the third. Even in the cognitive strand, the few studies that have attempted to establish a link between LCE and improved learning outcomes remain inconclusive.

In fact, several critics have questioned whether LCE should continue being recommended as a policy choice worldwide. One critique is the apparent lack of conclusive evidence for LCE resulting in improved academic learning outcomes (Alexander, 2000;

O'Sullivan, 2006; Tabulawa, 2003). While some studies show correlation between the two (e.g. Cornelius-White, 2007), these findings are sometimes questionable due to small sample sizes and challenges in methodology and research design. A second line of critique relates to operational complexities that ultimately defy simple binaries of 'teacher-centred' and 'learner-centred' as discrete categories. On one hand, students are not necessarily passive in teacher-centred classrooms (Vavrus, 2009). Conversely, learner-centred classrooms do not imply passive teachers that let students decide what to do, when and how; the teacher still remains in authority and an authority on the subject matter. Van Harmelen (1998) critiques the assumption that all transmission teaching or factual recall should be discarded, which ignores their important value in the educational process. What often occurs in practice is a more complex hybridity of mixed approaches within a continuum of more and less learner-centred practice (Schweisfurth, 2011; Thompson, 2012; Vavrus, 2009). Both Barrett (2007) and Sriprakash (2012) identify teachers in Tanzania and India as working with a mixed palette of both teacher-centred and learner-centred techniques and ideas.

Moreover, experiences from both Western and developing countries seem to point us to stories of challenge or even failure in the implementation of LCE on a large scale. Schweisfurth's review of 72 studies on LCE implementation in developing contexts from three decades concludes that 'the history of the implementation of LCE in different contexts is riddled with stories of failures grand and small' (2011, p.425). Even in the UK LCE has not been without controversy, drawing waves of criticism about declining standards of literacy, numeracy, and behaviour perceived to be resulting from learner-centred reforms in recent decades (Schweisfurth, 2013). In both the UK and US the implementation of LCE has been uneven, and LCE in its pure idealised form has not been practised on a systemic scale anywhere in the world, beyond isolated classrooms or schools, often in independent private schools. This fact along with the numerous stories of failure of national LCE implementation efforts in developing countries leads Thompson (2012) to argue pragmatically that LCE should not be advocated for large-scale public sector reforms in under-resourced developing countries, but only in small-scale consortiums of private schools possessing the abundant resources needed for LCE's success. However, this proposal raises other equity concerns of whether the emancipatory ideals of LCE are compatible with attempts to restrict it to only an elite urban minority while a separate pedagogy of arguably inferior quality is designated for the rural masses.

Thompson is not the only one to question the appropriateness of LCE for developing countries, based on various constraints in these context that may render LCE inappropriate. These include limited resources, incompatible examination and curricular systems, substandard teacher training, unrealistic policy expectations, or differences in cultural models that may conflict with LCE assumptions. This has led some to question the underlying political agendas and global hegemonies driving international agencies to export LCE as a 'one-size-

fits-all', decontextualized 'best practice', despite numerous stories of failure (O'Sullivan, 2006; Vavrus, 2009). Critics suggest that the adoption of ' models of LCE in developing countries amounts to neo-colonialism, denouncing the unequal and unidirectional flow of Eurocentric knowledge to 'undeveloped' countries that has characterised international education, and the consequent marginalisation of indigenous knowledge systems within the global discourse (Kanu, 2005; Nguyen et al, 2009; O'Donoghue, 1994). Tabulawa (2003) goes to the extreme of labelling LCE a 'colonising', 'domesticating' pedagogy being pushed by international aid agencies purely for political and ideological rather than educational reasons. He argues that LCE is part of a design by aid agencies aimed not at improving learning, but at eroding traditional authoritarian structures and promoting social values associated with liberal democracy, ultimately intended to facilitate the penetration of capitalist ideology in developing nations under the guise of democratisation – 'representing a process of Westernisation disguised as quality and effective teaching' (p.7).

Even if one does not go as far as embracing Tabulawa's conspiracy theory, such critiques do raise the question of whether LCE is indeed a 'Western' construct that is inappropriate in non-Western contexts such as India. Schweisfurth (2011) aptly questions whether a postcolonial perspective implies that LCE should be 'rejected as a form of imperialism, or embraced as a potential liberator?' (p.429). Should LCE give way to traditional cultures, or can LCE itself be used to challenge and steer prevailing cultural attitudes? In his critique of LCE, Tabulawa seems to uncritically reject LCE values such as open-mindedness and tolerance simply because they are associated with democratic systems, and thus inherently Western and warranting rejection – which is an unsubstantiated line of reasoning. The complicated history of colonization means that there is no easy way to delineate what elements of culture and pedagogy are 'indigenous' and 'foreign'. Postcolonial theory blurs this line between local and colonial, reminding us that indigenous culture is not a static closed system but is itself heterogeneous, embroiled in modernist discourses, and infused by relations of power and inequality. Indigenous cultural beliefs cannot be blindly condoned to the rejection of anything Western, particularly if they are detrimental to children's learning, a violation of children's rights, or being used to perpetuate the oppression of marginalised communities. Rather than blindly rejecting one or the other, traditional cultures as well as Western-originating progressive pedagogies need to be critically examined in order to determine what pedagogical approaches are most appropriate for supporting successful learning and for challenging oppressive forces within the Indian context.

The history and critiques of LCE remind us that learner-centred reforms in India must be analysed within this broader context of LCE's complicated history, and of the global hegemonies and political motives that may underlie LCE's worldwide propagation. Introducing LCE in India is not simply a question of changes to classroom technique – there are various

political, cultural, historical and economic forces that shape its implementation, globally and nationally, which are discussed further in the following sections.

2.2 History of LCE ideals in Indian education

In India, although LCE has been officially promoted as a national agenda only in recent decades, LCE itself is certainly not a new concept. Its principles figured quite prominently in the educational vision of several social reformers such as Jyotirao Phule (1827-1890) and his wife Savitribai Phule (1831-1897), Rabindranath Tagore (1861-1941), and Mohandas K. Gandhi (1869-1948). These reformers not only conceptualised models of learner-centred education, but also created experimental schools where they implemented their ideas on the ground. Jyotirao and Savitribai Phule's was among the earliest and perhaps most radically inclusive Indian model of LCE. Their educational vision was motivated by a deep concern for social justice, and they were among the first Indians to open schools in Pune in the mid-19th century for girls and for low-caste children – historically denied education for centuries (Keer, 1974). In line with LCE, the Phules' model of education prioritised early grades, emphasised practical rather than bookish learning, and advocated for a curriculum appropriate to students' contexts (Gupta, 2002). They promoted education that would teach the masses to think critically about blind superstitions and social injustices, 'the kind of education…which could work as a catalyst for social change and transformation' (Mani, 2005, p.271).

Tagore and Gandhi's models of education similarly embodied many dimensions of modern learner-centred education, though perhaps not as radically motivated as the Phule's by opposition to the dominant caste-based social order. In his two schools *Santiniketan* and *Sriniketan,* Tagore trialled an educational approach that placed the child's freedom and creativity at its centre. He believed in beginning not with a textbook but with those things close to a child's heart, and used frequent excursions in nature, games, dance, song, drama, and celebrations (Nussbaum, 2007). Opposed to the use of corporal punishment, he sought to cultivate internal discipline based on intrinsic motivations like joy in learning, pursuit of creative tasks, and intellectual curiosity. Tagore taught students to critically examine tradition and to accept beliefs based on reason rather than authority. He saw education as integrally linked with the daily lives of India's rural majority, seeking to provide an all-round education for village children that enabled them to earn livelihoods while also applying their knowledge for the betterment of rural life (Jha, 1994).

While Tagore emphasised creativity in education, Gandhi's emphasis was on productive work as the foundation for children's physical, intellectual and moral development (Barnita, 2012). Gandhi's model of *Nai Talim* ('new education'), which he trialled in two schools

in rural Maharashtra, revolved around producing local handicrafts as the cornerstone of the curriculum, seeking to bridge the worlds of knowledge and work, and promote a spirit of self-reliance (Sykes, 1988). Gandhi's educational model stemmed from a rejection of colonial education, and ultimately of Western notions of progress and development. His educational ideas were rooted in his vision of the ideal society as one comprised of small, self-reliant communities (Kumar, 1993). Kumar (2005a) notes that many of Gandhi's educational ideas resonate with modern educational theories, including principles such as organising the curriculum around activities linked to children's life at home and its surroundings, and using the child's immediate milieu as a resource for the rediscovery of accepted knowledge. Yet by drawing on the familiar Indian motif of a guru living in an *ashram*[9] with his disciples and possessing supreme moral authority, Gandhi was able 'to place what was a modern concept of education and pedagogy within the halo of Indian tradition.' (Kumar, 1993, p.5). Although Gandhi's 'Basic Education' scheme was implemented in several parts of India after independence, it did not find a place in the planning of the post-independence Nehru government, which instead prioritized industrialisation, centralisation, and modern advancements in science and technology.

The above reformers, along with Gijubhai Badheka, were noteworthy in that they not only wrote about learner-centred educational ideas, but also trialled them in actual classrooms in different parts of India. Gijubhai Badheka (1885-1939), a lawyer by training who became a primary school teacher, developed a system for educating young children founded on the principles of freedom and love. Inspired by Montessori, he used materials for sensory development, music, dance, travel and story-telling for helping children learn (Wilson, 1987). In his book *Divaswapna,* Badheka decribes a courageous teacher who rejects the rigid conventional system and decides to nurture independent learners who rely not merely on textbooks or teachers as the source of information, but who learn by doing through activities, games and stories: 'Games are real education. Great powers are born on the playground. Games mean character building.' (Badheka, p.20, cited in Jass, 2009, p. 15).

Some learner-centred principles can also be seen among several early 20th century Indian philosophers such as Swami Vivekananda (1863-1902), Sri Aurobindo (1872-1950), and Jiddu Krishnamurthi (1895-1986). Vivekananda believed that no one method can suit all, and that teaching must be modified according to the individual needs of learners, with the teacher coming to the level of students. He also emphasised the learner's own initiative, with the teacher's role being only to afford opportunities and remove obstacles to learning: 'no one was ever really taught by another. Each of us has to teach one's own self…things will be clear to us by our own power of perception and thought and we shall realise them in our own souls' (cited in Bharathi, 2005, p. 41). Similarly, Aurobindo's key principles of teaching strongly resonate with LCE: first, that nothing can be taught and thus the teacher must be a helper in

[9] Place of spiritual retreat

guiding the child's own learning. Second, the mind has to be consulted in its own growth and education must follow children's natural growth rather than hammering the child into shape; and third, working from near to far – thus starting with the learner's immediate environment and surroundings (Hemsell, 2011). Likewise, Krishnamurthi's educational philosophy centres on the ultimate aims of self-discovery and freedom for the learner: 'Psychologically the teacher cannot teach the pupil; each has to discover his inner world for himself' (cited in Thapan, 2006, p.20). Similar to modern LCE, he argues for a holistic education that helps the child to be an integrated, creative human being, with a direct personal relationship between teacher and student that is not based on authority or power, and where the teacher creates a school atmosphere where children feel happy, secure and cherished.

Drawing from the above examples, some have argued that there already existed an 'Indian child-centred tradition' long before 'foreign' versions of LCE were imported into official discourse (e.g. Smail, 2013). However, there are certain complexities that prevent us from seeing LCE as an Indian philosophy. First of all, while the above philosophers embraced some elements of LCE, other elements of their philosophies were quite incompatible with a constructivist epistemology. For example, thinkers like Vivekananda and Krishnamurthi still see the teacher's role as knowledge transmission, reflected in Vivekanada's words: 'There is no way to the attainment of knowledge unless it is transmitted through an apostolic succession from disciple to disciple, unless it comes through the mercy of the Guru and direct from his mouth' (cited in Bharati, 2005, p.42; Thapan 2006). Vivekananda ultimately favours the traditional Indian gurukul system where the student revered or almost worshipped the teacher, with learning based on sitting at the feet of the guru (Bharati, 2005). Both Vivekananda and Krishamurthi saw learning not as the construction or creation of new knowledge, but as the uncovering of knowledge that is already believed to be in one's soul. Moreover, in contrast to the constructivist concept of scaffolding involving building on what has been previously learned or experienced, Krishnamurthi rejects the cycle of learning that is based on previous thought or experience, and stresses that one 'has to break away from tradition, from the knowledge one has accumulated over the years which is one's conditioning, in order to observe what is real' (cited in Thapan, 2006, p. 14). He advocates learning through what he calls the silent mind, a passive state of mind achieved through emptying the mind of all tradition, knowledge and memories.

Further, many of the above Indian thinkers were themselves exposed to and arguably influenced by Western thinkers, creating a hybridity of thought which defies discrete categorizations of 'Indian' and 'Western'. For example, Jyotirao and Savitribai Phule were significantly influenced by Maharashtra-based missionaries and activists such as T. S. Candy, J. M. Mitchell and J. Wilson, and were inspired after visiting some of the first female schools opened by missionaries in Ahmednagar (O'Hanlon, 1985). Tagore's educational ideas were influenced by European humanistic education traditions (Sriprakash, 2012), while Badheka

moved to East Africa in his twenties, and was strongly inspired by the work of Montessori (Jass, 2009). Gandhi studied in England for many years, was greatly inspired by the work of John Ruskin and Leo Tolstoy, and began his earliest educational experiments in a transnational community in South Africa (Barnita, 2012). Aurobindo attended a boarding school in Darjeeling run by Irish nuns, and spent a large part of his later childhood in England, living under the care of Reverend W. H. Drewett. Vivekananda studied many Western philosophers and became particularly inspired by the work of Herbert Spencer, leading him to enter into a personal correspondence with him and translate his book *Education* into Bengali (Prabhananda, 2003).

In any case, although LCE principles figured among Indian educational philosophers, they failed to find their way into either the national policy agenda or the mainstream education system for most of the 20th century. In the decades following India's independence from colonial rule in 1947, education focused primarily on nation-building, conceptualized within a utilitarian, human capital framework. Only in recent decades did this focus broaden to human capabilities, human development and a rights-based framework, leading to an emerging focus in policy discussions on universalising educational access and quality (Majumdar & Mooij, 2011). Although a number of private schools were established over the course of the century that drew (or claimed to draw) from the educational theories of Aurobindo, Vivekananda, Krishnamurthi, and Montessori (who visited and trained teachers in India from 1939-1947), these small-scale experiments remained confined to the private school system, and largely promoted by and for middle and upper class elites (Sriprakash, 2012). One such model that gained prominence is the multigrade 'activity-based learning' trialled in India by Britisher David Horsburgh in the 1940s, first in Rishi Valley School (founded by Krishnamurthi) in Andhra Pradesh, and later in his own school Neel Bagh in the 1970s. Inspired by Horsburgh's work, several Indians initiated similar educational models in the 1980s such as Digantar in Rajasthan and Rishi Valley Rural Education Centre (RIVER) in Andhra Pradesh, which in this case targeted the rural poor, promoting learning through activities flexible to children's individual pace.

Only rarely were there attempts to introduce these pedagogical ideals into the government system, driven primarily by NGO efforts. The most noteworthy of these is the Hoshangabad Science Teaching Programme (HSTP) initiated in the early 1970s by two voluntary agencies in Madhya Pradesh, Friends Rural Centre and Kishore Bharati. Sixteen rural government teachers collaborated with scientists from top Indian universities to develop a discovery-based approach to science learning, encouraging children to ask questions rather than simply receiving transmitted knowledge (Agnihotri, 2002). For the first time perhaps in India's history, government school children themselves conducted science experiments in small groups with locally designed kits, tested their hypotheses, analysed their observations and arrived at their own conclusions, with the teacher as a partner in this process of discovery.

HSTP soon attracted a large number of teachers and academics, and inspired various educational initiatives around the country. The programme expanded from 16 to over 1000 schools in 15 districts of Madhya Pradesh by 2002, before it was unexpectedly closed down by the Madhya Pradesh government. While the grounds provided by the government for closing it down were rather flimsy, it is possible that upper-caste authorities were uncomfortable with the spirit of rational inquiry of scientific and social 'givens' generated among children, particularly low-caste children (Agnihotri, 2002).

Notwithstanding these scattered initiatives, the lofty pedagogic visions of pre-independence social reformers like Tagore and Gandhi failed to be adopted into official national agendas for mass education post-Independence. Although the number of primary schools expanded significantly in the decades following independence, little attention was paid to issues of quality, and as Kumar remarks, 'there was no idea or method to make universal elementary education a coherent project' (2005b, p.194).

2.3 LCE as a national policy agenda in India

It was only in 1986 that child-centred ideals began to be officially reflected in national policy documents. After the political uncertainty and slow economic growth of the 1970s, a new generation of political leaders emerged in the 1980s who saw education as a cornerstone for building 21st century India (Batra, 2006). Setting a landmark in educational reform, the National Policy on Education (NPE) 1986 (modified in 1992) laid out a plan to achieve universal primary access, enrolment, retention, and 'a substantial improvement in the quality of education to enable all children to achieve essential levels of learning' (GoI, 1992, p.13), recommending the following key elements of a learner-centred approach:

> A warm, welcoming and encouraging approach, in which all concerned share a solicitude for the needs of the child, is the best motivation for the child to attend school and learn. A child-centred and activity-based process of learning should be adopted at the primary stage…Corporal punishment will be firmly excluded from the educational system and school timings as well as vacations adjusted to the convenience of children. (p.14)

Sriprakash (2012) has analysed the political agenda underlying the child-centred discourse of NPE 1986, tracing how notions such as fostering 'solicitude' for the child are justified in terms of improving attendance and learning, or how self-paced learning is associated with school attendance and the needs of first-generation learners. Thus the learner-centred ideals evoked in the policy discourse were framed as a strategy for educating the masses, and as a means to encourage school access, participation and retention for first-generation school-goers. Nevertheless, NPE represented a shift in Indian pedagogical discourse. For the first time, Indian policy placed children's affective needs and convenience at the forefront, legitimised

children's varying pace of learning and development, and challenged authoritarian teacher-student relationships by prohibiting corporal punishment. A few years later, a similar learner-centred perspective was further elaborated in the Yashpal Committee's report *Learning Without Burden* (GoI, 1993), which highlighted the heavy load placed on children by the existing curriculum and examination system. The report emphasised the need to place the child at the centre of school processes, to place a greater value on children's experience and understanding of their environments, and to reposition the child as an active learner in an environment promoting joy and inquiry.

Despite the learner-centred rhetoric that had now emerged in policy documents, its initial implementation was still framed within a more behaviourist, performance-driven paradigm. The NPE 1986 recommended a structured syllabus based on clearly-defined grade-specific outputs for knowledge acquisition in each subject, published in 1991 as the *Minimum Levels of Learning at Primary Stage* (MLL). The rigid structure that teachers were expected to follow in many ways contradicted LCE's focus on teachers' autonomy and open-ended areas for children's exploration and knowledge construction. The instrumentalist structure of the MLLs can be seen as a reflection of the liberalisation of the Indian economy in the 1990s that shifted education priorities towards market-oriented discourses (Sriprakash, 2012). NPE's recommendations led to the subsequent development of three National Curriculum Frameworks (NCF 1998, 2000, and 2005), all of which drew on child-centred discourses. However, these too were shaped by political changes at the time, particularly NCF 2000 which was shaped by the coming to power of the right-wing Hindu nationalist BJP party in 1998. Kumar (2004) argues that NCF 2000 turned into mere rhetoric the child-centred discourse adopted in earlier national documents, in order to support its own political agenda of ideologically-driven textbook reforms, leading to no substantial changes in either curriculum or textbooks. It wasn't until NCF 2005 – two decades after NPE 1986 – that a comprehensive epistemological and pedagogical basis for learner-centred, constructivist education was fully spelled out, seeking to fundamentally challenge the normative assumptions underlying earlier documents.

NCF 2005, which currently still stands as the guiding framework for curriculum and teaching throughout India, was developed through widespread national consultations with various academics, education officials, teachers, parents and civil society. NCF 2005 calls for a paradigm shift from teacher-centred to more child-centred classrooms, arguing that children learn best in a happy and secure environment where they actively construct knowledge themselves through an interactive, participatory process of learning. NCF sets out five guiding principles which summarise its vision for educational reform: connecting knowledge to life outside the school, ensuring that learning shifts away from rote methods, enriching the curriculum to go beyond textbooks and promote children's all-round development, making examinations more flexible and integrated with classroom life, and nurturing democratic and

caring citizens. While NCF 2005 was commended for putting the child at the forefront of the educational process, it also came under criticism on several grounds, particularly from left-leaning scholars and activists (Joshi, 2005). For example, Vinod Raina and Arjun Dev argued that the preparation of NCF and its accompanying textbooks lacked transparency and debate, and that pedagogical positions were merely asserted rather than putting forth reasoned arguments to be engaged with, thereby denying the very spirit of constructivist dialogue that it sought to promote. NCF 2005 was also critiqued for being disconnected from the inequalities and ground realities of India's education system, for example in placing a large emphasis on denouncing the heavy textbook load, in a context where many children do not even have access to sufficient textbooks (De et al, 2011; Sharma, 2005). Some argue that by failing to negotiate consent with its stated ideals and failing to elaborate the processes by which its ideals could be translated into actual classrooms keeping in mind local realities, NCF 2005 undermined its own agenda (Interview with educationist, 08/06/12).

Nevertheless, the learner-centred paradigm advocated in NCF 2005 was given further legitimacy by what is perhaps the most significant landmark in advancing the agenda of child-centred education in India – the enactment of the Right of Children to Free and Compulsory Education Act (RTE) in April 2010. This Act now makes child-centred, quality education the fundamental right of every child in India aged 6 to 14, constitutionally mandating every elementary school in India (both government and private) to follow a curriculum based on 'learning through activities, discovery and exploration in a child-friendly and child-centred manner' (RTE, 2009, Section 29.2). Despite its own share of critics, RTE has made child-centred education no longer merely a guiding principle, but now an enforceable law (though still largely aspirational – so far no one has taken the government to court for having failed to provide such education).

In order to implement the learner-centred approach advocated by policy documents since NPE 1986, the Indian government has launched various schemes and programmes in the past two decades. This was also catalysed by international pressure after India signed the 1990 Jomtien Declaration and subsequent 2000 Dakar 'Education For All' Framework, partly forced by the external debt crisis of the early 1990s, opening doors to greater international donor funding and presence in educational reform (Batra, 2006). The NPE 1986 led to a number of schemes for promoting mass education such as 'Operation Blackboard' to provide minimal facilities to schools, and a system of non-formal education for marginalised children who faced barriers to regular schooling. A State Council of Educational Research and Training (SCERT) was established in each state, and a District Institute of Education and Training (DIET) in every district, to oversee teacher education. In 1994 the Indian government, with help from external donors like World Bank, European Commission, UNICEF and the UK and Netherlands governments, launched the District Primary Education Programme (DPEP) in selected districts around the country, to improve enrolment, retention, equity and quality in

primary schools. DPEP was the first large-scale programme to initiate curriculum reforms and teacher training programmes geared at making classrooms more child-centred.

In 2001, DPEP was replaced by S*arva Shiksha Abhiyan* (SSA) which sought to achieve similar goals but in all elementary government schools[10] across the country, and which is being implemented till today. Under SSA, a great thrust has been placed on improving access, retention and equitable participation of children in schools. Various programmes and incentives have been initiated to promote the enrolment and retention particularly of girls, marginalised groups, and children with special needs. To improve the quality of schools, around 1.03 million new teachers were recruited up to 2009-10, leading to an improvement in the national Pupil-Teacher Ratio from 43:1 (primary) and 34:1 (upper primary) in 2001, to 36:1 and 22:1 respectively in 2010-11 (GoI, 2012a).[11] All government teachers are provided up to 20 days of annual in-service training, aimed at improving classroom processes towards the child-centred vision of policy documents. States have been urged to revise their curricula and textbooks based on NCF 2005, and teachers are provided annual grants for developing contextual teaching aids. To provide decentralised academic support and supervision to teachers, about 6,648 Block Resource Centres (BRCs) and 71,654 Cluster Resource Centres (CRCs) were set up across the country, with subject-specialist Resource Persons whose role is to conduct teacher training workshops, provide school-based support, and prepare needs-based resource materials for teachers (GoI, 2012a). Moreover, special funds have been provided for states to implement comprehensive Quality Improvement Programmes or Learning Enhancement Programmes, aimed at bringing overall shifts in curriculum, pedagogy, assessment and monitoring systems leading to improved learning outcomes.

A notable example of such Quality Improvement Programmes, and perhaps the most systematic large-scale programme for implementing learner-centred education in India thus far, has been the Activity-Based Learning (ABL) programme. The programme began in Karnataka in 1995, after a group of 15 government teachers visited RIVER, and inspired by their multigrade activity-based pedagogy, initiated their own version known as *Nalikali* or joyful learning, which was eventually extended to all government schools in Karnataka by 2009-10 with support from UNICEF. In 2003, a group of government teachers from Tamil Nadu were similarly inspired after a visit to RIVER to implement a similar approach in their schools called 'Activity-Based Learning', upscaled to all schools in the state by 2007-08. Since then, various states have attempted to adapt this pedagogy to their own contexts, with over 13 states having piloted some form of ABL by 2012, covering over 250,000 primary schools and over 10 million

[10] In most of India, the 'elementary' school system refers to Classes 1 to 8 together, while 'primary' generally refers to Classes 1 to 5, and 'upper primary' to Classes 6 to 8.

[11] Ironically, this measure itself has likely impacted the quality of teaching and learning in unintended ways. Recruiting such high numbers of teachers has inevitably led to compromises in the quality of recruits. Moreover, many of these teachers have been recruited on a contract basis on lower salaries and benefits than permanent government teachers, which may also affect their professional quality and commitment.

children across India (UNICEF, 2012). Though adapted differently in each state, most ABL programmes have certain common features: the curriculum is typically divided into a sequence of 'milestones' arranged in the form of a Learning Ladder, each child tracks their own level on the Ladder, and independently carries out a series of pre-labelled activities at their own pace, with the help of learning cards, teachers and peers. Children sit in groups, move freely, and access a variety of learning materials such as ABL cards, storybooks, low-level blackboards, and so on. Continuous assessment is in-built through cards allowing students to assess their own progress. Various research studies have found that ABL has helped to change the teacher's traditional role to that of a facilitator, sitting on the floor and interacting with children in a friendly and democratic manner. It has also been found to promote greater social equity by improving attendance and democratic participation of students from marginalised communities. In some cases it has been linked to improved learning outcomes, though findings on this correlation remain inconclusive (Ibid.), much like the international research on this question.

2.4 Five barriers to LCE implementation in India

Despite nearly two decades of reforms attempting to shift Indian government schools from a teacher-centred to a more learner-centred paradigm, as discussed in Chapter 1 the average Indian classroom has failed to show a significant shift. The next section analyses the potential reasons for this apparent failure of reform efforts, drawing from international research on barriers to LCE implementation in other developing contexts, as well as analyses of the challenges besetting pedagogical improvement in Indian education. In the latter literature, one emerging line of discourse is that of blaming teachers for the low quality of teaching and learning – with political leaders and media attributing the problem to teacher absenteeism or teachers' low motivation to work, and proposing stronger accountability systems as one solution (in Ramachandran, 2005). Another set of arguments, often employed by teachers themselves to explain their low use of learner-centred pedagogy, is to blame students, citing barriers such as irregular student attendance, too many students, students at different levels and lacking basic skills, or the background of poor students which makes them less inclined to learning (Burns, 2007; Ramachandran et al, 2005).

The present analysis seeks to avoid both these accusatory discourses, looking instead at the larger systemic factors in the way LCE has been approached and implemented, that have raised barriers to undermine its own success. Even within the five systemic factors identified below, there is a further distinction depending on the analytical lens used to approach the issue. The first three are the most commonly cited reasons for explaining lack of pedagogical change, both internationally and in India: resource constraints shaping the school

environment, lack of systemic alignment around LCE, and inadequate teacher education programmes. For example, Vavrus (2009) concludes that,

> In this era of advocacy for social constructivist approaches in Africa, it is critical that policy makers recognize that the examination system, the material infrastructure of schools, and the length and the quality of teacher education programs limit the likelihood of a fundamental shift from formalism to constructivism. (p.309)

Similarly, Burns' (2007) examination of barriers to LCE in 4 Indian states found the impediments most consistently cited by teachers were large multigrade and under-resourced classrooms, the pressure to complete packed syllabi, and training that exhorts but does not demonstrate learner-centred methods.

In contrast, scholars such as Tabulawa (1997, 1998) argue that the above explanations are what he terms 'technicist' explanations which, although important, ignore the wider socio-cultural context, values and relationships that influence pedagogic change. According to Tabulawa, the technicist approach, which for decades was the dominant framework for understanding pedagogic change, falls under a behaviourist input-output model rooted in a positivist technical rationality paradigm, which believes that complex social problems can be solved through the application of technical inputs. Such criticisms have been made of both international and Indian policy frameworks for focusing more on easily measurable inputs and outputs rather than the complex processes mediating the two (Alexander, 2008; Kumar, 2008a). The tendency to treat pedagogy as objective and value-neutral rather than as socially and historically grounded, is what often results in the discourse that blames teachers for the failure of pedagogical innovations despite many inputs received (Tabulawa, 1997). In contrast, Tabulawa (1998) argues for a constructivist, 'classroom ecology' approach to analysing pedagogical change, that seeks to understand classroom practice from teachers' own perspectives, seeing teachers as purposeful meaning-makers who constantly construct ideas to negotiate their classroom contexts. When viewed through this lens, two other potential but less-often-cited reasons emerge for the unsuccessful implementation of LCE in India: the top-down nature of the reform process which denies teachers' agency, and the socio-cultural context that shapes teachers' practice.

1. Constraints in the school environment

LCE as it is typically promoted presupposes a low pupil-teacher ratio, adequate space and varied teaching resources, which is often not the case in many developing countries (Ginsburg, 2006; O'Sullivan, 2004; Siraj-Blatchford, Odada & Omagor, 2002). The high disjuncture between the ideals of LCE and the physical constraints of many classrooms in the developing world has led several authors to suggest that perhaps LCE is simply an unrealistic policy option that may be feasible for high-resource classrooms in the West but not for the global South. Some have used this to advocate instead for less ambitious changes that

teachers can realistically make given their existing material conditions, or for a 'contingent constructivism' that focuses on bringing improvements within rather than attempting to replace teacher-centred approaches (Barrett, 2007; Johnson, Monk & Hodges, 2000; Vavrus, 2009).

Indeed, when one considers the physical conditions in many Indian schools to this day, it is not surprising that teachers struggle to implement LCE. Recent government statistics (NUEPA, 2012) show that 11.8% of Indian primary schools are single-teacher schools (with figures for individual states as high as 61% in Arunachal Pradesh and 31% in Rajasthan), while 15% of all documented primary schools have a Pupil-Teacher Ratio (PTR) of over 60:1 (with as many as 75% in Bihar). While the average PTR in primary schools is only 32 for the whole country, this hides significant inter-state variations with numbers as high as 58 in Bihar, 46 in Uttar Pradesh and 43 in Jharkhand. Overall, 42% of primary schools have a PTR above the RTE-mandated norm of 30:1 (88% in Bihar, 68% in Delhi, 66% in Jharkhand), while 39% of Indian primary schools have a Student Classroom Ratio of over 30:1 (72% in Bihar, 59% in UP, 56% if Jharkhand, Delhi and West Bengal). Overcrowded classrooms often mean that the typical seating arrangement involves children sitting crammed on long benches or on the floor, in rows facing the teacher at the front, with little space available for activities. In terms of classroom conditions and facilities, in rural India[12], 20% of classrooms are in need of repairs, 45.6% schools do not have a playground, 48.4% schools do not have a library, 54.8% do not have electricity, and 83.8% do not have computers (NUEPA, 2013).

In examining why training programmes in various Indian states have not resulted in changed classroom practice, both Burns (2007) and Dyer (2004) point to large class sizes, multigrade classrooms, and limited availability of materials and time, as major reasons for the lack of change towards learner-centred approaches. Similarly, Ramachandran et al (2005) found that major reasons for low teacher motivation contributing to poor quality teaching were the poor working conditions, multigrade classrooms and high PTRs that many teachers faced. Another was the high amount of non-teaching duties assigned to teachers such as helping to conduct various elections, government schemes, polio drives, etc. in addition to maintaining data-related paperwork, all of which kept them out of the classroom for substantial amounts of time. Singh (2006) found that the biggest impediment reported by teachers in Bihar to translating training inputs into practice was the large amount of non-academic engagements that kept them away from their classrooms for nearly half the working days in a year.

2. Lack of systemic alignment around LCE

Another key factor to be considered is whether the learner-centred paradigm has been applied consistently throughout the system, with alignment of curricula, textbooks, examinations and teacher supervision systems around a single coherent vision. Often LCE

[12] Rural schools constitute the majority of schools in the country, and approximately 85% of schools covered by DISE data (NUEPA, 2013; 2015), which covers nearly all government and private recognized schools in India

reforms in developing countries have failed due to the inconsistency between the progressive pedagogies being advocated, and the information-memorization orientation embodied in the examination system or curriculum (Ginsburg, 2006; Johnson, Monk & Hodges, 2000; Leu & Price-Rom, 2006; Schweisfurth, 2011). Foreign donor projects have been critiqued for expecting to bring change in classrooms primarily through teacher training, while ignoring the larger structural reforms needed to support this change. In India, LCE has indeed been driven primarily by teacher training under SSA, without an integrated vision for educational development implemented systematically across the system. This lack of integrated vision, according to Ramachandran & Bhattacharjea (2009), is reflected in the absence of either horizontal or vertical linkages between different institutions in the education system, resulting in educational activities that are implemented piecemeal by a large number of sub-systems.

Although in recent years many states have supposedly revised their curricula and textbooks based on NCF 2005, such efforts have often been fragmented, with the vision of NCF 2005 rarely truly penetrating across levels and systems (GoI, 2012a). Textbooks continue to be information-heavy, content-driven and overly ambitious of what they expect children to know, while teachers continue to treat the textbook as sacrosanct, and to feel constrained by the pressure to 'complete the curriculum' (Bhattacharjea, Wadhwa & Banerjee, 2011, p.84), all of which restrict teachers' perceived freedom to implement activities outside the textbook. In terms of reforming examinations, which Johnson, Monk & Hodges (2000) claim is the single-most cost-effective way of changing what happens in classrooms, RTE does mandate a shift from rigid examinations to a system of 'continuous and comprehensive evaluation' (CCE). However, the implementation of CCE has been wrought with difficulties; many education planners themselves do not understand its essence and have typically issued guidelines which take a reductionist and technicist view of CCE, placing almost as much burden as earlier on teachers and children (Nawani, 2013). For the most part, marks in the high-stake Class 10 and 12 examinations continue to be viewed by society as the major determinant of future life success, leading to enormous pressure on teachers to adequately prepare students for these examinations right from early grades.

Similarly, LCE necessitates a teacher supervision and monitoring system where rewards and sanctions for teachers are also aligned to the vision of LCE. Often the authorities to whom teachers must report (headmasters, school inspectors or administrative officers) do not have a clear understanding of learner-centred pedagogy, and focus more on monitoring infrastructural or logistical rather than pedagogical issues. Consequently, teachers may receive contradictory messages about what behaviours they are expected to implement and are rewarded or reprimanded for (Ramachandran, Bhattarcharjea, & Sheshagiri, 2008). The lack of monitoring of pedagogical processes is seen right up to national levels, where progress in educational reforms is often judged on the basis of quantitative targets instead (Ramachandran & Bhattarcharjea, 2009). This is reflected for example in national government reports monitoring the progress in implementation of RTE (e.g. GoI, 2012b), which focus

mostly on the quantitative aspects of the Act and largely ignore mention of the activity-based, child-centred learning processes that RTE also mandates. If at all quality outcomes (as opposed to inputs) are monitored at national levels, it is often done through looking at students' achievement levels on large-scale assessment surveys (such as DISE reports or large-scale surveys conducted periodically by NCERT), which is a poor indicator for assessing the quality of LCE.

3. Inadequate teacher training programmes

Another major barrier identified in LCE reforms around the world is the inadequacy of teacher education programmes in preparing teachers with the understanding, skills and attitudes needed for facilitating a learner-centred classroom (Leu & Price-Rom, 2006; O'Sullivan, 2006; Vavrus, 2009). For successful LCE implementation, teachers need to be adequately equipped with the motivation and desire to implement LCE, a thorough understanding of the principles of LCE, opportunities to see and experience the approach for themselves, and to practise it with encouragement and on-going constructive guidance from mentors and peers. In many developing countries, teachers often are either untrained or receive training that is unable to address the demands of LCE. In addition, constructivist pedagogy requires deep subject matter knowledge, which is especially difficult to ensure at the elementary level where teachers often handle many subjects (Richardson, 2003).

In India the challenges for teacher education lie both at the pre-service and in-service levels. The quality of pre-service education is regulated by the National Council for Teacher Education (NCTE), a staturory body that has itself faced various challenges and charges of corruption (Vishnoi, 2011). Recent decades have seen a sharp increase in unregulated private TE institutions of dubious quality, with currently about 85% of TE institutions belonging to the private sector, although nearly 70% of elementary school children are enrolled in government schools. The Justice Verma Commission constituted by the Supreme Court of India in 2012 to review the state of teacher education in India, noted that the approach to teacher education has remained essentially unchanged for over half a century, in terms of isolating teachers from intellectual activity, and treating pedagogy as technique (GoI, 2012c). In-service teacher training has expanded considerably under SSA for up to 20 days a year, overseen by SCERTs and DIETs and transacted through BRCs and CRCs. Research on in-service teacher training in India suggests that despite two decades of training under DPEP and SSA, teacher training programmes have been ineffective in eliciting significant changes in traditional classroom practice (Mehrotra, 2006; Ramachandran, 2005; Singh, 2006). In fact, studies have found that teachers' training seems to have little correlation with better teaching quality or learning outcomes (Bhattacharjea, Wadhwa & Banerjee, 2011).

Teachers themselves often see in-service training merely as a burden or ritualistic formality to be completed, rather than an opportunity to upgrade their skills. They claim the

programmes add little value to their work, are generally not well planned and do not cater to their real needs (Ramachandran, 2005). Training modules are typically designed centrally by state-level planners with limited classroom experience themselves, and delivered through cascade across several tiers of trainers, with the same standardised module ultimately reaching thousands of teachers in an entire state or district. There is often a stark mismatch between the 'ideal lesson' scenarios described by trainers, and teachers' practical contexts. Mechanisms for monitoring the impact of trainings on classroom processes are limited, and in some remote locations without any monitoring, teachers simply reach the training venue, collect their travel allowance, and the training activity is ticked off as completed (Ramachandran, 2005)

In this scenario, teacher training programmes in India are currently unable to adequately equip teachers for successful LCE implementation. Although teachers have imbibed terminology such as 'joyful learning' or 'child-centred learning', many do not have conceptual clarity on what learner-centred principles look like in practice. Much training time is devoted to learning songs or poems or making teaching aids, often as ends in themselves rather than as a means to improving children's learning (Dyer et al, 2004). Burns (2007) found that despite numerous trainings on LCE, the overwhelmingly major reason cited by teachers for their failure to implement LCE is that they don't know how. Training fails to provide basic skills of how to design and facilitate activities, manage group work, develop higher order thinking, etc. within the existing curriculum and classroom conditions. Often the training is delivered through lectures or transmission of knowledge by experts; thus teachers never get to see or experience themselves the leaner-centred approach being advocated. A recent review of Bihar's teacher education found that the methodology still used in pre-service classrooms is similar to what one sees in school classrooms: student-teachers sitting in rows passively listening to the lecturer at the front dictating 'correct' answers to be memorised (JRM, 2013).

4. Top-down reform that denies teacher agency

Several commentators on LCE reforms in the global South have pointed to the very nature of the reform process as one possible reason for their failure (O'Sullivan, 2004, Schweisfurth, 2013; Tabulawa 1998). Typically, pedagogical models are developed by a central team with little input from practising teachers, and expected to be rigidly implemented by teachers with little attention to the actual process of change, the complexities of ground realities, and what teachers themselves know and think about their own classroom practice. Often reformers tend to be unrealistic in what they expect teachers to do, and how quickly they expect change to happen.

Teachers' agency and professional autonomy has been cited as a key missing piece in Indian educational reforms (Batra, 2005; Dyer et al, 2004; Ramachrandran et al, 2008). Ramachandran, Bhattarcharjea & Sheshagiri (2008, p.6) maintain that the crux of the problem

in Indian pedagogical reform lies in how the education system views teachers: as 'lowly recipients and implementers of instructions and content designed elsewhere', expected to comply with predefined tasks rather than to analyse their own teaching practices in light of students' learning. Batra (2005) argues that this top-down discourse seeps even into the NCF 2005, which despite its commendable vision, views teachers more as 'passive agents of the state who are expected to be "persuaded and trained" to magically translate the vision of the NCF 2005 in schools' (p. 4349). By failing to articulate the processes and programmatic interventions needed to operationalize its ambitious vision, the NCF 2005 (like many policy reforms in India) unfortunately undermines its own fulfilment. Teachers who themselves have never been enabled to exercise autonomy or critical thinking can hardly be expected to develop these skills in children (Batra, 2006; Kumar, 2005a). Teachers' lack of autonomy creates a culture where teachers feel compelled to strictly follow prescribed curriculum and textbooks, restricting their ability to adapt teaching content and methods to local needs, as expected by LCE. It is perhaps not surprising that Batra views focusing on teacher agency and empowering them as public transformative intellectuals as 'the most important component of reform of Indian public education without which very little can be achieved' (2006, p.6).

Various factors have contributed to shaping and reinforcing teachers' low degree of professional agency. Kumar (2005b) traces its roots to the bureaucratic colonial system that enforced centralisation in both employment-related matters and in academic matters like design of curriculum, textbooks and examinations. Another oft-cited factor has been the policy decision by several states to introduce a system of professionally unqualified and underpaid locally-recruited 'para-teachers'. This was introduced during DPEP as a quick-fix managerial solution to rapid educational expansion in the midst of fiscal crisis, but which today is seen as a threat to the dying professional cadre of teachers in several states (Ramachandran et al, 2005). Teachers' professional status and motivation are further undermined by the low status of teaching as a profession, increasingly chosen as a last resort by unemployed youth or women seeking a part-time socially-acceptable occupation. Coupled with this is the increasing politicisation and corruption rampant in the education system, where teachers often must pay bribes, curry favour with politicians or pursue court cases in order to secure jobs, preferred postings, promotions or transfers. Often, the honest and motivated teachers are the ones saddled with non-teaching assignments or transferred to difficult areas (Ramachandran et al, 2005). These various complexities of teachers' working realities are rarely confronted in public documents, yet as Ramachandran points out, 'a demoralised, unmotivated and burdened teacher cannot turn the system around' (2005, p.2144).

These various factors lead to several stages of 'disjuncture' that take place between the ideal and the real (McCowan, 2009). Disjunctures occur between the vision for Indian society depicted in the Indian Constitution, and the way this gets translated into Indian education policy or curricular frameworks; and then between the vision depicted in NCF 2005, and the way this gets filtered down to SSA trainings. Further disjuncture occurs in the way

training messages are interpreted and then enacted by teachers. Such disjunctures must be kept in mind in any study of Indian teachers' pedagogy in relation to curricular policy.

5. Cultural beliefs that contradict LCE

While the above factors have been documented and researched in the Indian context, one final factor shaping LCE implementation increasingly highlighted in international literature but thus far unexplored in India is the role of cultural beliefs. For example, Schweisfurth (2011) reviews a variety of studies of LCE implementation that suggest that cultures which tend towards 'high power distance' or 'collectivism' tend to find it difficult to implement aspects of learner-centred pedagogy such as democratic teacher-student relationships or focus on individual learners' interests. Tabulawa's (1997) work in Botswana found a similar challenge to reigning cultural beliefs posed by learner-centred pedagogy:

> To propose that [teachers] shift from a banking education pedagogical paradigm to a learner-centred one is necessarily a proposal that they fundamentally change their views of the nature of knowledge, of the learner and his/her role, and of classroom organisation in general. (p.192)

In light of this, several authors have questioned the cultural appropriateness of introducing learner-centred approaches largely developed in the West into vastly different non-Western cultural contexts (Alexander, 2000; Ginsburg, 2006; O'Sullivan, 2006). Kanu (2005) and O'Donoghue (1994) highlight the need for a serious cultural analysis to be undertaken before attempting to transfer educational models across cultures, pointing to instances of strong resistance or downright failure faced by such attempts when they do not take cognisance of local cultural realities.

In India, a thorough analysis of existing cultural beliefs that may impede the implementation of learner-centred pedagogy has not been undertaken thus far, beyond a few passing references. As early as 1991, Myron Weiner found that cultural beliefs are key constraints impeding India's educational progress, including the deep-rooted belief among teachers and administrators that not all children deserve or are capable of the same quality of education, teachers' low regard for teaching as a profession, or their lack of faith in students' ability to think independently. However, Batra (2006) points out, these basic belief systems highlighted by Weiner remain a critical and unaddressed challenge to this day. Indian practitioners have increasingly come up against such cultural barriers in their attempts to promote pedagogical change, even when they do address some of the systemic barriers mentioned earlier. For example, Nawani (2013) analyses the current national attempt to shift from a rigid examination system to CCE, and finds that 'isolated reforms in techniques of measurement will not have much meaning unless accompanied by concomitant changes in the classroom culture' – including teachers' beliefs about learning, teaching, assessment, and the teacher-student relationship. (p.40). Similarly, the NGO Eklavya in Madhya Pradesh found that in order to train teachers in more learner-centred approached to social science teaching, it

was necessary to first engage with teachers' existing attitudes on gender, caste, social hierarchies, religion, tribal culture, etc., which prevented teachers from promoting critical discussions on these issues in their own classrooms (Batra & Nawani, 2010).

Several others like Batra (2009) and Rao, Cheng & Narain (2003) also point to the strong role played by cultural beliefs about learning, social order, different learners' abilities, etc. in restricting educational change; however there is no clear consensus between them on how such cultural beliefs should be viewed or engaged with. While Rao, Cheng & Narain go only as far as to say that solutions to educational problems 'must also be sensitive to cultural beliefs and other contextual factors', Batra goes further to argue that these must be actively changed, 'by effectively questioning and enabling the development of an alternative worldview amongst teachers' (2009, p.121). However neither presents a concrete framework for engaging with or bringing change in such cultural beliefs. Overall, despite the above allusions to the importance of cultural beliefs, not many have analysed this specifically in the context of the implementation of LCE as advocated by Indian policies, identified which particular Indian cultural beliefs may conflict with the assumptions of LCE, or provided suggestions for facilitating change in these beliefs. The few studies that have been conducted on Indian teachers' beliefs will be reviewed in chapter 3, but to date there has been little engagement with teachers' beliefs in either educational research or reform efforts in India.

Conclusions

This chapter has demonstrated that the Indian government's attempts to promote learner-centred education in India should not be viewed in isolation. They are grounded in a larger international historical and political context of LCE's rise to ascendancy over the past few centuries to become a global panacea and assumed best practice for all countries to aspire to. The global hegemonies at play as well as the numerous stories around the world of failure in the implementation of LCE on a national scale lead us to question whether the Western-originating model of LCE is indeed an appropriate policy prescription for Indian educational reform. At the same time, this chapter has shown that LCE as a concept is not entirely foreign to India – there has been a movement within India itself attempting to promote more learner-centred educational practices, long before attempts by international donor agencies. The attempt to move beyond universalised best practices implies that LCE itself might need to be reinvented in the Indian context in ways that honour India's rich cultures and histories, perhaps leading to a contextualised version of LCE that encompasses certain learner-centred principles (as envisioned by Indian educationists themselves), but which in practice may look quite dissimilar to its Western counterpart.

At the same time, traditional Indian cultural beliefs must themselves be critically examined, and can be analytically deployed in order to generate explanations for observed phenomena in Indian education and society. An analysis of barriers to LCE in India reveals

that one major but largely unexplored barrier has been dominant cultural beliefs that may contradict the assumptions of a learner-centred paradigm and may be hindering this shift. The contradictions should lead us to critically question these traditional beliefs to explore which beliefs best support effective pedagogical practice in the Indian context, as well as which beliefs may be hegemonically contributing to oppression within Indian society itself. Unfortunately the whole field of teachers' beliefs, though increasingly explored in Western contexts, has been researched very little in the Indian context. The next chapter proceeds to map this field of research on teachers' beliefs as it has developed in the West, as well as the limited research available in the Indian context, which provides the basis for the present research.

Chapter 3 – The role of teacher beliefs in influencing pedagogical change

> The idea of looking at worldviews as being the bedrock of teaching practice is unexplored in the Indian context.
>
> – (Interview with educationist, 05/05/09)

Although the realm of teacher beliefs has been relatively unexplored in India, it has emerged as a significant body of research in the West in recent decades, where teacher beliefs is now widely regarded as an important focus area for educational research, reform, and teacher education. This chapter attempts to map this research[13], presenting the main bodies of literature that lay a foundation for the present research. It begins with a historical overview of the field, followed by an exploration of two major strands in the teacher beliefs literature: studies exploring a range of teacher beliefs that relate to educational practice, and studies examining the nature of the beliefs-practice relationship. I then review the emerging though limited body of research on the influence of culture in shaping teachers' beliefs and practice, followed by a summary of the sparse research available on teachers' beliefs in the Indian context. After identifying some of the gaps in the literature reviewed, I proceed to discuss the methodological approaches that have been typically employed in studying teacher beliefs, and some of the methodological challenges involved in this endeavour, paving the way for my own choice of methodology for the present study.

3.1 Historical overview of research on teacher beliefs

The majority of research on teacher beliefs thus far has taken place in Western contexts – much of it in North America and Western Europe. The roots of this research can be traced back to the 1920s, when social psychologists began to investigate the nature of beliefs and their influence on individuals' actions (Cantu, 2001; Richardson, 1996). Although the topic fell into disfavour by the 1930s with the ascent of behaviourism, interest began to rise again in the 1960s with research on teachers' beliefs and attitudes by psychologists like Milton Rokeach (1960, 1968). By the 1970s, a growing interest among educationists in cognitive psychology, ethnographic and sociological paradigms, and the centrality of the teacher, contributed to increased attention towards teachers' cognition (Calderhead, 1996). This sparked a growing body of research on 'teacher thinking' or 'teachers' thought processes', exemplified by Philip Jackson's *Life in Classrooms* (1968) and Dan Lortie's *Schoolteacher* (1975), two pioneering works which first drew attention to and legitimised the investigation of mental constructs underlying teachers' behaviour (in Cantu, 2001; Clark and Peterson, 1986).

[13] Although various terms are used in the literature sometimes synonymously with 'beliefs', this body of research is most often referred to as 'teacher beliefs literature', a convention which I follow here.

A parallel influence was the rise of humanistic psychology, a 1970s American movement spearheaded by Abraham Maslow and Carl Rogers, concerned with people's values, perceptions, and search for personal meaning and self-actualization. These ideas were brought into teacher education by individuals like Arthur Combs (1965, 1979, 1982) who argued for a humanistic approach to teacher education, moving away from the earlier behaviourist paradigm to focus instead on the teacher's personhood, dignity, agency and personal growth (Korthagen, 2004). By the 1980s, the emphasis in teacher education began shifting from observable behaviours and competencies, to an emphasis on teachers' cognitive and reflective processes, sparking numerous studies on these topics (e.g. Brousseau & Freeman, 1988; Clark & Peterson, 1986; Eisenhart et al, 1988; Feiman-Nemser & Floden, 1986; Guskey, 1988; Halkes & Olson, 1984; Munby, 1984; Nespor, 1985). By 1990, Pintrich foresaw beliefs as becoming one of the most central psychological constructs in the field of teacher education. Likewise, Armour-Thomas (1989) claimed that the study of teachers' thought processes 'promises to yield information that may revolutionize the way we traditionally conceived the teaching-learning process' (p.35).

The following sections review two strands in this literature that are most pertinent to the present study: research exploring various beliefs associated with teachers' teaching and learning to teach, and research examining the nature of the relationship between teachers' beliefs and practice.

3.2 Beliefs found to be associated with teaching

Broadly, the range of beliefs that researchers have studied as relevant to teachers' practice can be categorised under five domains: teachers' pedagogical beliefs, epistemological beliefs, democratic beliefs, beliefs about themselves and their work as teachers, and beliefs about subject-specific content and pedagogy. Each of these five categories are explained in more detail in the paragraphs that follow, with a particular focus on studies analysing the role of beliefs in influencing teachers' shift towards constructivist or learner-centred paradigms, which are of most relevance to this study. Woolfolk Hoy, Davis & Pape (2006) have argued that teachers' beliefs may act as screens for interpreting new reform-advocated teaching paradigms that they may not have experienced as students. Similarly, Gregoire (2003) suggests that 'understanding how teachers' beliefs relate to their practice as well as to student outcomes may be the missing link between calls for school reform and teachers' implementation of that reform' (p.149). The five categories described below are summarized briefly in Appendix 3.1.

Perhaps the most common category of studies has been of teachers' general pedagogical beliefs – beliefs about learning, learners and teaching (Chan and Elliott, 2004; Mahmood, 2007; Ogan-Bekiroglu & Akkoc, 2009). These include beliefs about the nature of

learning, the purpose of teaching, the teacher's role, effective instructional strategies, classroom management, which student outcomes are most important, and factors that contribute to student and teacher success. Research suggests that teachers' beliefs about teaching and learning affect the process of curriculum implementation (Cronin-Jones, 1991), affect students' learning outcomes (Hachfeld et al, 2011), and are key factors affecting what teachers learned and implemented from training aimed at developing more reflective or inquiry-based practice (Roehrig & Kruse, 2005). Prawat (1992) identified four pedagogical beliefs that presumably present barriers to teachers' implementation of constructivist approaches: a dichotomous view of the learner and curriculum; the tendency to equate 'activity' with learning; the idea that learning is hierarchical with a distinction between comprehension and application; and a view of curriculum as a fixed agenda with predetermined content to be mastered. Prawat claims that most teachers accept the above views, thereby perpetuating the prevalent 'transmission-absorption' view of teaching and learning. It is unclear on what basis Prawat identifies these four beliefs as being held by 'most teachers' since he does not present any empirical evidence for this claim; nevertheless, he provides a useful starting point for identifying beliefs that may hinder the shift towards constructivism.

Other studies have explored teachers' epistemological beliefs – about the source and nature of knowledge, knowing, and knowledge acquisition (Buehl & Fives, 2009; Ozkal et al, 2009; Schraw & Olafson, 2008). Chan and Elliott (2004) draw from Schommer in proposing a structure of teachers' epistemological beliefs consisting of five dimensions: the source of knowledge (ranging from authority to individual reason), the certainty of knowledge (absolute vs. constantly evolving), the structure and organisation of knowledge (compartmentalised vs. highly interwoven), control of learning ability (genetically predetermined vs. acquired through experience), and the speed of learning (learning is quick or not at all, vs. learning is a gradual process). Several studies found a positive correlation between teachers' professed epistemological beliefs and their preferred classroom practices (Hashweh, 1996; Kang, 2008; Mansour, 2013). This also includes teachers' views about the nature of intelligence: Tatto (1996) found that teachers' beliefs that children have fixed learning ability based on neurological, maturational or cultural differences often hindered the effectiveness of support offered to certain children. This view leads teachers to see the source of student success or failure as related to students themselves (intellectual ability, home background, perseverance), rather than to teacher-related factors (teaching methods, enthusiasm, individual attention) or contextual factors (school, classroom, peers) over which they could have an influence, leading them to downplay their own responsibility in affecting student outcomes.

A third area of research has been on teachers' democratic beliefs – beliefs about teacher-student relationships, diversity and inclusion, and equality of learning ability across gender, socio-economic background or special needs. Rokeach (1960) examined teacher

attitudes that either hinder or support the development of more democratic classrooms. Olson (1981) found that teachers had difficulty implementing a new inquiry-based science curriculum which viewed teachers as democratic guides in students' inquiry, whereas they still viewed their role as traditional authority figures. Using Shechtman's *Teacher Democratic Beliefs Scale*, Almog (2005) found that teachers with more democratic beliefs (freedom, equality, justice) responded more positively to behavioural problems of special needs students, and had a greater preparedness and sense of obligation to implement inclusion in a responsible way. Teachers' tendency to view difference (in culture or ability) as 'deficit' negatively influences inclusive classroom practices, whereas those teachers who view diversity as 'opportunity' tend to more successfully understand and manage student behaviour (Martin, 2004). Deficit views that value uniformity over diversity also lead some teachers to believe that children from minority or low-income backgrounds are incapable of learning basic reading and maths skills (Brousseau & Freeman, 1988). Woolfolk Hoy, Davis & Pape highlight various studies indicating that teachers often view children from higher socio-economic backgrounds as having higher IQ, and hold a deficit view of urban low-income students, thus lowering their expectations of the latter, seeing them as hostile, rebellious and unmotivated.

Other studies have focused on teachers' beliefs about themselves and their work: teachers' efficacy beliefs (about their ability to influence student performance), self-efficacy beliefs (about personal competence or confidence in performing specific tasks), self-esteem or self-image, professional identity, and motivation for entering the teaching profession. Woolfolk et al (2006) highlight several studies that found teachers' efficacy beliefs consistently related to student achievement as well as to teachers' motivation, job satisfaction, commitment to teaching, openness to change, and greater effort and persistence in supporting children's learning. Similarly, research has found teachers' self-efficacy beliefs correlated to several specific learner-centred behaviours, such as enthusiasm, praising instead of criticising, accepting students' opinions, persevering with low-achieving students, and improving student achievement (in Kagan, 1992; Tatto & Coupland, 2003). In fact, Bandura has argued that self-efficacy beliefs are the strongest predictors of human motivation and behaviour (in Pajares, 1992). Research suggests that the teachers who are most successful in enabling student learning share several common beliefs, many related to beliefs about self: a strong sense of teacher efficacy (believing they can help all students learn), positive feelings about teaching, and strong self-efficacy regarding their own teaching abilities (Guskey, 1988). Both Guskey and Smylie (1988) found these beliefs also significantly related to teachers' implementation of training inputs. Similarly, Korthagen (2004) explored the question of what makes a good teacher, and arrived at an 'onion model' that places at its core the teacher's professional identity and mission – their sense of personal inspiration, purpose or calling, which Korthagen argues should be an essential target of any professional development programme.

A final category includes studies on teachers' cognition about specific subjects, including beliefs about the purpose and nature of the subject, their attitude towards the subject, decisions about how and what to teach and assess in that subject, and their own knowledge of the subject. Interest in teacher cognition about subject matter grew considerably after Shulman (1986), who labelled this the missing paradigm in research on teaching. Shulman distinguished between subject matter knowledge (about the discipline in general) and pedagogical content knowledge (about how to teach that subject). Since Shulman's contribution, numerous studies have been conducted on teachers' beliefs about language (e.g. Richardson et al, 1991), mathematics (e.g. Ernest, 1989), science (e.g. Brickhouse, 1990) and social science (e.g. Cantu, 2001). Like the previous belief domains, subject-specific beliefs have also been studied in the context of learner-centred reforms. For example, Wilkins (2008) used Ernest's (1989) model of mathematics teaching to study the relationship between elementary teachers' mathematical content knowledge, attitudes towards mathematics, beliefs about and use of inquiry-based instruction. Wilkins found knowledge, attitudes and beliefs all to be related to teachers' inquiry-based practice. Levitt (2002) observed and interviewed a group of sixteen elementary science teachers, and found that their beliefs were broadly moving in the direction of activity-based science education reforms, but to varying degrees. She categorised teachers' beliefs as either transformational (constructivist in both expressed and enacted beliefs), traditional (in both beliefs and practice), or transitional (professing constructivist beliefs but failing to enact them). Haney & McArthur (2002) identified among their teachers similar categories of constructivist core beliefs, conflict core beliefs, and peripheral beliefs respectively.

3.3 Relationship between teachers' beliefs and practice

A significant number of teacher belief studies have examined the relationship between teachers' beliefs and classroom practice. However, these numerous studies have failed to elicit any consensus on the nature of this relationship. Although it is commonly thought that teachers' beliefs are related to their practices, and many studies do support this thesis, others seem to show a contradictory picture. Fang (1996) referred to the 'consistency' vs. 'inconsistency' theses that seem to recur in the literature on the belief-practice relationship. The section presents an overview of major studies on either side of the debate, some of the possible reasons for the disparity in their findings, and some of the conceptual models advanced to understand the nature of this relationship.

The previous section highlighted several studies that identify a positive relationship between teachers' beliefs and practice. This is confirmed by numerous reviews of the literature that assert that teachers' beliefs drive classroom actions (Clark & Peterson, 1986; Fang, 1996;

Kagan, 1992; Nespor, 1987; Pajares, 1992; Richardson, 1996). Decades ago, Clark and Peterson argued that teacher beliefs serve as a contextual filter through which teachers screen their classroom experiences, interpret them, and adapt their subsequent behaviours. They see teachers' actions as 'substantially influenced and even determined by teachers' thought processes' (p.255). Similarly, Pajares' comprehensive review concludes that 'findings suggest a strong relationship between teachers' educational beliefs and their planning, instructional decisions, and classroom practices' (p.326). Recent studies have continued to endorse this positive relationship (Bryan, 2003; Hachfeld et al, 2011; Hashweh, 1996; Levitt, 2002; Mahmood, 2007; Mansour, 2013; Stipek et al, 2001; Wilkins, 2008). Hashweh (1996) found the effects of teachers' beliefs on teaching to be strong and stable across time, teachers' field of expertise, class level taught, or cultural background. A few studies also found a correlation between teacher beliefs and students' learning outcomes (Dubberke et al, 2008 and Staub & Stern, 2002, cited in Hachfeld et al, 2011), although Pajares (1992) and Borg (2006) assert that this area requires further research.

In contrast, various other studies have found inconsistencies between teachers' beliefs and actions (Ernest, 1989; King, Shumow & Lietz, 2001; Wilcox-Herzog, 2002; Schraw & Olafson, 2006; Wen, Elicker & McMullen, 2011). For example, Wilcox-Herzog's study of 47 early childhood educators, using self-report questionnaires to measure beliefs and videotapes of teachers' practice, showed no relationship between teachers' beliefs and actions. Wen, Elicker & McMullen (2011) found a similar inconsistency between self-reported beliefs and classroom observations of 58 preschool teachers: while most teachers strongly endorsed child-centred ideals, their practice was most often teacher-directed. King, Shumow & Lietz's (2001) case study of science teaching in an urban elementary school found that although teachers described their practice as inquiry-based using many terms like 'hands-on', 'facilitator', etc., classroom observations did not indicate any inquiry-based science instruction actually taking place. Several other studies revealed a mixed picture, with the relationship varying from consistent to inconsistent (Lam & Kember, 2006; Ogan-Bekiroglu & Akkoc, 2009). Some found a stronger relationship between traditional beliefs and traditional practice, than between progressive beliefs and practice (Charlesworth et al, 1993; Mansour, 2013) – which is understandable since teachers may face difficulty implementing progressive practices even if they believe these are preferable.

Interpreting the inconsistencies

Several scholars have advanced possible explanations for the apparent inconsistency in research findings. Some attribute this to researchers failing to account for contextual factors that might influence the link between beliefs and practice. Firstly, systemic factors may restrict teachers from putting their progressive beliefs into practice: the prescribed curriculum, high-stakes examinations, unfavourable policies, school ethos, institutional constraints,

administrative duties, work overload, or time constraints (Basturkmen, 2012; King, Shumow & Lietz, 2001; Lam & Kember, 2006; Mansour, 2009; Phipps & Borg, 2009; Wilcox-Herzog, 2002). Another set of constraints relate to the classroom context – practical or logistical constraints, the complexities of classroom life, high pupil-teacher ratio, lack of resources, students' behavioural problems, learning challenges, teachers' perception of student needs, teachers' lack of autonomy, or accountability issues (Fang, 1996; Lederman, 1992; Ogan-Bekiroglu & Akkoc, 2009; Wen, Elicker & McMullen, 2011). Often the expectations from parents, administrators or colleagues may be different from teachers' own beliefs or reform expectations, adding pressure on teachers' practice (Ernest, 1989; Wen, Elicker & McMullen, 2001). Thus teachers may hold certain beliefs but may not feel the freedom to act upon these beliefs under the existing conditions.

A second set of reasons could be related to teachers' capacity to implement the new teaching paradigm being advocated – due to either reform-related or teacher-related factors. The philosophy, nature and economics of the reform package, the coherence of the theoretical framework and vision presented during training, and quality of training and on-site teacher support, have all been found to influence teachers' ability to implement new practices (Wilcox-Herzog, 2002; Wen, Elicker & McMullen, 2011). Doyle & Ponder (1977) identified three factors that influence teachers' decisions to implement reforms: how clearly and specifically the practices are presented (instrumentality), how well the new practices align with former beliefs and practices (congruence), and how much time and effort the teacher feels the new practices require (cost). Sparks (1983) added two further criteria: teachers' perceptions of the importance of the new practices, and of their difficulty of use. Similarly, teachers' implementation of their new beliefs could also depend on their degree of confidence or skill (Fang, 1996; Wilcox-Herzog, 2002), their capability beliefs or subject matter knowledge (Ogan-Bekiroglu & Akkoc, 2009), their educational background and training (Lam & Kember, 2006), or their work experience (Basturkmen, 2012; Wen, Elicker & McMullen, 2011). Finally, Haney et al (2002) found that the determining factor in whether teachers implemented constructivist science beliefs was teachers' reflectivity – the extent to which teachers regularly reflected on their practice and on learning-related issues. This is what helped them to constantly alter their practice and beliefs to be increasingly aligned to each other.

Another set of factors could involve conceptual issues related to the nature of beliefs: the definition of beliefs used, the choice of which beliefs to measure, or the extremity to which the beliefs are held. Some of the measurement mismatch may stem from the ambiguity and variety of understandings associated with the terms 'belief' or 'constructivist/ learner-centred practice'. Studies may actually be measuring different constructs, thus resulting in contradictory findings (Speer, 2005). Another reason could be the researchers' choice of which beliefs to examine: Munby suggests that often inconsistencies arise from a poor understanding of which beliefs influence particular decisions – it may be that 'different and

weightier' beliefs are actually responsible for teachers' practice in a particular area (1982, p.216). Teachers may hold two incompatible beliefs located in different isolated belief clusters, thus their practice may reflect either of these competing beliefs at different points in time (Basturkmen, 2012; Ogan-Bekiroglu & Akkoc, 2009). Teachers' practice will be influenced by whichever beliefs are more deeply held, and teachers themselves may be unaware of these contradictory beliefs – thus their self-reported beliefs may appear inconsistent with their practice. Phipps & Borg (2009) found that teachers' core beliefs, often more grounded in their experience, are more stable and exert a more powerful influence on practice. For example, teachers may believe the curriculum requires them to use one method, but their experience has led them to believe that students learn better or are more motivated by a different method. Finally, teachers with extreme views (e.g. extremely child-centred or extremely teacher-centred) may show a stronger correlation between their expressed belief and observed practice (Wilcox-Herzog, 2002).

A final reason for an apparent lack of relationship might be associated with methodological constraints. Several studies use pencil-and-paper questionnaires or multiple-choice tests to assess teachers' beliefs, which may be inadequate tools to ensure validity in capturing teachers' beliefs, constrained as they are by researchers' pre-conceived categories (Cantu, 2001; Richardson et al, 1991). Phipps & Borg (2009) argue that beliefs elicited through questionnaires may only reflect teachers' theoretical or idealistic beliefs of what they think should be implemented, whereas getting teachers to discuss their classroom practice may yield a more realistic picture of teachers' actual beliefs about what is possible in practice. Similarly, some authors relate teachers' self-reported beliefs to their self-reported practice (e.g. Charlesworth et al, 1991), which may yield greater consistency than when these are related to their observed practice (e.g. Charlesworth et al, 1993). Additionally, Basturkmen (2012) argues that many teacher belief studies are based on case studies of a few teachers, which are not necessarily generalizable to the larger population and could also result in contradictory findings. Finally, researchers' own biases may hinder their ability to arrive at teachers' 'true' beliefs. Researchers may misinterpret teachers' intentions behind their actions due to their unfamiliarity with the context, or may make various attributions to teachers through their choice of data collection or analysis methods (Speer, 2005; Wen, Elicker & McMullen, 2011).

Conceptual models depicting nature of the belief-practice relationship

One thing is clear from the conflicting findings on the nature of the belief-practice relationship: the relationship is a complex one. While teachers' beliefs influence their practice, teachers may or may not always practice what they claim to believe. Phipps and Borg (2009) make a useful contribution to this complex debate by arguing that such inconsistencies should not be seen as an undesirable or negative phenomenon, as they often tend to be viewed.

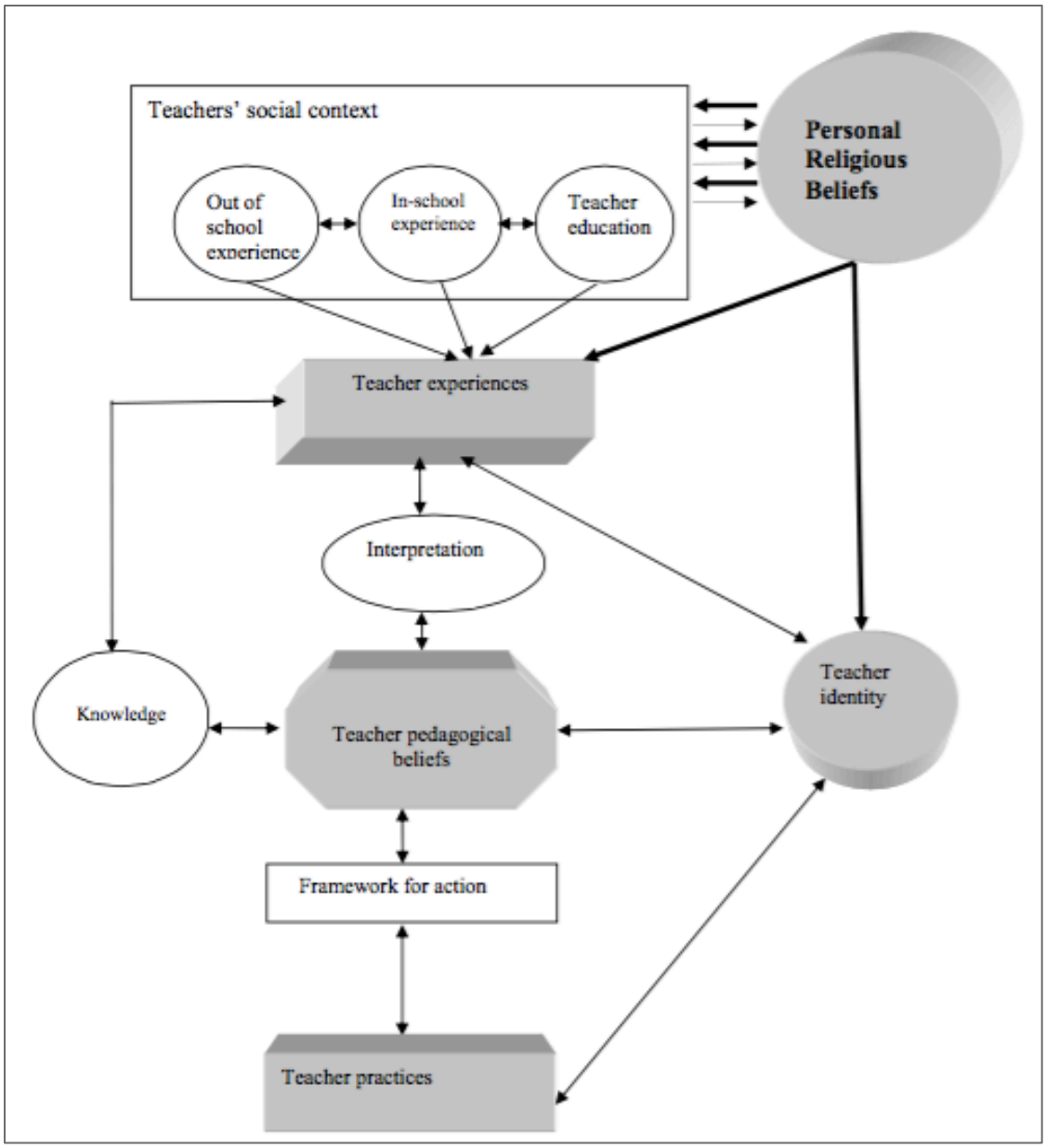
Studying the underlying reasons for such tensions can provide important insights into the process of teaching. Their own study into tensions between what English teachers say and do afforded useful insights into the nature of teachers' belief sub-systems, the difference between core and peripheral beliefs, the influence of teachers' context on their practice, and different forces that influence teachers' thinking and behaviour.

Richardson (1996) notes that the very concept of 'relationship' is sometimes looked on with disfavour, since it implies a separation between thinking and action contrived in research studies, which does not always exist in real life where the two constructs typically operate together. Nevertheless, it is useful to synthesise what various studies point to regarding the nature of the belief-practice relationship. Firstly, it is clear that one cannot assume an either-or binary between behaviourist and constructivist beliefs or practices. Teachers often defy being placed into a single category, displaying a mix of beliefs which can at times be contradictory and may compete for priority, depending on whether they are core or periphery beliefs. Secondly, the relationship between beliefs and actions is interactive and dialectical, with a dual direction of influence. Traditional research typically assumed a unidirectional linear relationship, with teachers' beliefs seen to affect their classroom behaviour, which affects students' behaviour, which is ultimately presumed to affect students' learning (Fang, 1996). This reductionist model is clearly inadequate: while some argue that change in belief precedes change in practice (Shulman, 1986), others suggest that teachers' beliefs themselves are often shaped by their experiences in the classrooms, or by teachers' reflection on their experiences (Cantu, 2001; Thompson, 1992). Finally, the relationship between the two is dependent on a number of contextual factors, as argued above. Thus beliefs are situational and context-bound, with differing strengths in different contexts, and they become manifested in teaching practice only in relation to the complexities and social structures in which they operate (Mansour, 2009).

Only a few authors have ventured to present graphical conceptual models to illustrate the nature of the relationship between beliefs and actions, and each tends to have certain limitations, as with any attempt at reduction. Both Ernest (1989) and Wilkins (2008) propose a model that depicts the influence of teacher background characteristics, content knowledge and attitudes on instructional beliefs and ultimately on practice, but they ignore the influence of contextual factors in mediating the relationship between beliefs and practice. Clark & Peterson (1986) include the influence of 'constraints and opportunities' in their model, but they fail to elaborate what this category includes. Borg's (2006) model offers a useful portrayal of the role of teachers' schooling, professional coursework, and contextual factors in influencing teacher cognition and ultimately practice, specifying in considerable detail what each of these categories include. However this model leaves out the influence of teachers' personal experiences and mentors outside of school, as well as of larger socio-cultural and religious influences, in shaping teachers' beliefs.

Of the various models encountered, I found Mansour's (2008) and Hoekstra & Korthagen's (2011) to be the most comprehensive and useful in informing my own thinking, and I have thus reproduced their models below. Mansour's (2008) model depicts all the factors highlighted above from a socio-cultural perspective, showing how in-school and out-of-school experiences, training, and religion all shape teachers' identity, beliefs and knowledge and the way these interact with practice (see Figure 3.1).

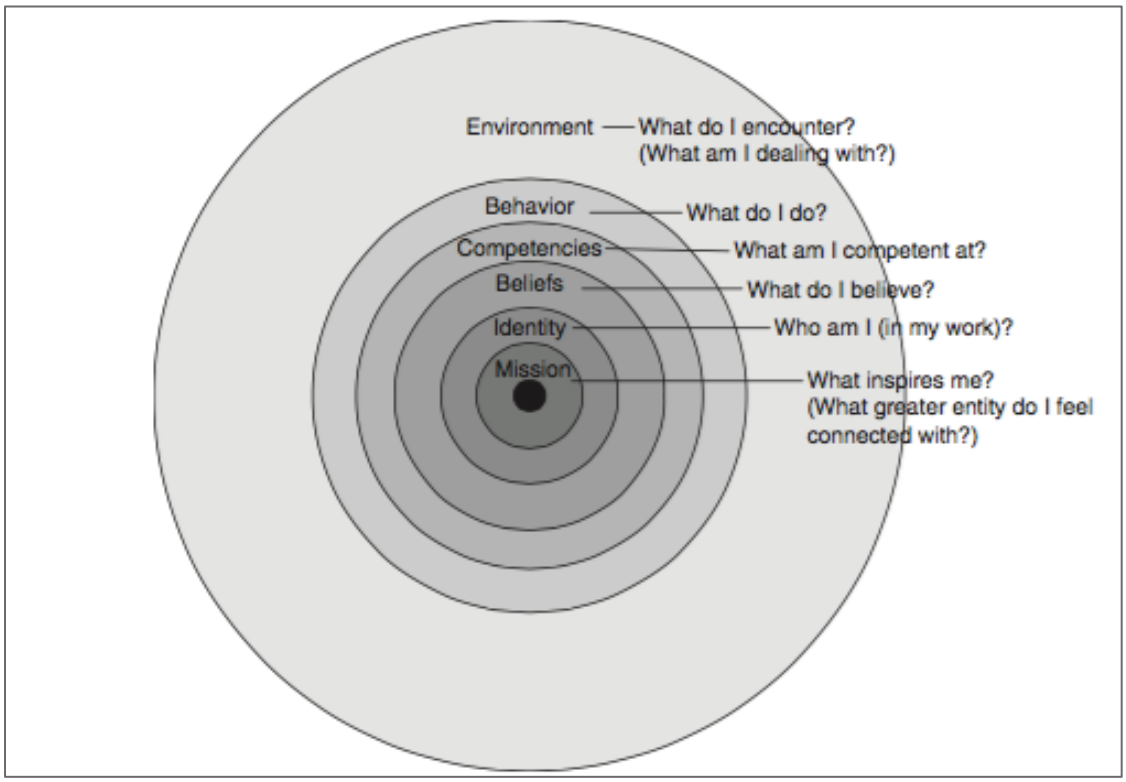
Figure 3.1: Personal Religious Beliefs (PRB) Model (Mansour, 2008)



Hoestra & Korthagen's (2011) six-level 'onion model' was also found to be quite helpful in showing how several interconnected layers dynamically influence each other to shape

teachers' practice, including environment, behaviour, competencies, beliefs, identity and mission (see Figure 3.2).

Figure 3.2: The Onion Model (Hoekstra & Korthagen, 2011)



Both Mansour and Korthagen capture the interactive dual-direction relationship between beliefs and practice, and also take into account the various factors that may influence beliefs and the relationship between the two. Thus I found these two models useful frameworks to keep in mind while analysing the findings of the present study.

3.4 The role of culture in shaping teacher beliefs and practice

As early as 1988, Olson argued that culture is central to understanding the context and meaning behind teachers' thinking and behaviour:

> Making sense of teaching means interpreting what teachers do and say in order that we may reveal the rules of the game in which they participate…against which any particular teacher's account has to be placed...[otherwise] the significance of what they say is lost. (p. 167)

However, the relationship between teachers' beliefs and culture was hardly explored until the mid-1990s, when scholars including Bruner, Olson, Strauss and Torff began to explore the

concept of 'folk pedagogy' to delineate the relationship between teaching, teacher thinking and culture (DeZutter, 2008). Their central thesis is that 'nothing is 'culture free'' (Bruner, 1996, p.14), and that culture 'provides us with the toolkit by which we construct not only our worlds but our very conceptions of ourselves and our powers' (p.x). According to these scholars, each distinct culture in each historical period has a distinctive 'folk psychology' –

> our everyday intuitive theories about how our own minds and the minds of others work…[which] reflect not only certain wired-in human tendencies…[but also] certain deeply ingrained cultural beliefs about the mind. (Olson and Bruner, 1995, p.10)

These lay theories are rarely made explicit, yet they are omnipresent and fundamentally shape a culture's 'folk pedagogy' – their 'body of assumptions or notions of what children's minds are like and how one may help them learn', which shape all teaching or adult-child interactions within that society (Ibid.)[14]. Even when a teacher receives extensive training in an alternate teaching approach, it can still be difficult to override the tendency to teach according to one's culturally-inherited folk pedagogy. Bruner thus argues that any educational innovation will have to compete with, replace, or modify the folk psychological and pedagogical theories that already guide both teachers and students' practice.

While folk pedagogy scholarship offers a useful foundation of how educational practices are shaped by certain beliefs about learners' minds (Bruner, 1996) and of the cultural roots of these beliefs, it is nevertheless limited in that it focuses only on a narrow set of beliefs about the mind – which as argued earlier is not sufficient for understanding the totality of teachers' thinking and behaviour. There is need to also look at broader cultural beliefs including worldview and ideological beliefs that may influence teaching – of which folk theories are only one component. Folk pedagogy research has also been critiqued for being mostly theoretical rather than empirical, and for failing to provide much elaboration on what kind of mental entity a folk theory is (DeZutter, 2008), other than seeing it as comprised of cultural beliefs. For this reason, this study chooses to use the construct of 'belief' instead which is grounded in a larger theoretical and empirical body of literature, while still acknowledging the cultural sources of these beliefs and their role in formulating the theories which guide teachers' practice (Pajares, 1992).

Unfortunately few have continued to build on the foundation laid by Bruner and his colleagues. Only a few studies can be found that explore the influence of culture on teachers' beliefs, most of which do not utilise the concept of folk pedagogy. For example, Chan & Elliott (2004) explored how culture shapes epistemological beliefs through a cross-cultural analysis of epistemological studies in North America, Hong Kong and Taiwan, and found several

[14] In India, the culturally dominant folk psychology and pedagogy are what Olson and Bruner (1995) describe as a didactic or transmission model, which sees learners' minds as blank slates to be filled. This folk theory is rooted in various cultural and historical forces that have shaped Indian education: the ancient Vedic system, the *guru-shishya* (teacher-disciple) tradition, and the British colonial legacy which largely built on ancient didactic traditions.

specific belief dimensions predominant in the Hong Kong Chinese sample but not in the other contexts. Mansour (2008, 2009, 2013) found that science teachers' pedagogical beliefs regarding their roles, students' roles, aims of teaching as well as their teaching practice were profoundly shaped by their socio-cultural contexts including their personal religious beliefs. Other studies have also shown that teachers in different countries have differing cultural beliefs about curriculum, subject matter, how students learn, appropriate classroom relationships, and so forth, which must be taken into account in any attempt at pedagogical reform (Clarke, 2003; Rao, Cheng & Narain, 2003; Santagata, 2004). However, in most teacher belief studies culture is not a theoretically well-elaborated construct, and most are vague at best regarding the relationship between beliefs and culture (DeZutter, 2008), which is a gap that the present study seeks to address. In some cases, authors have drawn from cognitive anthropology and use a cultural models approach to gain deeper insight into shared dimensions of teachers' beliefs (Blumenfeld-Jones, 1996; Clarke, 2001; DeZutter, 2008). Blumenfeld-Jones argues that analysis of cultural models reveals the origins and complexities of teachers' thinking in ways unavailable to other forms of analysis. Like Bruner, he concludes that curriculum reform cannot be successful without first understanding teachers' cultural models, otherwise the strength of these deep-seated models will outweigh the strength of the innovation. Similarly, Clarke concludes that Indian teachers' implicit models 'are not just idiosyncratic and personal but rather, embedded in the broader social and cultural environment in which the teachers live' (p.139).

Another relevant body of literature emerging in recent decades focuses on the role of culture in shaping pedagogy, though it does not always explicitly elucidate the role of teachers' beliefs in mediating this relationship between culture and pedagogy. Some studies have already been mentioned in the previous chapter that look at the role of cultural factors restricting the implementation of learner-centred pedagogy (e.g. Ginsburg, 2006; Gupta, 2006; O'Sullivan, 2006; Schweisfurth, 2013; Tabuwala, 1997). For example, Schweisfurth (2013) cites various studies (e.g. Hofstede, 2003; Stenberg, 2007; Harkness et al, 2007) that identify certain cultural assumptions that differ across societies and that may conflict with the assumptions of learner-centred education. Examples include hierarchical relationships, collectivism, teachers' views about the ideal student, which behaviours are considered 'smart', and appropriate adult-child relationships. Gu (2010) warns us to be wary of attempts at defining universal best practices, since teaching is a value-laden, culturally-embedded practice, and thus the very notion of teaching effectiveness is a culturally relative concept. Thus understanding teachers' cultural beliefs is also crucial in helping educational reformers discern what is an appropriate form of learner-centred practice in that particular cultural context, since responsiveness to cultural realities may require learner-centred education to take different manifestations in different places.

Perhaps the most significant of these studies is Robin Alexander's (2001) comparative study of differences in pedagogy across five countries (India, Russia, France, UK, and USA). Alexander finds that in addition to economic, political and demographic factors that fuel educational differences, teachers' thinking and practice are strongly shaped by the culture in which teachers are embedded. In particular, he finds that Indian educational philosophy differs vastly from Euro-American educational philosophies, based on very different notions of what values and skills are seen as developmentally and socially appropriate for children growing up in each context. In his analysis of conceptualisations of educational quality in the context of the *Sarva Shiksha Abhiyan* programme in India, Alexander (2008) stresses the necessity of keeping cultural context in mind while analysing pedagogical values and practices:

> Culture is so pervasive a shaper of education and educational realities that it cannot possibly be ignored. It gives rise to varying and often competing accounts of knowledge, of learning and of the relationship between teacher and taught, in other words the very stuff of pedagogy. (p.19)

The above research brings to stark prominence the necessity of studying how culture shapes teachers' beliefs and practice, especially in light of the political economy of development, as highlighted in the previous chapter. Such research is essential in the effort to thwart the tendency of international development and educational initiatives to at times view 'solutions' as culturally-neutral, and thereby export them inappropriately.

3.5 Teachers' beliefs in the Indian context

Very little research in India has examined teachers' beliefs and their relationship to pedagogy. Of the few recent studies to be found on teachers' beliefs, one set explored this in the context of inclusive education for children with disabilities. Several found that one major barrier to successful inclusive education in India are deep-rooted negative attitudes and beliefs towards children with disabilities, perpetuated by cultural and religious beliefs such as the all-pervasive caste system, and argue that more research is needed on this important area of teachers' attitudes (Edwardraj et al, 2010; Giffard-Lindsay, 2007; Hodkinson & Devarakonda, 2009; Singal, 2008). Similar studies conducted by Chopra (2008), Parasuram (2006), and Sharma, Moore & Sonawane (2009) found that teachers' attitudes were influenced by factors such as gender, having a relative with a disability, perceived parental support, educational background, and rural vs. urban background. However, besides their narrow focus on a limited range of attitudes towards disability, and their restricted methodology which relied primarily on quantitative surveys to measure teachers' attitudes, the usefulness of these studies' findings are rather limited. For example, Chopra (2008) found that female and rural teachers are less positive towards inclusion than their urban male counterparts, but her only recommendations are that more awareness should be generated, more inclusive policies written, and more funds

allocated by the government – failing to offer particularly new or concrete insights for teacher educators seeking to engage with these beliefs.

Another set of studies encountered the issue of teachers' beliefs and attitudes while analysing barriers towards the education of children from marginalised communities, some of which were discussed earlier (Batra, 2009; Batra & Nawani, 2010; Deshkal Society, 2010; Jha & Jhingran, 2005; Namrata, 2011). According to Namrata (2011, p.850), 'ingrained social beliefs and aversion towards marginalized groups of society have not been tackled as a serious issue within the education system of India'. Namrata's study, using structured interviews and classroom observations of 35 teachers in Delhi, reveals very negative teacher attitudes and low expectations towards marginalised children. However, its only recommendation is that 'with the provision of more resources and extensive opportunities for training…it is hoped that teachers' attitude towards marginalized children [will] become more favourable' (p.853). Like most of the studies cited above, Namrata offers a very inadequate framework for addressing cultural beliefs that result in discriminatory practices, merely suggesting more teacher training and sensitisation – which clearly have not proved effective till now.

Insights into how culture shapes Indian teachers' pedagogy can also be gained from ethnographic studies of schooling in India, such as Gupta (2006) and Sarangapani (2003). Gupta's ethnographic research on teacher thinking in India found teachers' practices predominantly shaped not by their professional training, but by the internalization of socio-cultural influences through interactions with family, friends, colleagues, and childhood learning experiences:

> In spite of the changing models of mainstream education under the influences of various historical and cultural factors, the basic values and beliefs that children in India have been taught formally and informally remained somewhat constant, drawing from an ancient Hindu philosophy that prescribes a way of life and continues to be a part of the country's philosophical and spiritual discourse (Gupta, 2006, p.52)

Gupta points out that educational practices such as memorization are deeply embedded in ancient views of memory as an important cognitive faculty essential in the process of acquiring, understanding and retaining knowledge. Similarly, Sarangapani's ethnography of a rural school outside Delhi reveals that both teachers' and students' thinking are strongly shaped by ancient and present-day cultural norms, resulting in shared folk theories that guide teachers' practice. For example, the hierarchical teacher-student relationship evident in many Indian classrooms can be traced partly to a centuries-old tradition of a guru worthy of the student's complete respect, as well as popular, folkloric constructions of the teacher's and student's roles, and local cultural models of appropriate adult-child authority patterns. All these together result in a naturalization of the teacher's authority at a subconscious level of the psyche:

> The power relationship in which the teacher and students are bound together is an essential aspect of their roles and orientation to each other. The position of authority is a part of the identity of the teacher and the acceptance of authority is a part of the identity of the student. (Sarangapani, 2003, p.121)

Only a few studies have specifically examined the role of teachers' beliefs in the implementation of learner-centred reforms. For example, Kumar & Subramaniam's (2012) examination of thirteen elementary teachers' beliefs about the teaching and learning of mathematics, found that teachers held a 'transmission' view of mathematics contrary to inquiry-based approaches, and that their resulting enacted beliefs were more resistant to change than their surface assent to reform-oriented views. Ravindram & Hashim (2012) explore fifteen Tamil Nadu teachers' beliefs about English language policy reforms and how these beliefs influence their classroom practice. The authors found that several of the teachers' beliefs about conformity, multigrade classrooms, examinations, and language learning conflicted with the learner-centred 'activity-based learning' approach prescribed by the government, and prevented them from fully implementing the reform. However, the only recommendation offered is that 'values and beliefs need to be acknowledged in any change innovation' (p.2185), without any indication of how this can be done or whether acknowledgement alone is sufficient. Burns (2007) conducted the largest of these studies, of 200 teachers and 30 school-heads in four Indian states (Karnataka, Chhattisgarh, Jharkhand and Madhya Pradesh), exploring teachers' beliefs and understanding regarding 'active learning'. Burns' questionnaires revealed that teachers and school-heads hold various beliefs that conflict with a learner-centred paradigm: that students learn best in an atmosphere of quiet, and with students of similar abilities, ethnicity or caste; or that not all students can learn challenging content. Though Burns provides a useful starting point, she does not throw much light into the relationship between these beliefs and specific practices, and uses mostly quantitative methods which provide limited insight into the nuances of these beliefs.

Perhaps the most relevant of these studies is Prema Clarke's (2001, 2003) analysis of how culture powerfully shapes Indian teachers' implicit and explicit models of teaching and learning – constructing what Clarke terms a 'culture of pedagogy'. Clarke suggests that many aspects of the contemporary Indian educational system are rooted in native pedagogical philosophies, shared cultural models, and deeply-internalised patterns of socialization. Based on case studies of twenty-four Class 8 teachers in Bangalore, Clarke identifies four cultural constructs that influence teachers' practice in ways that both facilitate and hinder learner-centred reforms. These include collectivist notions of self, a duty-based code of living, hierarchical social relationships, and holism that encourages openness to regulation. Clarke (2003) argues that DPEP training programmes failed to alter teachers' traditional practice precisely because they failed to address such cultural beliefs that prevented teachers from fundamentally engaging with the attempted reforms. However Clarke herself points out that there may well be other cultural constructs shaping pedagogy, which requires further research.

Moreover, although Clarke provides a detailed analysis of how cultural models impact teaching, she does not provide a similarly comprehensive framework for how to engage with such cultural beliefs within teacher education, other than pointing to the need for reflection. Unfortunately few researchers or practitioners have built on Clarke's foundation, and there remains strong need for more rigorous, relevant research on this topic offering concrete recommendations for learner-centred reforms and training programmes.

3.6 Gaps in the research on teacher beliefs

Having reviewed major categories of teacher beliefs research and their relationship to pedadogy both globally and in India, I am now in a position to identify gaps in this research, and how the present study could potentially address some of these gaps. First of all, as argued above, many of the studies remain ridden with conceptual ambiguity, failing to clearly distinguish between beliefs and related constructs such as values, attitudes or ideologies. These are often used interchangeably, leading Cantu (2001) to argue that there is scarcity of well-conceptualised empirical research on this topic. Similarly, there is still debate on whether beliefs indeed influence teachers' actions, with few having proposed a comprehensive conceptual model explaining the various factors that mediate this relationship, pointing to the need for more research to understand the nature of this relationship. Secondly, while many studies point to specific teacher beliefs that may be hindering effective practice (including constructivist practice), few have sufficiently explored a practically more important concern: whether these beliefs can be successfully addressed through teacher education programmes, and if so how (Ashton & Gregoire-Gill, 2003). For example, both Prawat (1992) and Stipek et al (2011) identify key beliefs that conflict with constructivist approaches and which they argue need to change, yet fail to offer much concrete recommendations of how change in these beliefs can be facilitated. If such studies are to move beyond an academic exercise in order to make tangible contributions toward reform efforts, there needs to be a stronger understanding of the process of belief change, and more explicit recommendations for practitioners seeking to facilitate this process.

Furthermore, most studies have focused only on teachers' educational beliefs – whether related to pedagogy, epistemology, teacher-student relationships, teacher efficacy, or specific subjects. Some like Kagan (1992) and Valcke et al (2010) assume this narrow focus in their very definitions of 'teacher beliefs' – Kagan defines them as 'tacit, often unconsciously held assumptions about students, classrooms, and the academic material to be taught' (p.65), while Valcke defines teacher beliefs as psychological understandings specifically about processes, variables and actors central to learning and instructional settings. However, few studies have looked at teachers' wider beliefs (especially worldview beliefs) which may not be

immediately connected to teaching or learning, but which may still influence teachers' practice. Pajares (1992) draws a useful distinction between teachers' educational beliefs (those directly specific to the educational process), and teachers' broader general belief system about matters beyond their profession, but which may still affect their practice. Drawing from Rokeach's (1968) definition of attitude (a cluster of beliefs organised around a particular object or situation), Pajares explains how 'a teacher's attitude about a particular educational issue may include beliefs connected to attitudes about the nature of society, the community, race, and even family' (p.319). He argues that one belief cluster (e.g. educational beliefs) must be understood in terms of their connections not only to each other but also to other, perhaps more central, beliefs in the system: 'seeing educational beliefs as detached from and unconnected to a broader belief system…is ill-advised and probably unproductive' (p. 326). The present study is unique in its focus on teachers' worldview beliefs which, using Rokeach (1968) and Green's (1971) frameworks, can be seen as core or primary beliefs that in turn shape most of the rest of a teacher's beliefs, including educational beliefs.

A fourth limitation in the teacher beliefs literature is its focus largely on the idiosyncratic beliefs of individual teachers, and rarely on the shared or cultural dimensions of teachers' beliefs. The online educational databases searched for this review generated hundreds of articles on teacher beliefs and practice, but almost no results for 'teachers' cultural beliefs' or 'culture and teacher beliefs'. Several scholars have highlighted the need for more research on how culture shapes teachers' thinking and action, which they argue has received little attention thus far (Borg, 2006; Clarke, 2001; Hamilton 1993). Even some studies conducted in non-Western contexts, like Lorduy et al (2009) in Monteria, and Ogan-Bekiroglu & Akkoc (2009) in Turkey, fail to examine the influence of culture in shaping the beliefs identified. In other cases, studies that claim to look at teachers' cultural beliefs fail to do this at much depth. Hachfeld et al's (2011) title involves 'The Teacher Cultural Beliefs Scale', yet the study's focus is on teachers' beliefs about students' cultural diversity, rather than on the cultural dimensions of teachers' beliefs. Examining the shared cultural patterns in individual teachers' beliefs is crucial for teacher education aiming to address beliefs that are dominant across a group or society. To the extent that particular beliefs are influenced by culture and constantly being reinforced by other members who share this culture, they become even more entrenched and resistant to change.

Moreover, scholars have thus far largely ignored any power analysis of the political and ideological dimensions of teachers' beliefs – the origin and societal function of specific cultural beliefs, who benefits from them, what holds them in place, and whether these beliefs form part of a larger ideology serving to legitimate unequal social structures that marginalise certain social groups (Bluemenfeld-Jones, 1996). Bartolomé & Trueba (2000) trace this lacuna to a longer history of neglecting and even negating the political nature of education:

> Teachers' beliefs and attitudes have been treated as apolitical, overly psychologized constructs that 'simply' reflect personality types, individual values, and predispositions that have little to do with the existing larger political, social, and economic order. (p.280)

This leaves unquestioned teachers' ideological beliefs that may be perpetuating an oppressive social order, which is another gap this study seeks to address. In an Indian context, this involves undertaking an ideological analysis of how caste shapes teachers' beliefs and practice, and the political function these caste-based beliefs serve in Indian society. Finally, few studies have looked at teachers' beliefs and practice in non-Western contexts, and specifically in the Indian context. Chan (2008) critiques the fact that most studies on teachers' epistemological beliefs have been conducted in Western contexts, which greatly limits our understanding of the influence of cultural factors on teachers' beliefs. This also remains a gap in India, where although some scholars have hinted at cultural beliefs potentially restricting pedagogical reform, few studies have explored in depth which beliefs may indeed be hindering a pedagogical shift, what factors shape these beliefs, and how they can be addressed in teacher education programmes.

3.7 Methodological challenges and approaches in studying teacher beliefs

Having highlighted in Section 3.3 some methodological challenges that may contribute to inconsistent findings regarding the beliefs-practice relationship, I elaborate further on some of these complexities in the section that follows. Besides the challenges described earlier, another lies in accessing teachers' 'true' beliefs: it is possible that people may be deceiving us deliberately, may be deceiving themselves, may be rationalizing their actions, or may be unaware of their own sub-conscious beliefs. Since belief is a latent construct and not directly observable, scholars agree they must be inferred by researchers (Pajares, 1992; Rokeach, 1968), though there is a range of views regarding how the inferences are best drawn. Some argue that sub-conscious beliefs must be inferred from teachers' actions[15] (Rokeach, 1968; Zakaria, Care & Griffin, 2011; Basturkmen, 2012). However this assumes a direct correlation between beliefs and actions – which becomes problematic if the very purpose of the research is to determine whether such a relationship indeed exists (as in the present study). Thus, in this study, beliefs are defined strictly as what a person expresses in speech or writing (and separate from their actions), though these beliefs may be conscious (thus explicitly articulated) or sub-conscious (thus needing to be inferred from a holistic interpretation of what the person

[15] Rokeach (1968) assumes this in his very definition of beliefs as "any simple proposition, conscious or unconscious, inferred from what a person says or does" (p.113-114), arguing that "we do not necessarily take at face value a person's verbal endorsements….we have to infer what a person *really* believes from all the things he says and does" (1960, p.32).

says at different points in time). If faced with a discrepancy between teachers' stated beliefs and their actions, rather than assuming the teacher must not *really* believe this (as Rokeach suggests), it is more useful to differentiate between different categories of beliefs based on the extent to which they are enacted, as done by Haney and McArthur (2002) and Ogan-bekiroglu & Akkoc (2009).[16]

Another challenge lies in teachers expressing what they feel are socially desirable or 'correct' responses, rather than their 'true' beliefs. Deshkal Society's (2010) study of Indian teachers' inclusion-related attitudes found significant discrepancies between teachers' responses during formal, structured questionnaires or interviews, versus more informal open-ended discussions. A third challenge involves finding a balance between defining researcher-determined categories for investigation, versus letting themes emerge during the analysis. Cantu (2001) argues that too many preconceived categories damages the credibility of teacher belief studies, citing Lincoln and Guba's (1985) distinction between 'etic' or outsider perspectives emphasised by positivistic paradigms, and 'emic' or insider perspectives preferred by naturalistic inquiries.

Past teacher belief studies have employed different methodologies for tackling the above challenges, with varying degrees of success. Earlier research relied more frequently on quantitative methods such as paper-and-pencil multiple-choice or Likert-type questionnaires for assessing teachers' beliefs, and sometimes also teachers' practice – which clearly gives a limited picture since based on self-reports of practice (e.g. Charlesworth et al, 1993; Hashweh, 1996). Some recent studies continue to use quantitative surveys which allow researchers to look at larger samples, such as Wilkins's (2008) study of the mathematical beliefs of 530 primary teachers in two US districts, or Selvi's (2006) study of democratic beliefs among 979 Turkish teachers. However, several have questioned the validity or reliability of quantitative surveys alone as accurate measures of teachers' beliefs (Fang, 1996; Richardson, 1996). Teachers' responses may be influenced by items constructed by researchers, which may not exactly align with teachers' own words or interpretations (Kagan, 1990; Munby, 1984; Richardson, 1996). Moreover, surveys cannot capture the myriad contextual conditions under which specific beliefs become activated into attitudes or behaviours (Pajares, 1992). Phipps & Borg (2009) argue that questionnaires may elicit teachers' idealistic views of what they think should happen, rather than what they actually find feasible to implement in their classrooms.

To counter these limitations, researchers increasingly relied on qualitative approaches, which Munby (1984) argued is a more legitimate approach to eliciting beliefs within a teacher-determined context. A commonly-used methodology involves combining interviews (ranging from structured to informal), classroom observations (real-time or videotaped) and document analysis (of teachers' portfolios, lesson plans, reflective journals,

[16] These authors categorize core beliefs as those both stated and enacted, versus peripheral beliefs which are stated but not enacted, for reasons worth examining why.

assessments) (e.g. Bryan, 2003; Cantu, 2001; Haney & McArthur, 2002; Mansour, 2013; Ogan-Bekiroglu & Akkoc, 2009; Phipps & Borg, 2009). Another oft-cited method involves elicitation techniques, such as 'repertory grid' interviews (teachers describe their teaching in order to arrive at constructs important to them, and then rank these in terms of relevance – e.g. Munby, 1984), or stimulated recall (teachers are asked to comment on a classroom scenario or their own recorded practice – e.g. Nespor, 1987). Other qualitative methods include ethnographic case studies, life narratives, oral histories, think-aloud commentaries, metaphor analysis, concept maps, and paragraph-completion exercises (Phillip, 2007; Tatto & Coupland, 2003). However, most of these are only feasible with small samples, leading to highly context-specific findings that are difficult to generalize or to use for analysing shared cultural patterns across a group. Indeed, the majority of teacher belief studies are based on case studies of only a few teachers (Basturkmen, 2012; Forgasz & Leder, 2008) – many of them with sample sizes under ten (e.g. Brickhouse, 1990; Bryan, 2003; Haney & McArthur, 2002; Mansour, 2013; Nespor, 1987; Ogan-Bekiroglu & Akkoc, 2009; Phipps & Borg, 2009). Blumenfeld-Jones (1996), who attempts to study teachers' cultural models, does so through studying only three teachers – which brings to question both the large-scale replicability and the validity of the 'cultural' dimension of his findings.

A third research paradigm that has gained prominence in recent decades is mixed-methods research, which combines quantitative and qualitative approaches to counter some of the above challenges and limitations[17]. This approach has been increasingly used by recent teacher belief studies, often combining Likert-scale surveys with interviews and/or classroom observations (e.g. Diviney, 2003; Kumar & Subramanian, 2012; O'Riordan 2006; Tan & Lan, 2011; Wen, Elicker & McMullen, 2011; Zakaria, Care & Griffin, 2011). In fact several teacher belief reviews have underlined the disadvantages of using any one method exclusively, concluding that mixed-methods approaches are the most appropriate for revealing the complex, multifaceted aspects of beliefs, allowing for richer and more accurate inferences (Chan & Elliott, 2004; Fang, 1996; Kagan 1990; Pajares, 1992; Richardson, 1996). Ogan-bekiroglu & Akkoc (2009) note that multiple data sources provide a more composite picture of teachers' beliefs and practices and can help prevent inconsistencies between the two due to measurement. Taking into account the above scholars' recommendations, the present study has been designed as a mixed-methods study, discussed further in Chapter 4.

Conclusions

This chapter has mapped the existing research on teachers' beliefs, including the theoretical frameworks utilised, the range of beliefs studied, findings on the relationship

[1717] For a thorough discussion of the emergent paradigm of mixed-methods research, see Tashakkori & Teddlie (2003, 2010)

between beliefs and practice, the role of culture in shaping teachers' beliefs and practice, and the few such studies available in the Indian context. In so doing, it has identified several gaps in the existing literature that marks the present study as distinct from what has been done before. Firstly, this study hopes to contribute some light on the persisting murkiness surrounding the nature of teachers' beliefs and their relationship to practice, culture, worldview and ideology. Next, the study hopes to offer a tentative framework of recommendations, unavailable at present, for teacher educators seeking to engage with Indian teachers' beliefs. In terms of the conceptual field, few studies have focused on wider worldview beliefs that may influence teachers' educational practice; most have focused primarily on education-related beliefs. Further, in terms of scale, much of the literature has focused on individual teachers' beliefs, rather than analysing broader cultural patterns in the way beliefs are socially constructed. In terms of critical perspective, there has been little analysis of the political and ideological dimensions of teachers' beliefs. Finally, in terms of its empirical field, little research on teacher beliefs and practice has been conducted in non-Western contexts, and even less specifically in India. By undertaking research into Indian teachers' beliefs and their relationship to practice, culture, worldview and ideology, and proposing suggestions for how to engage with these beliefs, the present study seeks to contribute towards addressing each of the above gaps in the literature.

Given the extent to which the field of teacher beliefs research has developed in recent decades, it is a bit surprising that a focus on teacher beliefs has still not found its way into Indian educational research or teacher education programmes. The literature reviewed in this chapter would suggest that teacher beliefs must become a central focus of teacher education and of any attempts at pedagogical reform. However, the chapter has also pointed to various challenges involved in conceptualizing beliefs and in developing an appropriate methodology to study beliefs and their relationship to practice. The methodological and analytical approach chosen for the present study in an attempt to circumvent these challenges, is discussed in the chapter that follows.

Chapter 4 – Research Design and Methodology

> [Methodologically], it's a tough area you've picked up, but a very valuable area. The current time-on-task studies that we have just don't reflect reality. But you have the potential to take it back to reality.
>
> – (Interview with educationist, 24/05/10)

The credibility of any research depends on the rigour with which it is designed, conducted and interpreted. This chapter attempts to make the methodological processes and decisions of this research as transparent as possible, to enable the reader to determine the credibility and usefulness of this study's findings. It begins by laying out the rationale for the choice of methodology, methods and instruments used in this study, grounded in a critical realist, mixed-methods paradigm. After presenting the sampling decisions and profiles of the states, schools and teachers in this study, I describe the data collection process and my approach to analysis. The chapter ends with a discussion of issues of ethicality, subjectivity, and validity embroiled in this research.

4.1 Methodology and research tools used in this study

The previous chapter reviewed various methodological approaches used in past teacher beliefs studies, the limitations of exclusively quantitative or qualitative methods, and several methodological challenges involved in studying beliefs. Keeping these in mind, the present study has been designed as a mixed-methods study of 60 Indian primary teachers, involving Likert-scale surveys, interviews, life narratives, and classroom observations. The study utilises a dominant-less dominant design (Cresswell, 1994; Tashakkori & Teddlie, 2003), with a predominantly qualitative approach, while the quantitative component helps to corroborate qualitatively-derived hypotheses and to synthesise broader patterns and trends. Using Leech & Onwuegbuzie's (2009) typology of eight possible designs for mixed-methods studies, mine would be considered a fully-mixed, concurrent, dominant-status design (QUAL+quant): i.e. methods are mixed at various research stages (objectives, data collection, analysis); quantitative and qualitative data collected simultaneously; and the study has a dominant qualitative design.

It is hoped that using multiple data sources has helped mitigate some of the methodological challenges discussed earlier. These include accessing teachers' 'true' beliefs, getting beyond socially desirable responses, balancing a researcher-driven agenda with teachers' own perspectives, and identifying broader cultural patterns in a larger diverse sample while still capturing the complexity and contextuality of individual teachers' beliefs.

Robson (2002) suggests that a mixed-methods approach enables a broader picture of participants and their context, a balance between researcher-driven and participant-driven perspectives, more nuanced explanations, triangulation and increased validity and generalizability. Mixed-methods analysis allows me to use the strengths of both quantitative and qualitative analysis techniques to better understand the phenomenon of interest. My purposes in using mixed-methods research encompass two major rationales outlined by Onwuegbuzie & Teddlie (2003): representation (extracting adequate information from the data), and legitimation (checking validity of data interpretation).

The choice to employ a mixed-method design is grounded also in the critical realism paradigm underlying this study. Traditionally, research has been bifurcated between positivist and interpretivist paradigms, having diverging and incompatible ontological and epistemological assumptions. Christ (2010, 2013), Lipscomb (2008), Sayer (2000), Scott (2007), and Zachariadis et al (2010) propose critical realism as an alternative paradigm in which to ground mixed-methods research, with 'significant implications for a resolution of the quantitative/qualitative divide' (Scott, 2007, p.15). Critical realism is unique in its stratified ontology that assumes multiple levels of knowledge, which allows for the legitimate and in fact necessary combination of quantitative and qualitative methods in order to provide a more complete and accurate understanding of social reality. Thus I can employ empirical methods to capture the more objective or quantifiable aspects of teachers' classroom actions and of their agreement with certain belief statements, and qualitative methods to understand the subjective aspects of teachers' beliefs and practices, in order to arrive as close as possible to a more accurate representation of their reality. Unlike interpretivism, critical realism does allow venturing causal links and explanatory statements about reality, but unlike positivism, it does not see these relationships as always consistent or predictable, since they are mediated by complex social contexts and are therefore only provisional (Scott, 2007; Zachariadis et al, 2010). Analysis must thus rely on inductive and deductive reasoning, through a spiralling process of postulating various hypotheses and seeking confirmatory and disconfirming evidence, in order to verify the best plausible representations of teachers' realities, thereby increasing the credibility of findings (Christ, 2010; Lipscomb, 2008).

Research methods and instruments

Specific methods were planned in order to answer each of the study's research questions (RQs): what beliefs held by Indian teachers conflict with the LCE assumptions of policy documents (RQ1); the relationship between teachers' beliefs and practice (RQ2); what factors shape the formation of teachers' beliefs and their enactment into practice (RQ3); and what factors within teacher education programmes can contribute to change in these beliefs (RQ4). Firstly, ten belief dimensions were identified for investigation (described above), based on literature review, my own years of working with educational reform in India, and informal

conversations with Indian educators. Based on these ten broad categories, the beliefs of 60 teachers were explored through a combination of written surveys and semi-structured interviews, along with open-ended life-narrative interviews with 9 of these teachers, based on the methodological recmomendations emerging from the teacher beliefs literature disussed earlier. Semi-structured classroom observations were conducted for these 60 teachers (three lessons per teacher) to explore how teachers' beliefs relate to their implementation of learner-centred pedagogy.

These primary data sources together informed primarily RQs 1, 2, and 3, based on my main sample of 60 teachers. In addition, interviews were conducted with 30 BRC/CRC trainers and 43 educationists from NGOs or universities. The interviews with trainers were analysed in order to understand their own beliefs and views on LCE, and their views on teachers' implementation of LCE. The interviews with educationists, which sought to understand their insights and experiences on this topic, were treated more as secondary sources rather than analysed formally as primary data, and were thus not part of the original sampling and piloting process. Rather, they were used to inform my thinking throughout the research design, data analysis and writing processes. Although all research methods generated insights into all four research questions, the analysis for RQ4 is based more indirectly on primary sources, in drawing out implications of my findings for practice. It is based more directly on engagement with secondary sources: interviews with educationists and theoretical literature on beliefs change and transformative learning, to synthesise factors in teacher education programmes that may contribute to change in teachers' beliefs. The instruments used for each of these methods are described below, and are included in Appendix-4.1.

Survey questionnaires: Based on the hypothesized framework of 10 belief dimensions discussed in the next section, a structured Likert-scale questionnaire of 71 items was designed, comprising of 10 sub-scales with roughly 6-10 items each (Cronbach's alpha coefficient for the entire scale based on a pilot with 100 teachers was 0.92). Likert-scale questionnaires allow a degree of sensitivity and differentiation of response, while still enabling comparison across a larger group (Cohen, Manion & Morrison, 2013). The survey was designed to rate the extent to which teachers agree with the LCE assumptions of NCF 2005/ RTE 2010 for each of these 10 categories (see Table 4.2). Each item consists of a belief statement with which teachers rated the extent of their agreement (ranging from 1-strongly disagree to 5-strongly agree). Items included positive and negative statements, rated as either 'high-LCE' (aligning with LCE assumptions) or 'low-LCE' (conflicting with LCE assumptions), in order to counter the tendency of teachers to 'agree' with what they see as socially desirable answers. I also attempted to counter this tendency by framing statements in a neutral way, avoiding catch-phrases or 'buzzwords' that teachers may be tempted to automatically endorse, to make it harder for teachers to guess which may be the 'correct' response. In order to further establish the reliability of the survey questionnaire with a wider sample, I distributed the

survey to 230 additional teachers and 229 additional trainers who happened to be present at the BRC training centres at the time of data collection, and who agreed to fill out the surveys for the purpose of the research. These teachers were not part of the formal sampling and their surveys were not formally analysed, but were only included in the reliability testing for developing the survey scales, as described in Section 6.1.

Teacher interviews: Semi-structured interviews were conducted with the 60 teachers to further explore the 10 belief dimensions, along with other beliefs about their role and experiences as teachers, past schooling experiences, favourite teachers, personal and professional motivations, desires for their own children, daily lives, working conditions, challenges, and views about children, learning, parents, learner-centred pedagogy, and training programmes. Questions were used as prompts but there was flexibility for further probing and elaboration where needed. Semi-structured interviews allowed me to explore specific themes of interest with standardised questions which enabled comparison across teachers. However it also allowed teachers freedom to divert or focus on what was important to them, enabling me to uncover their conscious and sub-conscious beliefs.

Life Narratives: In addition, 9 teachers out of the 60 were selected for open-ended life-narrative interviews (3 per state). These were teachers who, based on classroom observations, appreared more extreme in high and low learner-centred practice respectively. These were also teachers who were particularly expressive and had shared rich insights in their first interview, warranting a second longer interview. The life-narratives probed deeper into themes such as teachers' childhood, life history, family relationships, aspirations, self-image, interests, reflections on their life, sources of inspiration, joys and frustrations, life dreams and purpose, views about teaching and what shaped these views, views about their work, school, social issues and discrimination. The use of life narratives for understanding teachers' beliefs is recommended by Fang (1996), who argued that typical methods like surveys, interviews or stimulated recall do not adequately capture the influence of teachers' personal experiences in shaping their beliefs and practice. I felt that life narrative interviews would provide me deeper insights into the various factors that have contributed to shaping teachers' beliefs and practice.

Classroom observations: Based on ten indicators of learner-centred pedagogy described in the following section, a structured classroom observation tool was designed. This included a time-tracking component capturing time spent on various types of activities, narrative descriptions of what was happening at each 5-minute interval, and a rating component used to assign each teacher a score for each of the ten pedagogy categories, along with narrative decriptions justifying each rating assigned. Structured observation is most appropriate to enable the reseacher to chart the incidence and frequency of specific pre-identified features – i.e. ten indicators of LCE pedagogy – and to compare these across different teachers (Cohen,

Manion and Morrison, 2013). Each teacher was observed for three lessons each of 35-40 minutes duration[18], based on which they were assigned a 'pedagogy score' reflecting their extent of learner-centred practice. I could potentially have obtained further insights into teachers' pedagogy if I had spoken to students, but decided against it due to practical constraints of time and resources, and since my focus was on studying primary teachers which would have presented greater challenges for engaging in meaningful discussions on specific topics with young learners.

Interviews with teacher trainers: Semi-structured interviews were conducted with 30 government BRC/CRC trainers (10 from each state), at the BRC nearest to the urban schools visited. These individuals are responsible for providing regular training and on-site support to nearby schools, including those in this study. The interviews explored trainers' work profile, their views about teachers' strengths, challenges, motivation, their understanding of LCE, teachers' reaction to and implementation of LCE, obstacles to LCE, factors that shape and/or can help change teachers' beliefs, and recommendations for improving training programmes. These 30 trainers were asked to fill out the same survey questionnaires as teachers, in order to compare the beliefs of trainers and teachers.

Interviews with educationists: Additionally, unstructured interviews were conducted with 43 educationists working with universities or NGOs in different parts of India (listed in Appendix-4.2). Their purpose was to inform RQ4, as well as to triangulate and deepen the findings for RQs 1, 2, and 3. The interviews focused on broad themes to explore educationists' experiences and insights related to the research questions, and their feedback on the research categories, tools and/or initial findings. They were unstructured, with freedom to alter the content, sequence and wording of questions (Cohen, Manion & Morrison, 2007), depending on individuals' unique experience and insights on the topic. These interviews were conducted at various stages of the research process, from initial conceptualisation and tool development, through to the final analysis.

4.2 Belief and pedagogy dimensions selected for investigation

Ten belief domains

Several scholars highlight the disadvantages of leaving teacher belief studies too open-ended, and recommend instead selecting particular beliefs to be studied at an appropriate level of specificity, to generate more reliable findings (Buehl & Fives, 2009; Pajares, 1992; Valcke et al, 2010). For this study, ten belief domains were selected based on

[18] Bihar and Kerala teachers were observed for 40 minutes, but in Maharashtra classes last only 35 minutes, thus all the observations were cut down to 35 minutes for consistency.

my own previous experiences, examination of literature, and recommendations by Indian educationists. Initially, tentative insights on this topic emerged from the three years I worked in education reform efforts in India and interacted with diverse educational stakeholders. These initial hunches were juxtaposed with the literature which helped me identify specific categories for exploration.

The literature suggests that one's core beliefs, particularly 'worldview' beliefs (ontological, epistemological, teleological and axiological beliefs, as discussed in Chapter 1), shape many of the rest of one's beliefs. My aim was not to derive a comprehensive list of all beliefs that impact teachers' practice, but to identify central beliefs that are foundational in shaping the rest of teachers' beliefs and consequently practice, and are thus most strategic to be targeted in teacher education programmes. Next, the teacher beliefs literature, reviewed in Chapter 3, indicates several key beliefs that tend to relate to teachers' practice: particularly teachers' democratic, pedagogic, epistemological, and professional identity beliefs. Further, I undertook a thematic analysis of literature on Indian teachers and education reform, to see what other scholars have said about prevalent beliefs that may be hindering pedagogical change in India. This analysis generated ten belief domains, which are presented in Appendix-4.3 along with examples of authors who have discussed these. Similar categories were kept in mind while deciding which beliefs to explore in this study.

These tentative categories were discussed with several Indian educationists, and suggestions taken from them for refining the categories and tools. Based on the above sources, ten belief domains were chosen for exploration in this study and hypothesised as potentially affecting teachers' implementation of LCE, presented in Table 4.1.

Table 4.1: Ten belief domains selected for investigation

Beliefs about:	Belief dimensions	Categories from Literature	Worldview dimensions
1-Equality	• Views about children's value and learning ability based on caste/ gender/ community	Democratic beliefs	Ontology
2-Relationships	• Hierarchical vs. democratic relationships – in society, school, classroom • Beliefs about discipline and behaviour management		
3-Diversity	• Valuing diversity vs. uniformity		
4-Knowledge	• Source and nature of knowledge and learning • Beliefs about learning and learners/ children	Epistemological beliefs	Epistemology
5-Purpose	• Purpose of life, work, education	Pedagogical beliefs (Teacher efficacy beliefs)	Teleology
6-Responsibility for learning outcomes	• Teachers' duty as completing syllabus vs. ensuring learning outcomes		
7-Professionalism	• Integrity, work ethic, accountability		

8-Teaching as vocation	• Motivation and commitment for teaching • Views teaching as job for individual advancement, vs. calling to serve society	Professional Identity beliefs	Axiology
9-Time	• Concern for effective use of time		
10-Change	• Valuing change vs. maintaining status quo • Openness to change (social/ educational) • Possibility/ personal responsibility for change		

I also analysed and coded the assumptions of NCF 2005 regarding each of the ten belief categories selected for this study, in order to determine what would be a 'learner-centred' perspective on these issues as defined by NCF. This allowed me to explore the extent to which teachers agreed with these LCE assumptions of policy documents (RQ1). These are presented in Table 4.2.

Table 4.2: Beliefs of NCF 2005 regarding the 10 belief domains

Belief Domains	NCF 2005 Beliefs
1-Equality	"All [children] have the ability and the right to learn" (14)
2-Democratic relationships	"The classroom needs to nurture a democratic, flexible and accepting culture, so also the school institution and the bureaucratic structure…Relationships…must be informed by equality and mutual respect, and decision-making must be on the basis of dialogue and discussion" (98)
3-Diversity	"Differences between students must be viewed as resources for supporting learning rather than as a problem" (16). "When children of different backgrounds study together, it improves the overall quality of learning and enriches the school ethos" (103)
4-Knowledge	"learning and knowledge are to be sought out, authenticated and thereby constructed, and neither the textbook nor the teacher is an authority." (20) "need to recognise the child as a natural learner, and knowledge as the outcome of the child's own activity." (12)
5-Purpose	"Education should aim to build a commitment to these [constitutional] values" (10-11), [and] "should function as an instrument of social transformation"(7). "Education is concerned with preparing citizens for a meaningful and productive life." (71)
6-Responsibility for learning outcomes	"Children do not fail, they only indicate failure of the school" (84). "The child's performance needs to be treated as an indicator of systemic quality" (8).
7-Professionalism	"Teaching needs to be seen as a professional activity"(viii)
8-Vocation	"The availability of qualified and motivated teachers who perceive teaching as a career option…[is] a necessary precondition for quality" (8)
9-Time	"Planning and designing of learning activities…need to ensure that children's time on task is maximised" (96)
10-Change	"A predisposition towards social change must be viewed as core components of quality" (9).

Ten pedagogy indicators

Kagan (1990) recommends that teacher beliefs studies should define desirable beliefs and behaviours in terms of a specific pedagogical framework, in order to establish specific criteria for judging behaviours and beliefs. For the purpose of identifying a set of observable indicators for assessing the extent of learner-centred pedagogy of teachers in this study, I conducted a thematic analysis of NCF and RTE to unpack key dimensions of LCE practice as laid out in these two documents. The documents were coded using five broad pedagogic categories: curricular goals, materials, methods, relationships, and assessment. These categories are similar to those Alexander (2000) describes as the building blocks of teaching: task (goals), activity (methods), interaction (relationships) and judgment (assessment), along with teaching frame and form. The coding using these five categories resulted in ten themes that describe LCE as envisioned by NCF and RTE, based on which the classroom observation tools were designed:

(1) holistic learning outcomes

(2) linking learning to students' daily lives and communities

(3) using a variety of learning materials

(4) involving students' own exploration, active participation and peer collaboration

(5) building on students' existing knowledge and prior experiences

(6) generating students' interest and cognitive engagement in the learning task;

(7) encouraging critical questioning by students

(8) a loving and fear-free emotional environment

(9) an environment that is democratic and inclusive for every child

(10) continuous formative assessment

Table 4.3 lists supporting quotes from NCF and RTE for each of these themes. These ten themes also capture all the dimensions of LCE delineated by Schweisfurth (2013) and Small (2011).

Table 4.3: Basis for selection of ten LCE-Pedagogy Indicators

LCE-Pedagogy Indicators	NCF 2005 Quotes	RTE 2009 Quotes
1. Holistic Learning Outcomes	"The object of democratic education is the full, all-round development of every individual's personality" (8). "making connections across disciplines and bringing out the interrelatedness of knowledge."(33)	"All-round development of the child….development of physical and mental abilities to the fullest extent" (29.2)
2. Linking learning to students' daily lives and communities	"we emphasise the significance of contextualising education: of situating learning in the context of the child's world, and of making the boundary between the school and its natural and social environment porous"(30)	Communities to be closely involved in school management (21.2, 22) and in discussing children's learning progress (24e)
3. Using a variety of learning materials	"Preparing a variety of…textbooks… [and] other materials, to promote children's creativity, participation and interest" (94) "children…encouraged to seek out knowledge from sites other than the textbook, [where] neither textbook nor teacher is an authority" (20)	All schools must meet certain infrastructure norms including playgrounds, libraries, teaching-learning equipment, play material and sports equipment (19, 25)
4. Involving students' own exploration, active participation and peer collaboration	"The physical activity of moving, exploring and doing things on one's own, with one's peers or…adults, and using language - to read, express or ask, listen and interact - are the key processes through which learning occurs." (18)	"Learning through activities, discovery and exploration in a child-centred and child-friendly manner" (29.2)
5. Building on students' existing knowledge and prior experiences	"Learners actively construct their own knowledge by connecting new ideas to existing ideas" (17)	
6. Generating students' cognitive engagement and interest	"Learning must provide variety and challenge, and be interesting and engaging." (16)	
7. Encouraging critical questioning by students	"Critical pedagogy has to be practised in all dimensions of school education" (6); "to see social issues from different perspectives and understand how such issues are connected to their lives" (23); "encouraging questions and leaving space open for the pursuit of new questions." (33)	
8. An emotional environment that is loving and free from fear	"Children will learn only in an atmosphere where they feel they are valued" (14) "An enabling learning environment is one where children feel secure, where there is absence of fear...where children can ask questions freely,…making errors and mistakes"(82)	"Making the child free from fear, trauma and anxiety, and helping the child to express views freely" (29.2). "No physical punishment or mental harassment" (17)
9. An environment that is democratic and inclusive for every child	A policy of inclusion needs to be implemented in all schools and throughout our education system… Inclusive education is about embracing all. Accept difference… celebrate diversity. (84)	"Ensure that the child belonging to weaker section and…disadvantaged group are not discriminated against" (8c,9c)

10. Continuous formative assessment	"The purpose of assessment is…to improve the teaching-learning process and materials…routine activities can be employed effectively to assess learning." (72)	"Provide for comprehensive and continuous assessment …and supplement additional instruction where needed (29.2)

4.3 Sampling decisions and profile of states, schools, and teachers

Teachers were drawn from three Indian states: Bihar, Maharashtra, and Kerala. My purpose in selecting three states was not to undertake a systematic comparison between these states, but primarily to juxtapose three contexts in order to better understand how the relationship between beliefs and practice plays out in different contexts. Key socio-cultural and economic differences between the three states – described briefly in the following sub-section – will be discussed only insofar as they relate to differences in teachers' beliefs, practice, and their relationship. These specific states were chosen to provide diversity in socio-economic status and cultural context, and since they are at different points on the spectrum of educational reform, affording greater insight into how teachers' beliefs play out in a range of contexts. In terms of implementation of LCE, my previous experience in these three states suggested that Kerala has the longest and strongest history of LCE implementation[19]; Maharashtra is perhaps a middle transition state, while Bihar continues to face some of the biggest challenges in implementing LCE (Singh, 2006). This positioning of the three states at three points on the spectrum is also broadly reflected in development and educational indicators, described below. Practical considerations were also kept in mind such as location and ease of access to government schools. Three cities were chosen of relatively comparable size, demographics and level of development in their respective states – Patna, Pune, and Kochi. In each case, these cities are broadly representative of the cultural profile of their larger state, but possess much higher economic and social diversity owing to higher urbanization and migration than the rest of the state.

Both schools and teachers were selected based on purposive sampling, since the findings from this research were not intended to be generalised to the entire population of teachers in the 3 states. Rather, they are meant to provide more in-depth understanding into the nature of the relationship between teachers' beliefs and practice in these 3 contexts. Keeping in mind practical considerations, a purposive sample of 12 government primary schools was selected (4 in each state: 2 urban, and 2 rural within an hour's drive from the

[19] Tamil Nadu and Karnataka have also had positive experiences with LCE, but largely due to the recent implementation of large-scale structured programmes (ABL and *Nalikali* respectively), with supplementary materials separate from the mainstream system. In Kerala this has resulted from longer-term, wider-scale engagement with LCE principles which have now begun to infuse the curriculum, textbooks, training programmes, and teachers' thinking.

city), of relatively similar size (having roughly 7-15 primary teachers), and also selected for being 'functional' (with teachers attending regularly and engaged in teaching). In each state, 2 English-medium and 2 vernacular-medium schools were chosen where possible (this was possible in Maharashtra and Kerala, but not in Bihar where all government schools are Hindi-medium). In each state, an attempt was made to choose 2 schools with stronger and 2 with lower LCE implementation, based on the recommendation of the BRC Coordinator responsible for overseeing these schools, who was facilitating the visit to the schools. However, this was not always possible, either due to non-availability of more 'learner-centred' schools (e.g. in Bihar), or due to lack of a clear understanding by the BRC Coordinator of what learner-centred pedagogy entails. It is possible that the sample may have been skewed towards those recognised by the officials as being 'good' schools; however, as the study shows, I was still able to engage with a diversity of teacher beliefs and practice within the sample.

Five primary teachers were selected in each school, totalling 60 teachers. The focus was on primary teachers since they have been the most targeted for LCE reforms since DPEP (less programmatic focus has been placed on implementing LCE at other levels of the education system). Where possible, in each school one teacher was selected per grade from 1 to 5, though this was not always possible since many of the schools only had one teacher or less for each primary grade. Each teacher was observed during 3 lessons, in subjects ranging from regional language, English, mathematics, and environmental science (EVS). I felt the phenomenon of interest – teachers' beliefs and extent of learner-centred pedagogy -- were not necessarily subject-specific, and could be observed in a variety of subject contexts. An attempt was made to have some variety in gender and age in the sample, though this was not always possible since some of the schools had only 5-6 teachers teaching at the primary level.

For the teacher educator interviews, 30 BRC/CRC trainers were selected based on introduction by the BRC coordinator. In most cases these were trainers who happened to be gathered at the BRC for a training programme, or who were called for the purpose of this research. They would have been the BRC/CRC trainers responsible for training and supporting teachers and schools in the sampled Cluster/Block. The 43 educationists chosen for unstructured interviews were either individuals who I had come across in my work with SSA at the national level, or those who were recommended to me by the initial educationists interviewed. In all cases they are researchers and/or practitioners who have been engaged in pedagogical reform and/or teacher education in India, and who have specific insights on the issue of teachers' beliefs (which I came to know based on their writings, speeches, my earlier interactions with them, or recommendation by others).

State profiles

Human Development Index (HDI) indicators[20] reflect the distribution of Bihar, Maharashtra and Kerala at three distinct points of the development spectrum (see Table 4.4).

Table 4.4: State-wise development indicators

	Bihar	Maharashtra	Kerala	India
Population (millions, 2011)	104	112	33	1210
HDI (2007-08)	0.367	0.572	0.790	0.467
HDI Rank 2007-08 (total 23 states)	21	7	1	--
Inequality-adjusted HDI (2011)	0.303	0.397	0.520	0.343
Female literacy rate (%, 2011)	53.3	75.5	92.0	65.46
Incidence of poverty (2004-5)	41.4	30.7	15.0	27.5
PPP Income per capita ($, 2008)	2162	3913	5263	3337
Life expectancy at birth (years, 2004)	61.6	67.2	74.0	63.5
Mean years of schooling (years, 2004-05)	2.97	5.12	6.19	4.10
Out-of-school children (6-17yrs, %, 2007-08)	26.4	15.9	3.1	11.0

Sources: UNDP, 2011; IAMR, 2011

Bihar, although one of the fastest-growing states of India, has per-capita incomes among the lowest in the country (IAMR, 2011). Bihar has significantly higher poverty levels and lower health, education and sanitation indicators than the national average (especially among SC, Muslim, and rural communities). By contrast, Maharashtra is among the more industrialized states in India, with one of the highest per-capita income levels. However this masks huge regional disparities, and is mainly due to a thin geographic stretch in the south-west (including Mumbai and Pune) that is highly industrialized and commercialized. The state as a whole had 32 million poor people in 2004-05 (30% of its population, and 10% of India's poor) (IAMR, 2011).

In turn, Kerala is far ahead of other Indian states in human development, often considered an outlier referred to as the 'Kerala model' of development. It ranks first in India on most HDI indicators, which compare favourably with several developed nations (IAMR, 2011). Some have attributed Kerala's success to the historical influence of socio-religious reform movements, Christian missionaries and other religious-minority-led voluntary organisations that worked to democratize education and health among not only their own communities but also among disadvantaged, low-caste communities (George & Sunaina, 2005; Tharakan, 2007). It is to be noted that Kerala has high shares of religious minorities, shown in Table 4.5.

[20]HDI is calculated by UNDP for various countries/states based on measures of economic, educational and health development.

Table 4.5: State-wise socio-religious breakdown (2007-08)

	Bihar	Maharashtra	Kerala	India
Religion (%)				
Hindu	84.7	82.9	57.3	82.2
Muslim	14.9	11.2	24.1	12.9
Christian	0.1	1.1	18.6	2.1
Other	0.1	0.2	--	1.8
Caste (%)				
SC	20.2	13.1	10.3	19.9
ST	0.9	8.4	1.1	8.6
OBC	60.7	27.1	61.5	42.3
Other	18.2	51.4	27.0	29.2

Source: IAMR, 2011

Other factors cited are various political movements and left-leaning governments, sparking public activism and growing rights-consciousness among underprivileged groups (Dreze & Sen, 1995 in Tharakan, 2007), as well as the Land Reforms Act 1969, which gave land ownership to cultivating tenants and hutment dwellers, and triggered many social changes (UNDP, 2011). For the most part, development has evenly benefited all communities, and the 'Kerala model' has shown that even states with low income levels can achieve much if public action is aimed at promoting people's basic rights and capabilities. However some inequalities persist among rural STs and SCs, marine fishing communities, Muslims, and in the socio-economic empowerment of women (Infochange, 2008; Tharakan, 2007; UNDP, 2011).

Educationally, a similar trend is observed between the three states, with Kerala having some of the highest and Bihar some of the lowest educational indicators in India, and Maharashtra somewhere in between (Table 4.6).

Table 4.6: State-wise primary-level educational indicators

	Bihar	Maharashtra	Kerala	India
Educational Development Index (2009-10)[21]	32	14	3	--
Average Student-Classroom Ratio (2011-12)	78	27	20	30
Average Pupil-Teacher Ratio (2010-11)	76	29	23	43
Percentage of trained teachers (2010-11)	85	99	100	90
Gender Parity Index (2010-11)	0.94	0.98	1.00	1.01
Drop-out rates Class I-V (%, 2010-11)	35.7	20.3	0	27.0

Sources: NUEPA, 2011, 2013; GoI, 2012d

In terms of LCE, all three states were part of DPEP which initiated efforts towards child-centred primary education since the mid-1990s. In Bihar, a focus was placed initially on addressing its huge infrastructure, enrolment and attendance challenges. Some attempts were

[21] The Education Development Index (EDI) is published annually by NUEPA/MHRD, assigning each state an overall score/rank based on progress in educational access, infrastructure, teachers and outcomes, after surveying over 1.3 million schools across all districts.

made to promote child-centred pedagogy through the *Ujala* in-service teacher training programmes, but with limited impact: classrooms remain characterised by low teaching activity, rote-learning and discrimination (De et al, 2011; JRM, 2013; Singh, 2006). Pre-service TE institutions were largely inactive for two decades since the state government decided in the early 1990s that primary teachers did not require pre-service degrees, a situation which changed only in recent years.

In Maharashtra, with its longer history of education promoted by 19th–century social reformers, the educational scene is outwardly better, with considerably higher levels of infrastructure, enrolment, and teacher qualifications. However LCE implementation has remained limited. Although an innovative LCE-oriented programme called *Nandadeep Shala* ('Active Schools') was initiated by government teachers in Latur district under DPEP in the late-1990s, several perfunctory attempts to upscale this programme to other districts in the state were unsuccessful (UNICEF, 2012). In contrast, Kerala has been furthest ahead in universalizing elementary education and in implementing LCE. Educational enrolment among the poor increased greatly following land reforms, and widespread public transport facilitated educational access for rural students (IAMR, 2011). Consistent interventions for reforming primary education by voluntary groups like Kerala Sasthra Sahithya Parishad (KSSP), as well as several initiatives toward curricular and pedagogical reform under DPEP and SSA, have resulted in the entire curriculum being oriented around critical pedagogy and social issues. Heightened competition from private schools also pushes government schools to improve their quality (67% of Kerala's schools are privately-owned, the highest percentage in India – NUEPA, 2013).

The three cities selected, Patna, Pune, and Kochi, are all major urban centres in their respective states. Patna, Bihar's capital, was also the capital of the ancient Magadha Empire, and an ancient seat of learning and fine arts. With a population of 2.0 million (Census, 2011), Patna had the highest per-capita GDP in Bihar in 2004-05, and has been ranked the fifth fastest-growing city in India (Nigam, 2008). Pune, the second-largest city and cultural capital of Maharashtra, also has an ancient history, and was once capital of the Maratha Empire. Its population of 5.0 million is 72% Hindu, 12% Sikh, 10% Muslim, and 2% Christian (Census, 2011). It has had a long history of education, with more than 100 educational institutes, 9 universities (Kaul, 2006), and some of the earliest schools for girls and low-caste children set up by Indian reformers Jyotirao and Savitribai Phule. Kochi is the most densely populated city in Kerala (greater metropolitan region of 2.1 million people; Census, 2011). It has one of the highest Christian populations in India (35%), with 47% Hindu and 17% Muslim. Its district, Ernakulam, was the first in India to be declared totally literate in 1990, thanks to large-scale efforts under the National Literacy Mission by local government bodies and NGOs like KSSP. The Ernakulam literacy campaign aimed at mobilizing a large committed 'army' of development volunteers, strengthening primary education, and promoting critical social consciousness (Tharakan, 2000).

School and teacher profiles

Table 4.7 depicts the range of school sizes and basic information on each School Head (where available). Each school was assigned a codename consisting of the first letter of the state, and a number from 1-4 (1-2 are rural, 3-4 are urban).

Table 4.7: School profiles

School	Classes	No. of Teachers	No. of Students	School head (Gender, Age, Qualifications)
B1	1-8	8	375	Male, 41, MA. B.Ed
B2	1-8	8	(not available)	Male, 43, MA. BT.
B3	1-8	18	1200	Male, 57, B.Sc.
B4	1-5	5	(not available)	Female, 59, B.A.
M1	1-7	6	189	Male, 55, 12+D.Ed.
M2	1-7	14	(not available)	
M3	1-7	13	800	Female, 30's.
M4	Nursery -7	10	600	Female
K1	1-7	10	263	Female, 52, BA+TTC*
K2	1-7	7	81	Male
K3	1-4	6	186	Female, 52, 12+TTC*
K4	1-7	60	1679	Female

*Teachers' Training Certificate (TTC), equivalent to Diploma in Education (D.Ed.).

The school contexts vary considerably across the three states. The Bihar schools were by far in the poorest condition: with run-down buildings, courtyards scattered with garbage, construction materials or stray animals (B1, B2, B3), and access roads also in poor condition or strewn with garbage (B1, B4). Schools had few toilets, which were either dirty, locked, or non-functional (B2, B4). Few of the Bihar schools had playgrounds, limited to some rusty, run-down play equipment (B3, B4). All four schools had insufficient classrooms or teachers; thus often two or more classes were combined in a single room or made to sit outside on the veranda. While B1, B2 and B4's classrooms were in relatively decent condition, clean and not too crowded, B3 has many overfilled, dark classrooms with sometimes up to 200 students crammed on benches or on the floor. Most classroom walls were whitewashed and blank, besides occasional pictures of national leaders, Hindu gods or maps (B1, B2, B4). Most classrooms had a teacher's desk, chair and blackboard (though some not functional – B3, B4), some had student benches (B2, B3) while in others students sat on the floor, and many had no electricity. Most schools had at least some teachers missing – either deputed as CRC trainers (B1), on election duty (B1, B2), or on leave. Thus teaching was often multi-grade with classes combined, and while teachers addressed one class, the other often sat idle.

In comparison, Maharashtra schools were generally in better condition, with better facilities and resources like blackboard and benches. The rural schools were situated among rice fields and quite green and peaceful, with large compounds, separate toilets and water tank, and sufficient classrooms (M1, M2). The urban schools were relatively crowded and chaotic since they had three different sections housed in one building (English-medium, Marathi-medium and Urdu-medium), and had Pupil-Teacher Ratios around 60:1. In M3, classes were occasionally combined in one room, two teachers were absent without planning, and toilets were few and not very clean, with many children relieving themselves in a semi-open courtyard, emanating a strong odour. M4 was relatively better-off, with separate rooms and teachers for each class, a staffroom and Headmaster/Headmistress' (HM's) office, sufficient benches in each class, and peons who regularly kept classrooms and corridors clean.

Finally, all four Kerala schools were significantly better maintained and resourced. Both rural schools were situated on large compounds (over 1 acre) with large functional playgrounds, spacious well-ventilated classrooms, an audio-visual room, computer room with 5-7 computers, TV and LCD projector, HM's office, staffroom, kitchen, and well-maintained toilets. K1 has a highly motivated Principal who initiated various projects like a herb/vegetable garden, rain-water harvesting, a mothers' library, and others. K2 however has struggled to maintain its student enrolment since students are increasingly opting for English-medium private schools, and every summer teachers go door-to-door seeking out students. The two urban schools are also well resourced and maintained. K3 organises activities like card-making and flower-carpet competitions with active student participation. K4's classroom walls are colourfully painted and filled with charts and students' work, and children sit on small plastic chairs and low tables instead of benches. However classrooms are quite crowded with 1679 students total, a pupil-teacher ratio of 50:1, and some classrooms lacking proper lighting.

The final sample of 60 teachers had a relatively spread-out age distribution (roughly half below and half above 40), ranging from 22-59 years, with a mean age of 38.8. Teachers were primarily female (51/60) and Hindu (44), with some Muslim (8), Christian (7) and Buddhist (1) teachers. In terms of caste, 14 teachers categorized themselves under SC/ST groups, 7 under 'Muslim', 22 under OBC or BC (Backward Classes), and 17 as belonging to dominant caste groups. Three teachers had a monthly family income below ₹5,000, 11 between ₹5-15,000, 18 between ₹15-30,000, 19 above ₹30,000 while 9 did not reveal their family income[22]. In terms of qualifications, 25 teachers held a 12th grade plus 2-year Diploma in Education (D.Ed.) or TTC course (for teaching at primarily level). Twenty-one held a Bachelors plus some teaching degree (either TTC/D.Ed. or B.Ed.), while 5 held only Bachelors with no teaching degree. Nine held a Masters degree (7 of whom also had a D.Ed. or B.Ed.), while 3 had only completed 10th standard plus a TTC/D.Ed. teaching certificate. The sample

[22] In India the urban poverty line is considered approximately ₹5,000 per month per family (Parsai, 2011). A monthly family income of ₹30,000 would equal approximately US$6,000 per year.

contains a mix of contract and permanent teachers, but information was not gathered on this variable. A detailed profile of all teacher variables is provided in Appendix-4.4.

4.4 The data collection process

When I began this PhD I had received a grant to fund the data collection, analysis and dissemination of this research, which enabled me to carry out a relatively large-scale project.[23] Six research assistants (2 per state) were appointed to help with data collection, which had the advantage of enabling a larger sample, and also avoiding having to rely on language interpreters which interrupts the flow of conversation, since I am not fluent in all three state languages. Research assistants were selected who were fluent in each state language, had a background in education and qualitative research methods, and a good understanding of and interest in the research topic. At the same time, working with a large research team poses certain limitations, such as variation in the way the research tools are administered or in which data is recorded (particularly interviews and classroom observations), or variation in the nature of rapport established with different research participants. Moreover, working with research assistants raises questions regarding the other researchers' positionality: their own understanding of and views towards LCE may have been different from mine, which may potentially have subtly affected the data collection process. While some of the above limitations may have been unavoidable, I attempted to offset some of these challenges by personally training each of the research assistants, where possible at an actual government school, to ensure consistency in the data collection. I developed a detailed orientation manual to help them understand the thinking behind this research, specific instructions for administering each tool, and research ethics protocol.

I was also involved in school visits in all 3 states, to ensure consistency of data collection. Since I am most comfortable with Hindi and have least knowledge of Marathi and Malayalam, I was most involved in the Bihar data collection, where I visited all four schools, observed all twenty teachers, and interviewed several of the teachers and trainers myself. In Maharashtra and Kerala the language constraint forced me to rely more on research assistants, though I personally visited several schools in each state and observed or interacted with many of the teachers and trainers. Where I conducted interviews this was done with the help of a language interpreter. All interviews were audio-recorded, transcribed directly in English, and the English transcriptions checked against original recordings. However the language barrier does limit my ability to glean certain nuanced insights into teachers' beliefs that might have been possible had I been able to conduct all interviews myself in teachers' local language.

[23] The research was begun with prior consent from both the funding agency and my university. The project funding was terminated unexpectedly soon after completion of data collection. Thereafter I proceeded to analyse the data solely as part of my PhD.

Draft research tools were refined based on feedback from several educationists. Thereafter the survey was piloted with 100 teachers in Maharashtra with the help of research assistants, and finalised after determining their reliability through statistical analysis. Item analysis yielded a Cronbach's alpha of 0.93 for the overall scale, and inter-scale correlations were significantly positive for all the scales, although four survey items were found to significantly reduce the alpha coefficient and were thus deleted from the survey. The interview and classroom observation tools were also piloted with 10 teachers, with the help of several of the research assistants to ensure inter-rater reliability. This process yielded several insights into ways to refine the tools, to rephrase certain questions to facilitate understanding by participants, and ways to ensure consistency across the research team. The tools were then translated into the 3 regional languages (Hindi, Marathi, Malayalam) by a native speaker and teacher of that language. Each was then re-translated back into English by another person fluent in that language, to verify accuracy of translation. Unfortunately these measures to improve accuracy did not prove sufficient, since after data collection I discovered some inaccuracies in translation in a few of the survey items, which later had to be deleted.

Access to schools was facilitated through SSA 'State Pedagogy Coordinators' (in charge of pedagogical improvement in each state), who I knew from my previous work with SSA. I submitted request letters describing the research objectives and process to the state educational authorities, who were supportive of the research aimed at benefiting their training programmes, and granted me permission letters to access schools. The State Coordinators introduced me to local BRC Coordinators, in charge of training teachers and monitoring schools within the Block, who in turn helped identify schools and facilitated visits. Each visit was begun by discussing the research with the HM, who in all cases were quite agreeable to allowing us to observe and interview teachers freely. In many ways this is a reflection of the hierarchical culture that operates in the education system, where schools are used to acquiescing to authorities who periodically visit (often unannounced) to collect information or 'inspect' quality, expecting full cooperation. While this hierarchical and submissive attitude to authority figures facilitated my access to schools, it also likely skews the data since there is an eagerness to please and impress to obtain a 'favourable' report. It was important to distance myself from being perceived as a typical authority figure, which was perhaps helped by my female gender, young age, and friendly attitude. Repeated attempts were made to reassure teachers that this was not an 'evaluation' visit, they did not need to act differently from their everyday practice, all data would remain anonymous, and would not reach any of their superiors or have any professional consequences for them.

Each school visit lasted one to two weeks (excluding school holidays/ closures). The first day was spent building rapport with teachers, selecting 5 teachers for the study, and chalking out plans for the visit. Thereafter classroom observations were initiated. An attempt was made to be as unobtrusive as possible, by sitting at the back of the classroom, and constantly reminding teachers to ignore us and that we just wanted to observe their normal

everyday activities. While the observer's presence was bound to affect teachers' performance, teachers for the most part complied, though at times some would refer to us or address us directly during the lesson. Sometimes students would get distracted and curious about our presence, and we tried to either ignore them or smile and motion for them to face the teacher. After the observations, a few teachers asked for feedback on how well they did compared to teachers in other schools/ states in the study. We clarified that we were only recording observations and not passing judgments on their performance, and that we would only have a complete picture for sharing after the final report was collated.

Next were the semi-structured interviews with each of the teachers observed. Each took about 40-60 minutes, and was conducted during lunch breaks, spare periods, or after school, usually in an empty classroom or library. All the interviews were audio-recorded with the teacher's permission, after explaining that this was so that the interviewer could participate more fully without taking notes, that recordings would not be shared with anyone, and that their responses would remain completely anonymous. We tried to create an atmosphere of ease for the interview, beginning with some informal chatting, maintaining a casual and friendly tone, and assuring teachers that there is no 'right' or 'wrong' answer and they could just relax and be honest. We attempted to ask non-leading questions to avoid giving an indication of what is the 'desirable' answer. Though the presence of the recorder may have affected teachers' comfort-level, most appeared at ease and spoke quite at length, except in a few cases. We also had a chance to interact with teachers informally during breaks, before and after school, which supplemented richer insights into teachers' lives, routines and views. The nine life-narrative interviews were originally planned to be conducted in teachers' homes to gain more insight into their daily lives and contexts, but this was not always possible logistically. Thus several were conducted within the school premises itself where teachers felt most at ease, either after school or on a holiday so they were not pressured to return to their work.

The surveys were administered last so that they would not influence teachers' classroom behaviour or interview responses. They took about 30-40 minutes, and were completed by all teachers in the school as well as the HM where possible, in the researcher's presence in case clarification was needed. Once again, teachers were reassured that there is no right or wrong answer and that we wanted them to record their first gut-level response. The wide range of responses obtained for many of the questions indicates that most teachers were relatively honest, or could not guess what the 'desirable' response was. Along with the above data, in each school I took photographs and a few videos, not as a primary data source but more as a means to jog my memory during analysis.

Once the school visits were completed, the BRC coordinator arranged a visit to the nearest BRC where all the interviews with BRC/CRC trainers took place. After completion of data collection, all data was typed into Word or Excel documents with the help of research assistants. Thereafter I spent considerable time personally checking and cleaning up all the

data, since various errors were found in typing, translation, or inconsistencies in scoring across different research assistants. All the qualitative data was formatted for use in NVIVO, while Excel sheets were formatted for use in SPSS.

4.5 Critical realist approach to analysis

Cohen, Manion & Morrison emphasise that the key factor in determining one's analytical approach is 'fitness of purpose': 'the researcher must be clear what s/he wants the data analysis to do as this will determine the kind of analysis that is undertaken' (2007, p.538). The objectives of this study include four of the five research objectives outlined by Onwuegbuzie & Leech (2006): (a) *exploration* of teachers' beliefs and practice to develop tentative hypotheses; (b) *description* of the nature of teachers' beliefs; (c) *explanation* or developing theory to elucidate the relationship between beliefs and practice and the wider factors shaping these; and (d) *influence* or impacting educational practice in India. In keeping with my choice of a critical realist, mixed-methods approach, the purpose of this study straddles both qualitative and quantitative paradigms, warranting both exploratory (theory-building) and confirmatory (theory-testing) analysis techniques. Johnson & Onwuegbuzie (2004, p.17) describe how mixed-methods research 'includes the use of induction (discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering…the best explanations for understanding one's results).' Similarly, a critical realist analysis switches back and forth between directly observable evidence and proposed theoretical models, to confirm and verify initial theories and generate a more representative understanding of reality (Christ, 2010). This is the analytical approach followed in this study, which can be summarised in two distinct phases: exploratory and confirmatory.

The first exploratory phase lasted about a year, and investigated primarily RQ1 (which teacher beliefs conflict with LCE) and RQ2 (relationship between beliefs and practice). It corresponded broadly to the first three of seven stages of mixed-methods analysis outlined by Onwuegbuzie & Teddlie (2003): data reduction, data transformation, and data display. *Data reduction* involves reducing the dimensionality of qualitative data (through thematic analysis) and quantitative data (through descriptive statistics). Qualitative data was analysed using the constant comparative method (Maykut & Morehouse, 1994). I first read through the teacher interviews and identified key themes and beliefs that emerged (not restricted to the pre-identified belief domains). A list of 60 nodes were identified (later refined and grouped under 10 tree nodes, attached as Appendix-4.5), based on which all the interviews (teachers, life-narratives, trainers) were coded using NVIVO software. Thereafter, all statements under a common node were grouped together for closer analysis of patterns. For the quantitative data, simple descriptive statistics was conducted using Excel to determine the frequencies, means, and standard deviations for all survey items and for each of the sub-scales separately.

The next stage, *data transformation*, involves 'quantitizing' qualitative data into numeric codes that can be represented statistically, or 'qualitizing' quantitative data into narratives that can be analysed qualitatively, to enable comparison. Each teacher was assigned a 'Pedagogy Score' capturing the extent of teachers' learner-centred pedagogy (LCP) based on the classroom observation tool. The lowest 20 scores were labelled 'low-LCP' (ranging from 211-276), the middle 20 'mid-LCP' (282-333), and the highest 20 'high-LCP' (334-533). Similarly, each teacher was assigned a 'Belief Score', based on a combination of their surveys and interviews, and classified under low-LCE, mid-LCE and high-LCE beliefs. The terms 'low', 'mid' and 'high' are relative to teachers rather than criterion-based. They are not meant to be a value-judgment on the quality or merit of teachers' beliefs or practice, but simply an indication of the extent their alignment to LCE. The process for finalizing teachers' belief and pedagogy scores is described in more detail in chapter 6. Finally, *data display* involves describing the qualitative and quantitative data pictorially using charts, diagrams, matrices, tables and graphs. Cross-tabulations were compiled of teachers' demographic data and their pedagogy and belief scores, to identify potential relationships for investigation. This facilitated the development of initial theoretical models and hypotheses to begin elucidating the relationship between constructs. Based on this initial round of analysis, various models were developed to hypothesise the relationship between beliefs and practice and factors that might influence this relationship, relationships between specific beliefs and pedagogical practices, and relationships between different beliefs.

The second confirmatory phase aimed at deepening, refining and verifying initial hypotheses and theoretical models. It aimed at a more in-depth analysis of RQ2 (beliefs-practice relationship), RQ3 (factors shaping beliefs) and RQ4 (factors contributing to belief change). This phase broadly corresponded to Onwuegbuzie & Teddlie's (2003) final four stages of mixed-methods analysis: data correlation (between quantitative and qualitative data), consolidation (combining both to create consolidated data sets), comparison (of data from both sources), and integration into a coherent whole. During this phase, interviews and pedagogy narratives of highest and lowest scoring teachers were compared, to discern patterns and trends. Teachers were sorted into five categories based on the nature of relationship between their belief and pedagogy scores. One teacher in each category was selected as a case study for deeper analysis, in order to gain further insights into the factors that shaped both their beliefs and their pedagogy (RQ3). The teachers selected for case studies were teachers for whom I had collected longer life narratives, and who appeared to be representative of their specific category. Moreover, further statistical analyses were conducted using SPSS (e.g. correlation, one-way ANOVA, linear regression – described in Chapter 6 and Appendix 6.1), to better understand the effect of different variables on teachers' belief and pedagogy scores, and to verify the extent that these fit the models derived from qualitative analysis. Apparent contradictions were examined and rival hypotheses explored. Finally, to explore RQ4, I analysed interviews with teachers, trainers and educationists, life-narratives of teachers who

demonstrate high-LCE beliefs/practice, as well as literature on beliefs change and transformative learning.

Two analytical tools offered by critical realism were found particularly useful in this second phase of analysis: *abduction* and *retroduction* (Meyer & Lunnay, 2013). *Abduction* involves investigating findings that do not seem to fit within initial theoretical frameworks (exploring exceptions – e.g. teachers whose beliefs contradict their practice). This enables the researcher to discern unobvious connections, consider different scenarios and move beyond the initial theoretical premise. This addresses a central critique of deductive analysis, that it forces data to fit *a priori* theories. While deduction seeks to either prove or disprove theories and may leave unexamined those findings that fall outside proposed frameworks, abduction focuses precisely on data that does not fit the mould, in order to perceive new ideas or possibilities, and develop a more comprehensive understanding of the theoretical frame.

Similarly, *retroduction* involves analysing larger social realities and structures underpinning the findings (e.g. cultural and ideological forces that shape teachers' beliefs). Critical realism argues that social phenomena and human behaviours can only be understood by uncovering the multi-faceted mechanisms that produce them. Retroduction seeks to clarify the preconditions under which a phenomenon exists, and without which it cannot exist (Ibid.). Two retroductive strategies employed included studying extreme cases (e.g. teachers with very low- or very high-LCE beliefs/practice, or with very strong relationships between beliefs and practice), and cross-case comparisons to identify underlying structures common across different cases. Questions were posed such as: What are the larger cultural, ideological and contextual factors that shape low-LCE beliefs? What conditions enable high-LCE beliefs? What preconditions are required to enable high-LCE beliefs to be enacted into high-LCE practice? Abductive and retroductive analysis, when combined, can help generate new conceptual frameworks or theories that cannot be arrived at through purely inductive or deductive analyses. It requires going beyond what is empirically observable, proposing instinctive inferences and theories which appear most plausible in explaining complex findings, and then verifying these against the data. "Social research, in simplest terms, involves a dialogue between ideas and evidence" (Ragin, 1994, in Meyer & Lunnay, 2013, para 2.10).

Phase 2, which also lasted about a year, was interspersed with extensive reading of literature on Indian teachers' beliefs and Indian culture and ideologies, generating deeper insights into the societal structures possibly underlying teachers' beliefs. I also delved deeper into the teacher beliefs literature to glean ideas for analysing beliefs and their relationship to practice. This phase was also interwoven with beginning to write the first draft of my thesis, a process which itself sparked new insights and clarity of thought through the very act of writing. Moreover, throughout both phases of analysis and writing, I continued my work with UNICEF, as well as conversations with Indian educationists on this research and initial findings. These provided opportunities to obtain feedback, triangulate, deepen my insights, and strengthen my

interpretation. Analysis and interpretation continued all through the process of writing and re-writing, right up to the final thesis draft.

4.6 Ethical issues and subjectivity

Certain ethical questions arise from the very nature of this topic, regarding the justification for changing teachers' beliefs, and which are the 'desirable' beliefs that teacher education programmes should promote. Chapter 8 discusses these ethical issues in more detail. Moreover, in the surveys, some sensitive data was collected such as information about teachers' ethnicity, religion, caste and income bracket, to explore whether these factors influence teachers' beliefs and/or practice. It was clearly communicated to participants at the start of each encounter that their responses would remain anonymous and confidential, since individual or institutional names would not be identified in any reports. To ensure anonymity, each teacher was assigned a unique numeric code which was used instead of their real name throughout the data collection and analysis, until the final write-up stage when these were replaced with pseudonyms. All research assistants and language interpreters were requested to maintain confidentiality and adhere to the principle of '*primum non nocere'* – do participants no harm (Cohen, Manion & Morrison, 2007). For each school visit, I followed standard academic protocols (BERA, 2004) by providing a background letter explaining the purpose, methods and use of the research, and ensuring the confidentiality and anonymity of data gathered. Verbal informed consent was obtained from all HMs and teachers.

Finally, Cohen, Manion & Morrison (2007) highlight the importance of researcher reflexivity – acknowledging the researcher's influence on data collection and analysis. My previous experience working with the national Ministry of Education (MHRD) was invaluable in equipping me with considerable knowledge of Indian government schools and educational reforms. During the analysis and writing phases I worked for 3 years with UNICEF-India on similar issues of teacher education and pedagogical reform, which kept me deeply immersed in LCE reforms. My role included facilitating state-level workshops for teacher educators on topics similar to this research – how to improve the quality of schools and teacher education programmes, and how to bring changes in teachers' beliefs and practice towards LCE – which generated many discussions and further insights on this topic. These professional experiences, along with opportunities to attend national educational meetings and conferences, interact with various educationists, and visit government schools and training programmes across India, all enriched my analysis of the data.

At the same time, my positional status and the fact that I obtained access to schools through state-level government officials, may well have influenced school members to be more acquiescent in complying with requests, especially in an Indian cultural context where a desire to submit to and please authority figures is common. My position, and the resulting perception

by participants, might raise ethical issues regarding the power equations underlying the research process, since participants may not have felt freedom to show overt resistance to the research. On the other hand, the fact that I and all the research assistants were female, and younger than most of the teachers, may have helped to offset some of the positional hierarchy, perhaps rendering respondents less defensive or threatened, and more comfortable in opening up.

My research is further impacted by my position as both insider and outsider in Indian culture and education. I am ethnically Indian, have grown up and undergone schooling in both India and the geographical West (Brazil, Canada and US), am comfortable and familiar in all these cultures, and am now completing this PhD from the UK. My particular researcher positionality, inhabiting both Indian and Western cultural spaces and neither at the same time, carries with it its own situatedness, multiplicity, acumen and perspective quite different from those researchers situated entirely either in India or the West. My 'insider/outsider' position makes me careful not to take sides, or position myself against either Indian or Western cultural beliefs and practices, while enabling me to examine both critically. Finally, my analysis is also influenced by my own beliefs: the fact that I am personally inclined towards learner-centred education, or that I may already have developed certain hypotheses or assumptions regarding Indian teachers' beliefs based on prior experience and reading.

Conclusions

This chapter has anticipated various methodological, practical and ethical challenges of studying Indian teachers' beliefs. It lays out the critical realist, mixed-methods approach found most suitable for addressing these challenges in studying the relationship between specific beliefs of Indian teachers and their extent of learner-centred practice. This approach informs all stages of research design, data collection and analysis, with the hope of increasing the credibility and legitimation of my conclusions. The methodological decisions and processes made transparent in this chapter should enable the reader to determine how credible, trustworthy, and useful to other contexts are the findings presented in subsequent chapters. The various measures outlined in this chapter render this study one of the most systematic and wide-ranging studies of teacher beliefs in India conducted to date.

The first part of this thesis has laid out the rationale and objectives of studying Indian teachers' beliefs in the context of LCE reforms; the background and challenges of LCE reforms in India; insights from previous studies on teacher beliefs; and now the process by which this research was conceptualized, conducted and analysed. The next four chapters present my empirical findings and analytical insights relating to the original research questions, starting with Chapter 5 which most directly addresses RQ1 – exploring beliefs held by Indian teachers which contradict the LCE assumptions of national policy documents.

Chapter 5 – The Alignment of Teachers' Beliefs with LCE Policy Frameworks

> The significance of this research will be to reveal the importance of the underlying world, in affecting teaching practice. It is a form of psychoanalysis, exploring the 'shadow' of modern India, to bring out the schizophrenia of our society.
>
> – (Interview with educationist, May 2009)

The current chapter approaches the heart of this thesis, presenting key themes in the beliefs of teachers in this study. Beliefs selected were themes that emerged most strongly in teachers' responses, that varied most highly across teachers in terms of their alignment to LCE principles, and in which a large number of teachers seemed to disagree with the learner-centred assumptions of policy documents (presented in Table 4.2). These considerations, as well as initial qualitative analysis of interviews with both teachers and educationists, led to refining of the original ten belief categories selected for investigation. Based on the above factors, I deleted one of the earlier categories (9-Time) that did not figure as prominently as the others in teachers' beliefs or practice, and clubbed together two that the interviews suggested fit better together (7-Professionalism and 8-Teaching as Vocation), yielding a total of eight final belief categories. These include beliefs about equality, relationships, diversity, learning, purpose, accountability for outcomes, professional commitment, and change.

This chapter focuses on describing these eight beliefs. Teachers' beliefs are at times presented according to teachers' pedagogy category (low-, mid- and high-LCP), to begin identifying relationships between teachers' beliefs and pedagogy – examined further in Chapter 6. In each case, teachers' beliefs tend to fall on a spectrum of varying degrees of alignment with LCE assumptions, and also tend to broadly correspond with the extent of teachers' learner-centre practice. Findings presented here are based primarily on the qualitative analysis of teachers' interviews[24], and only to a smaller extent on quantitative survey data, which will be presented in more detail in Chapter 6. Findings from the qualitative analysis presented here are reinforced by insights from interviews with the trainers/educationists and references to the wider literature on Indian teachers, in order to show that these beliefs are not peculiar to this group of teachers alone, but point to wider cultural trends among teachers. While various other scholars and observers have indeed alluded to similar beliefs among Indian teachers, as demonstrated earlier there has been little empirical evidence to back up these observations until now.

It must be noted that the intention of this research is not to feed into the 'blame the teacher' narrative that sometimes finds its way into Indian educational discourse. As discussed

[24] A sample excerpt from a teacher interview transcript is included in Appendix-5.1.

in depth in Chapter 7, the eight beliefs identified in this chapter are reflective not only of wider trends evident among Indian teachers, but of wider ideologies operating in Indian society. To that extent, teachers can be seen as victims as well as vehicles of these wider ideological beliefs. Teachers are the site where the values of Indian society are transacted and transmitted to succeeding generations; they can thus be seen as a microcosm of wider social values, as captured in the quote at the opening of this chapter.

5.1 Equality

NCF 2005 expresses a firm belief in 'equality, social justice and respect for diversity' as the 'foundation of school practice' (p.81). It believes that 'all children have the ability and the right to learn…all children are naturally motivated to learn' (p.14-15). However, many teachers in this study believe that some students are simply incapable of learning, and display various discriminatory stereotypes about the learning ability of poor, low-caste communities.

NOT every child can learn

Teachers' survey responses reveal that many teachers (particularly those with low/mid-LCP) believe that only few students are capable of succeeding academically, typically determined by caste, poverty or gender, and that the teacher's role is to focus on the 'brightest' few (see Table 5.1).

Table 5.1: Equality beliefs:
Percentage/number of teachers who agree with statements below

Survey Item	% teachers agree (n=60)	Low-LCP teachers agree (n=20)	Mid-LCP teachers agree (n=20)	High-LCP teachers agree (n=20)
Q35 Realistically, only a few students are capable of succeeding academically	40%	12	7	5
Q41 A good teacher should focus on the 'brightest' students, those most likely to succeed academically	35%	11	7	3
Q63 A child's caste background affects how well they can learn	42%	11	11	3
Q68 Children from poorer backgrounds are less capable of learning	25%	6	7	2
Q11 The student's gender can predict how well the student will fare	27%	6	8	2
Q21 Boys are able to do better in their studies than girls	23%	3	9	2

Note: The last three columns show actual numbers rather than percentages, due to small cell sizes, as done also in Tables 5.3, 5.4 and 5.6.

Teachers' interviews shed further insight into these trends. Of 60 teachers interviewed, 23 believe that some children are simply incapable of learning, while 17 believe some are 'slow learners' or can only learn less than others. Some teachers blame child-related factors, such as lack of intelligence, low IQ, learning disabilities, or lack of interest in studying. When asked whether there are some students who simply cannot learn, Neena (B1-L)[25] replies, "Yes. Dumb students. Or naughty/careless students. Their attention is in play and then they fail." Abdul (B4-M) attributes this to a God-ordained sorting of children and their abilities, which teachers need to simply accept: "When a person is born, it is decided by God what his role would be. We just have to show him the way."

But more often, teachers attribute poor learning to children's low socio-economic backgrounds. These factors often appear interrelated in teachers' minds: poor/low-caste children are typically the ones who are less able to learn, either due to lower intelligence, lower interest, bad habits or negative home environments. Aditi's (M4-H) responds to whether some children cannot learn:

> Yeah, yeah…One boy is there whose family background is very bad. There is no educational background at all in his family. Why he even comes to school I don't understand – he doesn't understand anything when he comes.

Several teachers attribute not only poor learning ability but also negative personal traits to low-caste/poor children: they are seen as undisciplined, uncivilised, dirty, bad-smelling, or ill-mannered. These various negative traits render such children almost 'un-educable'. When discussing students' backgrounds and whether this affects their learning, Farida (B4-L) comments,

> They come from the lower socio-economic classes. Labourers or stall owners – *their* children. How much ever you teach them they do not understand, you ask them questions they cannot answer, and how much ever you do they do not learn.

These negative views also extend to parents from marginalised communities. Teachers frequently blame these parents for their children's poor learning, seeing them as unintelligent, irresponsible, or unable to provide a home environment conducive to children's learning. When asked whether parents should be involved in school decisions related to children's learning, a common response was:

> No, not these children's parents. Their status and mental level is not so high, so it is of no use to have them involved. (Lata, B2-L)

Such prejudices make government teachers (whose students are mostly from marginalised backgrounds) view themselves as being in a 'deficit' situation (Deshkal Society, 2010; Dyer et al, 2004), reflected in statements that pose a clear contrast between government and private school children:

[25] Teacher pseudonyms are followed by the school code (e.g. B1 indicates the first Bihar urban school visited), and L, M or H indicating teachers' pedagogy ctegory (low-, mid- or high-LCP).

> You see, everyone has a class, for instance when we travel not everyone travels the same. Some travel by bus, some by train and some by plane and some even by car. The same is true of education…The language that children use in a government school is different. A good kid coming from outside gets affected. Just like how a good mango is spoilt in the midst of rotten mangoes. (Richa, M3-L)

Trainer 1T2[26] feels that "if people from the capable class would put their children in government schools, then the level would go up".

Certain statements by teachers and even trainers reveal that many of these prejudices are rooted in caste. This is clear in Lata's comments:

> [*What backgrounds are your students from?*] Below Poverty Line…mostly Chamar – cobbler families (*condescendingly*). Other is Manji – they smell, they stink actually…In the village you can differentiate who is SC, who is cobbler, and all – you can understand…They don't learn anything, these groups. [*Are there some who cannot learn?*] Yes, there are some students who don't take interest only…[*Which students are these usually?*] Usually Scheduled Castes... SCs do not have the tendency to work hard – they just take scholarships. In comparison to tribals, tribals work hard and have talent. But SCs don't work hard …and still they are occupying lots of seats.

Such blatant caste-based prejudices are shared even by some of the Bihar trainers:

> Generally children from slum areas – their level naturally is lower…Like when I first started teaching, on my first day I found out it was an SC colony, from the poorest families – from Musahar caste. In fact education is not in their genes. (1T2)

These views seem to go beyond mere descriptive observations of educational difficulties faced by marginalised students, rather suggesting prejudiced interpretations of the causes of these difficulties as inherent in these children's genetic make-up. Both these quotes suggest that these prejudices are based more on caste than on income levels: it is particularly Scheduled Castes, rather than other low-income groups such as tribals, that are seen as 'uneducable' (Deshkal, 2010). Sure enough, most of the individuals quoted above belong to dominant caste or OBC communities, where prejudices against lower castes are presumably more prevalent. However, such worldviews of inequality can be found among teachers of all caste categories in Bihar and Maharashtra – an example of hegemony, discussed further in Chapter 7. In contrast, in Kerala most teachers possess a more egalitarian worldview, with only 5 teachers scoring low on equality beliefs (all from OBC or dominant caste groups). This suggests that an egalitarian worldview has permeated across caste groups in Kerala, similar to the non-egalitarian worldview that permeates across caste groups in Bihar and Maharashtra.

[26] Each trainer was assigned a unique code, the first number signifying their state (1-Bihar, 2-Maharashtra, 3-Kerala), T denoting 'Trainer', and the final number denoting the order in which they were interviewed.

'Our society does not truly believe that every child matters'

Despite some exceptions, the larger trend indicated by interviews with teachers, trainers and educationists is a general belief among teachers in the inequality of children in terms of learning ability, potential or even value. Teachers often have low expectations from poor/low-caste children, and indifferent attitudes towards their learning progress:

> Teachers feel 'oh whatever we do with these children, they won't end up amounting to anything or progressing…We could do this with normal children, but not with our children from bad backgrounds. (Interview with educationist, 19/10/10)

Teachers' expectations regarding children's potential are directly related to children's backgrounds: "I think for these village children, this amount of education and extent to what they receive is good [enough]" (Leena, M1-M).

Other research also finds discrimination against marginalized children still rampant in schools, particularly based on caste, and that teachers generally do not believe that every child can or *should* learn (Batra, 2005; Batra, 2009; Jha & Jhingran, 2005; Nambissan, 2009; Ramachandran et al, 2005). Ramachandran et al (2005) found that teachers resented having to teach low-caste children whom they considered 'dirty', and used abusive language when referring to these children – 'It was as though they were doing a big favour by teaching children from erstwhile "untouchable" communities' (p.26). According to one educationist interviewed (28/12/12), "very often teachers actually despise such children. They believe that they are simply uneducable, because of their community background." In her study of the marginalized nomadic Lamani tribe in Pune, Srinivasan (2012) also remarks, 'I was surprised by the depth of the disdain that teachers had for [these] students' home background and culture'. Similarly, Deshkal Siociety (2010) found that persisting discriminatory attitudes about the learning capacity of poor, low-caste, tribal, or minority children were rooted in a belief in '*sanskara'* – the sociability to be eligible to learn. Teachers believe that such children inherently lack *sanskara*, and are thus 'learning-deficient' or 'uneducable' by heredity.

The wider literature finds such trends common not only among Indian teachers, but among Indian society at large. Bandyopadhyay (2012), Rao, Cheng & Narain (2003), and Weiner (1991) all arrive at a similar conclusion: that issues like child labour, low enrolment and low learning levels, rather than stemming from India's economic situation, instead have their roots in shared cultural beliefs about the caste-based social order.

> The idea that the lower castes are not deserving of education is so deeply rooted among members of the Indian middle class" that it has hampered the strength of public commitment to education of the marginalized. (Rao, Cheng & Narain, 2003, p.168)

According to educationist Krishna Kumar, 'there is plenty of evidence to say that India's present-day society lacks the desire to see every child at school' – our society does not truly believe that 'every child matters', but 'that only the so-called bright or smart children matter

and deserve education of the best quality' (2008b). Teachers are perhaps simply mirroring the beliefs of their wider social ethos.

'Because they are human beings'

In contrast to the above trends, some teachers did express a belief in the equality of students – which also seems to correlate with more learner-centred practice. These teachers suggest that it is indeed possible to stand against dominant cultural beliefs. Sixteen teachers (mostly high-LCP) believe that although students' background does negatively affect learning (because of poor parenting or negative home environments), poor children *can* still learn as well as others if the teacher provides extra efforts. These teachers tend to be more sympathetic rather than disparaging in their attitude towards children's background-related problems. For example, Lalita (K4-H) attributes poor children's learning difficulties and maladjustment to the lack of love and care they receive, rather than some inherent deficiency:

> Sure, their background affects their ability to learn…They are not getting real models and not getting real love also. So I allow the children to sit on my lap – and how happy they are! Because they are human beings. If they are denied love and care, I think some maladjustment in their neurology will happen.

Eight teachers believe that student background does *not* affect learning, while two believe that students' diverse backgrounds *positively* affects learning. Anita (M1-H) and Sunita (M1-M) both feel that poorer students are more motivated and keen learners: "rich students feel they don't need to study…poor students have to study and prove themselves in order to get out of their current social status".

5.2 Relationships

NCF 2005 stresses that not only classrooms but also schools and education systems must nurture a 'democratic, flexible and accepting culture' with relationships 'informed by equality and mutual respect' (p.98). Teachers varied widely on this belief, with many expressing a preference for hierarchical rather than democratic relationships.

'That difference between teacher and students should be there'

Many low-LCP teachers in particular seem to favour hierarchical teacher-student relationships, with students remaining disciplined and silent in a fear-filled atmosphere. 41% of teachers agree that "If a teacher tries to become 'friends' with students, they will stop respecting him/her", while 44% agree that "students should follow the teacher's instructions without raising any questions." Several teachers, like Sunita (M1-M), believe that if teachers don't place limits on their friendliness by being sometimes strict, students will lose respect for

teachers and "take undue advantage." Friendliness and discipline are viewed as mutually exclusive:

> We can change the [teacher-student] relationship according to the situation. When we are teaching we should be a teacher, like a disciplinarian; we have to maintain discipline in the class. After teaching we can share like a friend…I have made this a strategy, that when I go into class I show that I am angry and the children get scared. If you don't say 'hi, hello' in the beginning they get scared. (Anil, M4-L)

Friendliness as well as giving children freedom are seen as impediments to maintaining the discipline and hierarchy seen as essential for learning. Anil explains, "Freedom should be given, but at certain times. When you are teaching, no freedom. Discipline is a must." Although many teachers repeatedly mention 'respect' when describing the ideal teacher-student relationship, respect is usually unidirectional – none of the teachers (except Lalita) spoke of teachers respecting students.

Teachers' hierarchical orientation is also reflected in their belief in using fear-based discipline methods in order to control students and maintain a silent and disciplined classroom atmosphere. Table 5.2 summarizes the range of teachers' responses when asked how they manage their classrooms:

Table 5.2: Teachers' views on classroom management

	Preferred classroom management strategy	Number of Teachers (Breakdown by LCP Score)
1.	Through punishment, fear, or hitting	12 (10L, 2H)
2.	Mix of treating students with 'love', and also using a stick or shouting	15 (5L, 8M, 2H)
3.	Does not believe in shouting/hitting; instead uses strategies to keep students busy/distract them	17 (5L, 8M, 4H)
4.	Through love, keeping students engaged by building on their interests, identifying the root of misbehaviour, or providing personal attention	16 (3M, 13H)

The above table shows a clear association between hierarchical methods (fear, hitting, shouting) and mid/low-LCP, while more democratic methods tend to be preferred by high-LCP teachers. Discipline methods described by teachers in the first two categories include shouting, hitting, threatening children, frightening them, or excluding them from classroom activities. Fear seems to be the main method of getting children to comply: "Sometimes I take a stick and beat the table with it. This creates fear in the children, so I need not actually beat them" (Aruna, K2-H). Similar to Sriprakash's findings (2012), many see strictness and hitting as part of 'loving' students or treating them like their own children:

> I treat them like my own children. Then even if we scold these children they will not be offended or feel bad because they know we care for them…Even now sometimes I give them small punishments or spank them. (Jaya, K1-H)

Several teachers see the recent policy that bans hitting/sticks as a problem, "because sometimes it happens we have to control our hands. They should have allowed at least one or two slaps – one or two slaps won't make a difference" (Neena, B1-L). Some teachers point to a larger cultural mindset that condones hitting children, saying that parents themselves sometimes tell teachers that they *should* beat children as a means of encouraging discipline and making children interested in learning. This is the opposite of LCE's assumption that children take more interest and learn better in an environment devoid of fear.

At the same time, one can see some teachers conflicted between a desire to implement more democratic methods of classroom management, yet the lack of skills to do so – especially in classes with over sixty students. This conflict is perhaps exacerbated in light of teachers' purpose beliefs discussed later on: if teachers see their primary role as instilling discipline, then hitting becomes necessary if that's the only effective means they know to do so. Both Smita (B4-L) and Annie (K3-M), when asked how they wish to improve as teachers, express a desire to learn how to manage their classroom "without punishing or scolding." Yet Annie describes the tension she faces between the fear-free atmosphere required in the new LCE approach, and the need for "proper controlling" for which "sometimes I have to raise voice and scold." Smita asks almost in resignation: "We have orders not to hit, but they get scared of the stick. The naughty children don't listen even after they have been scolded at; now what to do?"

Larger cultural trends

Other Indian researchers like Bisht (2008), Clarke (2001), Kakar (1978) and Sarangapani (2003) have similarly pointed to a hierarchical educational culture that discourages curiosity, questioning, dialogue, or critical thinking by students. Research also suggests that teachers' hierarchical views are reflective of a larger cultural mindset, stemming from a centuries-old Brahmanical educational tradition of an authoritarian *guru* who must have the complete devotion of students. Singh's recent study of classrooms in Bihar finds that 'the *guru-shishya parampara* is still fresh in the minds of the people and shared to a large extent…The teacher is a giver, the only source of knowledge…and more adorable than the gods' (Singh, 2006, p.72). Kumar (2005b, p.196) explains how efforts at mass education

> did not succeed in altering the established pedagogic creed [which] demanded total submission of the student, and bestowed unquestioned authority upon the teacher, at the heart of [which] lay the Brahmanical ideal of the teacher's moral authority**.**

Perhaps it is an insecurity about their own moral authority that leads contemporary teachers to resort to fear as the best instrument to get their students to listen and learn: whether fear of examinations, or fear of being shouted at or beaten. Laws against corporal punishment have

proved ineffective in countering this belief: 'A ban on corporal punishment is baffling to both officials and teachers who are used to inducing fear as a way to get children to work hard' (Kumar, 2011, p.8). One educationist interviewed (30/07/10) remarked that hierarchy is the most important belief shaping relationships in Indian education: hierarchy between child and teacher, between community and teacher, between the child from one family and another. He traces the roots of this hierarchy to 'our own inherited hierarchy', reinforced by colonial hierarchy, and perpetuated by modern government hierarchies.

'Freedom is their right'

In contrast, 20 teachers defy dominant trends and explicitly value more democratic teacher-student/adult-child relationships (all mid/high-LCP). These teachers believe that children should not fear teachers, but should feel comfortable enough to open up and share their thoughts frankly. They believe teachers should focus on bridging the distance between teacher and students, and should give students freedom to express their opinions, to question or even critique them. Rather than pursuing fear-based discipline, these teachers believe in using love, respect, engagement and individual attention to keep students on task. For example, Sonu (K1-H) believes that children bloom when they are given freedom and encouraged to become responsible social beings. Moreover, all 20 high-LCP teachers believe their children should decide their careers for themselves rather than adults forcing their wishes on them: "He should pursue his interest otherwise his freedom is curtailed—it will be like making a fly carry a stone" (Sonu).

The strongest democratic orientation is embodied by Lalita (K4-H), who believes firmly in giving children freedom of thought and expression, freedom to dream and implement their own vision, including choosing their own career.

> Freedom is their right. How can we limit that? If they are misusing their freedom, we can dialogue with them.. But it is their lives, and they have the *right* to freedom.

Lalita believes that children come to school with great potential, and it is adults who are limiting them – it is because children are forced to conform to adults' expectations that they cannot shine.

> I think all the activities in the school should be planned by the children, and if we want to make any changes we can dialogue with them, and make suggestions…I don't even like to use the word 'Teacher', because it's not a democratic word. If I am your teacher, it means I am an authority and you are not. So I prefer to say facilitator.

Lalita's vision of a democratic teacher-student relationship is perhaps more radical than most other teachers', envisioning an educational process driven primarily by students, with adults and children dialoguing as equals, even in cases where children might be 'misusing' their freedom. Her views are closer to LCE's vision of a fear-free environment, or to Freire's (1970)

notion of a teacher who has authority without being authoritarian: who affirms students' dignity and freedom to think for themselves and raise questions, rather than resorting to force or positional authority to silence students. Lalita also has the highest LCP score among all teachers, suggesting some association between her democratic beliefs and her learner-centred practice.

5.3. Diversity

NCF 2005 values diversity among students as an important resource for learning, believing that when students of mixed backgrounds, cultures and abilities study together, the classroom ethos and quality of learning are enriched. It advocates that teachers should 'accept difference…celebrate diversity', catering to different students' unique styles and pace of learning (p.84). Teachers in this study varied widely in their agreement with NCF's diversity beliefs.

'Teachers think that all children should be the same'

A considerable proportion of teachers tend to prefer classrooms that are more uniform, with children of similar ages, backgrounds, abilities and learning pace studying together, as indicated in Table 5.3:

Table 5.3: Diversity beliefs:
Percentage/number of teachers who agree with statements below

Survey Item	% teachers agree (n=60)	Low-LCE Pedagogy teachers agree (n=20)	Mid-LCE Pedagogy teachers agree (n=20)	High-LCE Pedagogy teachers agree (n=20)
Q17. All children can be taught with the same method	20%	3	6	3
Q27. It's better when children learn at the same pace as the rest of the class	43%	5	11	10
Q37. I prefer a class where all the students come from a similar background (eg. language, culture, social status)	32%	9	8	2

In general, there seems to be a greater tendency among low-LCP teachers to value uniformity more than diversity among learners, and to assume that all learners are or should be alike. As one Kerala trainer put it when discussing teachers' responses to children with special needs:

> Differently-abled they cannot accept…teachers think that all children should be the same. The first thing teachers and parents have to agree is that children are unique, that each child has different qualities. But people generally do not agree – they want every child to be the same. (3T2)

Several low-LCP teachers expressed that they see having children of different learning levels in one class as a problem, perhaps partly because they may not possess adequate strategies to address the needs of diverse learners. For example, Richa (M3-L) describes this as biggest problem she faces as a teacher: "all the kids are not of the same level…taking everyone along is a problem". The strategy adopted by Vinod (M2-M) to deal with this situation is that he puts children who are 'behind in studies' in a different class division with a different syllabus, so that those who are 'more intelligent' do not have to be at a loss because of these children. Preference for uniformity among students can also be seen in some teachers' choice of school for their own children. Anil (M4-L) explains that he doesn't want to send his own child to a government school (with children from lower socio-economic backgrounds) nor to a very high-end elite school, but to a middle class school "because all the children there are middle class". None of the low-LCP teachers ever mentioned diversity among children as a positive or desirable quality.

Wider trends

Other research reveals similar findings regarding the bias against diversity prevalent in India's educational culture. Burns (2007) and Deshkal Society (2010) found similar 'dominant myths' embedded in the thinking of teachers from different Indian states. Rather than being celebrated, difference is often seen as deficit: 'being different and diverse is generally equated with "deficient, inferior, and substandard"' (Deshkal Society, 2010, p.92). 'Children are tucked into a common blanket identity' (Ibid., p.29), with focus placed on the sameness of individuals from diverse groups, and differences either ignored or seen as resulting from lack of opportunity. This bias against diversity then becomes reflected in classroom practices: students who learn at non-standardized paces or styles are increasingly labelled as 'slow learners' or 'special-needs' children, with few attempts at differentiated pedagogies that accommodate multiple learning styles (Batra, 2009). However, once again, teachers must be seen as a product of the larger systemic culture which itself promotes uniformity. Kumar reminds us that 'the bias against [diversity] is deep rooted in [educational] policy and planning' (2005a, p.41). Teachers themselves are rarely valued for their individuality or encouraged to pursue diversity in their teaching approaches, and standardized one-size-fits-all curricula and training programmes are widespread across the system.

'Like all fingers of a hand are different, that way every child is unique'

In contrast to the above cultural trends, several high-LCP teachers emphasise that students have unique talents or strengths, and should be encouraged and nurtured in their uniqueness. In fact many feel one of the main reasons for children to go to school is to meet

other children from diverse social or religious backgrounds, which they see as important for children's socialisation. Madhuri (K3-H) explains:

> They should have the opportunity to be with other children so they can learn how to live in society…Each child comes from a different situation, so if a child doesn't go to school, they will only be used to their own situation, and nothing more…Students are all different and have different talents. One student is not as strong in language, but he might be good in maths or drawing.

Similarly, when asked why some students do badly, Anita (M1-H) feels that it is the teacher's responsibility to appreciate and cater to this diversity:

> Like all fingers of a hand are different, that way every child is unique and different, so there will be a difference [in their learning]. However it's the teacher's job to see how to reach out to these students. I think everyone learns something or the other, just the way they learn it is different.

The preference for uniformity vs. diversity also extends to teachers' choice of career, whether for themselves or for their children: 53% of the 60 teachers responded that they want their children to go into one of the more 'established' professions (medicine/ engineering/ IT/ business). Indeed, when interviewed about what career they want their children to pursue, 17 teachers (all low/mid-LCP) already had in mind what career they wanted for their children: all said engineer, doctor, or government officer (Indian Administrative Service). In contrast, all 20 high-LCP teachers asserted that children should decide their careers for themselves rather than parents deciding for them. Even in deciding their own career choices, for the 21 teachers for whom teaching was not their first choice, there was little diversity in the other career preferences mentioned by teachers. Most had opted for the mainstream options: medicine, engineering, or IAS. Thus valuing diversity can extend to various dimensions: diversity of social groups, diversity in learning styles and pace, diversity in interests and talents, diversity in curricular aims or in career paths.

5.4 Learning

LCE in general and NCF in particular assume that learning involves a process of exploration and creative construction, and that knowledge is 'the outcome of the child's own activity' – 'neither the textbook nor the teacher is an authority' (NCF 2005, p.12, 20). It believes that children are natural learners constantly constructing knowledge from their experiences. In contrast, many teachers displayed quite different beliefs about the process of learning (transmission vs. construction), the source of knowledge (authority vs. experience/reason), and the nature of learners (unmotivated vs. natural leaners).

Process of learning: Transmission

Teachers tend to view knowledge as needing to be transmitted from the teacher or textbook, and memorised by students (see Table 5.4).

Table 5.4: Knowledge beliefs:
Percentage/number of teachers who agree with statements below

Survey Item	% teachers agree (n=60)	Low-LCP teachers agree (n=20)	Mid-LCP teachers agree (n=20)	High-LCP teachers agree (n=20)
Q3 Memorizing information is the quickest and most effective way of learning	33%	8	10	2
Q53 Children learn best by listening to an adult explain things	33%	13	6	1
Q67 Letting children discuss with each other is a waste of class time	22%	5	6	2
Q71 In order to do well, students should give answers exactly as written in the textbook	23%	6	8	0

Over a third of teachers (mostly low/mid-LCP) believe that learning involves receiving pre-packaged knowledge possessed by textbooks or adults, and that children learn best by listening quietly to adults, rather than by asking questions, trying and making mistakes, discussing or exploring for themselves. Several teachers see their role as to 'give', 'pass on' or 'impart' knowledge so that it 'goes into the mind of the student' – "without giving knowledge, how can they learn?" (Rohit, B1-M). Knowledge is seen as a static commodity, possessed by some and not others. Teachers by virtue of their position are privileged in terms of possessing greater amounts of knowledge to be handed to students, as reflected in Richa's (M3-L) comments:

> No matter how much a mother teaches at home, the children cannot remember. But if teacher teaches even once, then they can remember it for a long time.

Vinod (M2-M) locates the roots of this belief in religious ideology:

> From ancient times even God himself has felt the need of a teacher (*guru)*. Like Sandipani Rishi, Guru of Krishna. Dronacharya, Guru of Arjun. Why did God need a teacher? Because without a teacher there is no understanding (*guru vina gnyan na kale)*. This saying is apt. To gain knowledge you need a guru.

Source of 'valid' knowledge: Authority

Another common belief is that 'valid' knowledge can only be acquired inside the school from the textbook or teacher. 70% of teachers interviewed (mostly low/mid-LCP) believe children either cannot learn anything worthwhile outside school, or even if they can learn some

things, learning in school is better because it is more complete, systematic, controlled, and disciplined. Teachers feel "if students don't go to school, they will not gain knowledge and their life will be spoiled", since "it's not possible for children to learn positive things outside of school" (Mary, K4-M). Many teachers feel that outside school, children learn mostly negative things. Some teachers like Anil (M4-L) and Savita (M4-L) could not quite grasp the concept of 'learning outside of school' even after rephrasing the question several times – they finally conceded that some children learn from their 'tuition teachers', or insisted that "you have to come to school to learn" (Aruna, K2-H). There seems to be an idealised view of school knowledge, and of the teacher's role in delivering this knowledge. According to Sheila (M2-M) and Deepa (M1-M), everything that is taught in school is good or useful, in contrast to outside where children learn both good and bad things.

There is a clear hierarchical distinction between 'formal' knowledge and 'practical' knowledge: "they might see practical things in their life, but scientific knowledge they get only in school" (Anita, M1-H). This belief delegitimizes the knowledge children acquire through their everyday practical experiences as 'not worth knowing', particularly knowledge brought by learners from marginalized communities. It also contributes to teachers' (and the system's) de-valuing not only of students' original thinking, but also of teachers' own thinking and creativity. According to Clarke (2001) and Kumar & Subramaniam (2012), this view results in an overwhelming focus on a single 'correct' answer, and a desire to avoid or even punish student 'mistakes'. These would pose significant barriers to LCE's emphasis on incorporating the knowledge children already bring, and encouraging both students' and teachers' creativity and exploration in co-constructing new knowledge.

Nature of learners: Unmotivated

Teachers' views about learning are also tied whether they see children as natural learners or as intrinsically unmotivated and unwilling to learn. Several teachers believe that children do badly in school because they don't *want* to learn, are simply not interested or "don't have the inclination of studying" (Sunita, M1-M) – especially those whose "family environment is not that good" (Preeti, B1-M). Radha (B3-L) believes there are "two brains in students, one wants to learn and the other doesn't". As a result, students are believed to require external motivation in order to learn – provided through the fear of examinations. Several teachers allude to recent no-examination and no-detention policies as detrimental to children's learning – without the fear of exams, children are no longer motivated to study or pay attention. Related to this is a belief that learning and play are separate and incompatible: "playing during classes – that should not happen. Rule and regulation should be present" (Aisha, B3-L). Given children's playful nature, Aisha feels children should be given separate 'play time' or a drawing or singing period in between their 'study' classes, "so that their mind becomes fresh and they

take more interest in studying". This belief in the separation between learning and play may also be a barrier to LCE attempts to promote learning through play.

Larger societal trends

Once again, the belief in knowledge transmission can be traced not only among other Indian teachers but in Indian society at large. The trend among teachers is confirmed by other studies on Indian teachers by Bisht (2008), Clarke (2001), Kumar & Subramaniam (2012), Rao, Cheng & Narain (2003), Sarangapani (2003) and Sriprakash (2012). Clarke found that teachers perceived textbooks as the exclusive representation of valid knowledge, and equated 'knowing' with memorizing facts contained in the syllabus, best achieved through repetition. Sriprakash found that teachers' beliefs relating to strong classification of knowledge as transmitted legitimised didactic instructional practices that contradicted the goals of learner-centred reforms. These epistemological beliefs can be seen as related to teachers' beliefs about the purpose of education, discussed later in this chapter – if the purpose of education is to succeed in examinations in order to acquire good jobs, then memorization of textbook information is the quickest means of achieving this end.

The transmission view of knowledge is displayed not only by teachers but by others in Indian society, including trainers, parents, and children themselves. Trainers in the study saw their own role as trainers as to "give knowledge to the teacher, and the teacher should give the knowledge to the students. Then only will knowledge reach the students correctly" (3T5). The higher status accorded to teachers or trainers as 'possessors' of knowledge can be seen as related to the hierarchical worldview discussed earlier, warranting the traditional blind devotion expected from a student towards their *guru.* The ability to receive and memorize knowledge is seen as a higher order skill and as a sign of intelligence – a view that extends to parents as well as children:

> It's a cultural mindset that teachers are the keepers of the knowledge, and the knowledge has to be given, and that's how children learn. Children have that mindset too: good children listen and learn just by listening. That's just an Indian cultural thing. It's a very big block. (Interview with educationist, 16/10/10).

Children as natural constructors of knowledge

In contrast, 19 teachers (6 mid-LCP and 13 high-LCP) display beliefs contrary to dominant cultural trends, and view learning as children discovering knowledge themselves through questioning or experience. These teachers see the teacher's role as more of a facilitator or guide in that process: "children learn from birth, we don't teach them anything. We only have to show them the way" (Abdul, B4-M). They believe that children learn many things outside school, and that such learning is better and more extensive than learning inside school, since it is more free, unrestricted, natural, happy, and based on children's interests.

They place a higher value on practical knowledge versus 'bookish knowledge', believing that 'true learning' happens when children learn from direct experiences and can apply their learning. They see children as naturally motivated learners, who learn "from the time of our birth till we die" (Abdul). Such beliefs result in a destabilising of the hierarchical position of the teacher and syllabus as the ultimate purveyors of knowledge. Sonu (K1-H) explains,

> Teachers don't know everything – the point is to facilitate knowledge acquisition by the child so that one day they may become more knowledgeable than the teacher. If we only give what the teacher knows, then the child can never go beyond the teacher….The school syllabus is limited, but knowledge is vast and we are learning only a part of that inside the school.

For Sonu, this implies giving freedom to teachers to shape learning experiences, rather than being restricted by the syllabus prescribed by 'experts'. It also implies valuing the knowledge that parents can contribute since "teachers are not all-knowing".

5.5 Purpose of education

The NCF 2005 articulates the central purpose of education as being concerned with 'preparing [all] citizens for a meaningful and productive life' (p.71), building a commitment to Constitutional values and thereby serving as 'an instrument of social transformation' (p.7). This claim embodies certain ontological and teleological assumptions about the chief goals of human life and of human society, which in NCF centre around promoting societal change towards 'an egalitarian social order' (p.7). Teachers in this study expressed a variety of beliefs regarding what they value as the chief purpose of education and of their teaching – which tend to cluster together. The chief values expressed can broadly be categorized as material success (socio-economic mobility, discipline, individual development), and social justice – summarized in Table 5.5.

Table 5.5: Teachers' beliefs about the purpose of life, education and teaching

Ultimate value	Focus	Central purpose of education	Central goal as a teacher	Number of Teachers (Breakdown by LCP Score)
Material success	1. Socio-economic mobility	Get good marks in order to obtain a good job and high status	Covering the syllabus, obtaining good exam results	31 (14H, 14M, 3H)
	2. Discipline	Acquire discipline	Maintaining discipline and punctuality	31 (15L, 12M, 4H)
	3. Individual development	Gain knowledge	Ensuring students learn	21 (9L, 7M, 5H)
		Overall development & success in life	Ensuring students' all-round development and life skills	27 (5L, 10M, 12H)

Social justice	4. Positive social change	Develop ethical social values	Instilling good values	34 (9L, 11M, 14H)
		Societal progress	Love and dedication towards children	26 (4L, 6M, 16H)

As evident above, these four categories were not mutually exclusive – teachers often prioritized multiple goals for education. However, there were clear differences in the kinds of values most emphasized by low-LCP vs. high-LCP teachers. These trends are summarized below.

Material success

Approximately half the teachers emphasised socio-economic mobility not only as a primary reason for going to school, but also for their own work and lives (mostly low/mid-LCP). These teachers placed a high value on education (typically equated with schooling) seemingly as an end in itself – seeing education as the very essence of humanity, believing that without education one is 'nobody', 'useless', incomplete, "equal to a buffalo" (Vishal, B1-M). However, deeper analysis reveals that these teachers actually view education as a means of acquiring a good job, which emerges as also a means to three ultimate ends – status, power, and comfort, emphasised in various teachers' responses including Lata's (B2-L):

> The most important thing in life is to be a good human. A good human means having good knowledge and to become all these things money is also an important thing. It is needed to handle life. You have to be practical about it…In my opinion, a technical degree is more important for a person's life – because that gives you a lot of power.…Most important is post. Job position, family status should be high. Your living standard should be high.…but status is more important. I come here and try to explain to students, that in 7-8 years at least one of you should become a bank clerk or engineer.

39% of teachers agreed that the most important reason to go to school is to get a good job, and several see this as the most important thing in life. Several teachers' dream for their own children is for them to "achieve the highest post" (Vishal's, B1-M), so that they can "live their life comfortably" (Ajay, B1-L). In terms of their students, teachers view education as a means of helping them escape poverty, to 'become something', to 'secure their future'; without education they will simply continue farming, sweeping floors or washing utensils. Presumably, the preoccupation with socio-economic mobility is likely shaped by the high socio-economic inequality prevalent in India.

Another purpose for education cited by half of teachers is instilling discipline (mostly low/mid-LCP teachers). This is viewed not only as a primary reason for going to school, but also as their primary duty as a teacher, and as the hallmark of a good education – one of the key things they would look for in choosing a school for their own child. 'Discipline' in teachers' responses included learning punctuality, routine, etiquette, neat handwriting, how to behave, sit and talk 'properly', personal hygiene, neatness, and moderation. In general, these values

were much more emphasised by Bihar/Maharashtra teachers than by those from Kerala. For example,

> The first role of a teacher is to teach children discipline because our school is from the rural area, so what we teach our children in school they don't learn at home. (Kiran, B2-M)

Teachers view discipline as a way of 'civilizing' or making rural students 'fit' for society. Sriprakash (2012) and Srinivasan (2012) similarly found among teachers a strong notion of rural or tribal communities as 'uneducated', which shaped the way teachers understood their role towards these students as to 'civilize' them, to give them *sanskaar* (culture, civilized behaviour) – because otherwise no one else would. The high valuing of discipline as the central purpose of education may hinder teachers from embracing LCE, as confirmed by some of the trainers. Indeed, four teachers feel that a downside of LCE or of giving students more freedom is that "discipline is compromised – when students take more interest, they make more noise. So some discipline gets disturbed" (1R13).

Some teachers in all three pedagogy categories emphasised gaining the knowledge or skills necessary for future success in life. When asked whether going to school is important and why, Rohit (B1-M) responds "without giving knowledge, how can they learn?" Many teachers equate education with schooling, and see learning as only occurring inside a formal school setting. If children do not go to school, they will not 'gain knowledge' and "their life will be spoiled" (Mary, K4-M), or "growing up stops" (Leena, M1-M). Many teachers see the home environment as "not suitable for the child's development" (Hema, M2-M). Learning in school is seen as more systematic and disciplined, thus preferable: "if they don't come, they can gain knowledge, but cannot have a good mental development" (B1-M). Regarding the types of necessary life skills imparted by schools, low/mid-LCP teachers tend to emphasise basic literacy skills which can help individuals function in society without getting fooled or exploited. In turn, high-LCP teachers tend to emphasise more higher order skills such as the ability to analyse, make decisions, or gain self-knowledge. In all the above cases, the focus is more on the benefit education can have for the individual – very few low-LCP teachers spoke of education's impact on society.

Social justice

In contrast, all the high-LCP teachers spoke of education's wider benefit to society – very few high-LCP teachers mentioned socio-economic mobility or discipline. Many see education as important for children to develop positive values such as equality, respect, truth, love, forgiveness. They see education's role as nurturing good citizens who contribute to a more ethical and just society. These teachers see the most important thing in life as becoming 'a good human being', which is what they prioritized when asked what is their dream for their own children or what advice they would give their children on what is most important for living a good life. A few teachers explicitly emphasise the role of education in societal progress, such

as preparing children to serve or lead the country in positive social change, and in fighting social evils like discrimination. These teachers see the purpose of their own life as serving society and contributing to greater social justice, and state that they became teachers to help poor children succeed in order to help the country progress. Anu (K2-H) illustrates this other-centred orientation that motivates her own teaching and her beliefs about purpose:

> If we only live for ourselves how can our society progress? It is because some people live for the society that some others can afford to be neutral/ indifferent. Even the freedom we experience today in India is the result of such selfless individuals' efforts…Just because a child studies well it serves no purpose. You have to make yourself beneficial to society.

Significance of purpose beliefs

Understandably, teachers' notions of what constitutes 'good' education (the kind they would select for their own children) is closely tied to their beliefs about the purpose of education. Many of the same low-LCP teachers who mentioned socio-economic mobility or discipline as the purpose of education, also emphasised examination results, discipline, and English-medium instruction as key considerations for choosing their children's schooling. Meanwhile, high-LCP teachers focused on factors like extra-curricular activities, values taught, children's happiness, and teachers' dedication and love for children. Nespor (1987) reminds us that to understand why teachers organize and run classrooms as they do, we must look at the goals they pursue. And the expectations from teachers by authorities, parents, and ultimately themselves, is most often related to marks:

> Ultimately, teachers think, 'our efficiency is about children's score, and so we must make them score well by memorizing everything they can'. This is a big block in that shift in pedagogy. (Interview with educationist, 19/10/10).

Clarke's (2001) study of teachers in India similarly found that teachers' long-term goal for students was to help them acquire future jobs, which made them prioritize accumulating information even without understanding, in order to pass examinations. As long as this view of the purpose of education prevails, and the examination system continues to reward memorization rather than more holistic skills, these will act as buffers to LCE reforms. As one educationist pointed out, teachers' own vision of the ideal society is shaped more strongly by the media than by the aspirational vision of NCF 2005 or the Constitution. What drives them is quite different than notions of social justice, and for most, teaching is 'just a job' (Interview with educationist, 03/07/13). In contrast, 3 trainers in this study commented that those teachers who see themselves as responsible for the moral development of society, tend to be more committed and motivated to adopt progressive methods even if it requires greater effort.

5.6 Responsibility for outcomes

According to NCF 2005, 'children do not fail, they only indicate failure of the school' (p.84) – it is the responsibility of the teachers and system to ensure all children receive the support they require for successful learning. Yet many teachers in this study do not feel such a sense of responsibility for ensuring learning outcomes: they see their main duty as to 'teach' – i.e. to 'complete' the syllabus while maintaining discipline – regardless of whether students actually learn or not. If students fail to learn, it is their own or their family's fault – not necessarily the teacher's responsibility.

Teachers' duty: teaching or ensuring learning?

The notion of duty is an important theme reflected in both teachers' surveys (Table 5.6) and interviews. Several teachers spoke of their work as duty. For example, Vishal (B1-M) explains, "I didn't aspire to become a teacher, but then I became one, so I am fulfilling my duty". The focus on covering the syllabus seems particularly strong among Bihar teachers – all 20 Bihar teachers agreed with Q8 below, compared to 9 teachers each in Maharashtra and Kerala.

Table 5.6: Duty beliefs: Percentage/ number of teachers who agree with statements below

Survey Item	% teachers agree (n=60)	Low-LCP teachers agree (n=20)	Mid-LCP teachers agree (n=20)	High-LCP teachers agree (n=20)
Q8 Covering the syllabus is the teacher's most important duty	63%	14	16	8
Q28 If a teacher wants to complete the syllabus, s/he cannot spend much time on activities	45%	7	10	10
Q38 Completing the syllabus in time is more important than whether students apply what they learn to their lives	30%	9	7	2
Q18 When a child is repeatedly getting low marks, it usually means the child is not working hard enough or that s/he is a 'slow learner'	35%	6	6	9

However, teachers' views on the nature of their duty varies considerably. As summarised in Table 5.7, when asked what is a teacher's most important duty, over half spoke of maintaining discipline or 'teaching', i.e. completing the syllabus (mostly those with low/mid-LCP, and mostly from Bihar or Maharashtra). This takes precedence over using 'activities' or getting students to apply learning to real life. Only some mentioned ensuring that students actually understand and can apply their learning, or develop holistically.

Table 5.7: Beliefs about teacher's duty

	What is a teacher's most important duty?	All 60 Teachers	Low-LCP teachers	Mid-LCP teachers	High-LCP teachers
1.	Discipline or punctuality	21	11	7	3
2.	'Teaching' or completing syllabus	27	15	7	5
3.	Ensuring that students learn or understand	13	4	3	6
4.	Ensuring students' all-round development and future success	8	2	1	5
5.	Instilling positive values	21	4	7	10
6.	Personal dedication to their job and students	11	1	6	4

Teachers' sense of duty, though strong, seems to be more focused on task-completion and maintaining discipline, rather than a sense of personal responsibility for ensuring learning outcomes. This is reflected in Vinod's (M2-M) comments:

> When children are kept busy they don't misbehave. Even if they don't do it 100%, as long as they are busy, I have achieved what I aim. Even if he is doing his work wrong it's ok, as long as he has a lot of workload.

Learning: whose responsibility is it?

If teachers do not see their duty as related to children's learning, it is not surprising that if children fail to learn, teachers do not feel personal responsibility for this: they instead tend to blame either children themselves, children's families, or authorities (Deshkal Society, 2010; Batra, 2009; Ramachandran, Bhattarcharjea & Sheshagiri, 2008; Dyer et al, 2004). Indeed, when teachers in this study were asked why some students fail to learn, the majority blamed a variety of factors related to family background, children's own abilities or intelligence level, or system-related factors (see Table 5.8).

Table 5.8: Teachers' beliefs about why some students fail to learn

	Factors responsible:	All 60 Teachers	Low-LCP teachers	Mid-LCP teachers	High-LCP teachers
1.	Family-related: Low family background/ environment, no parental support, family problems, household chores	44	14	13	17
2.	Child-related: Low intelligence, learning disabilities, naughtiness, lack of interest in studies	31	7	14	10
3.	Systems-related: Weak foundation, lack of tuitions, oversized classrooms, insufficient teachers	12	3	6	3

4.	Teacher-related: Teacher is not performing well enough, students are afraid of teacher	8	1	0	7

The tendency to blame children or their families for children's poor learning has become pervasive enough that even high-LCP teachers hold this view as frequently as low-LCP techers. Teachers laying blame on children's poor family background can be seen as linked to the belief in inequality and 'un-educability' of low-caste students, discussed earlier. Parents are seen as even more culpable than children, as seen in Vishal's (B1-M) remarks,

> Children are not bad, neither do they do badly. Their parents are bad, as they don't take care of their children…until the parents don't pay attention, neither can the school nor teacher do anything.

Many teachers (mostly low-LCP) show little awareness of a relationship between poor learning outcomes and their own pedagogical practices. They appear to resign themselves to the idea that some students will simply not learn or will learn less than others, and that teachers cannot be held responsible for that. They feel teachers cannot be expected to focus on all children, and that students should attend after-school tuitions if they need more help, or should be made to repeat the year. When asked what happens to 'weaker' students who lag behind, only 14 teachers (10 high-LCP) express a belief that if teachers give extra efforts to help these students, they too can learn at par with others. For most, the attitude is one of frustration and resignation, with children's failure seen as outside teachers' power to do anything:

> Some children are useless…They have less interest in studying and simply make trouble; you try to make them understand a thousand times but they don't understand...These children never become anything…they come and disturb themselves and cause disturbance to others…you only tell me what to do? [laughs]. (Smita, B4-L)

In contrast to the above, 29 teachers do display personal responsibility for students' learning (mostly mid/high-LCP). 19 of these expressed that they feel personal responsibility and satisfaction based on whether students learn, while 17 believe that it is the teacher's responsibility to give extra efforts to help 'weaker' students, with which these students can indeed improve:

> Like all fingers of a hand are different, that way every child is unique and different. However it's the teacher's responsibility to see how to reach out to these students. (Anita, M1-H)

Several of the high-LCP teachers display high efficacy beliefs in their own ability to influence student learning: they believe they can and must help all children learn, particularly those at a disadvantage:

> I've always had a positive outlook and never think that there is no point teaching this or that child. Bringing such children at par with the rest of students is the responsibility of the school. (Sonu, K1-H)

This resonates with Dyer et al's (2004) findings that the most successful teachers typically see their prime responsibility as being towards children rather than towards authority, and place greater focus on children's learning than on teaching.

Cultural orientation to duty vs. outcomes

Several of the trainers interviewed point to this focus on duty as task-completion versus responsibility for outcomes as a key barrier to pedagogical change. A Bihar trainer gives his assessment of why teachers have failed to implement LCE:

> According to me, the teachers….do not think about their duty towards their students' progress. They think that it is easier to use the old methods of teaching and they say they came, taught, and they finished their job – whether the child understands or not. (1T8)

Trainer 1T9 remarks how the teachers who have not really implemented LCE are the ones who

> become teachers because it is their duty...they wonder what the point of all this is and say they need to finish the syllabus in time and if we do all of this then the syllabus will never get completed… they want to do their duty mechanically… there is no inner strength or urge to do something, and this is the biggest problem.

This lack of inner motivation is also highlighted by 2T13: "Some of them only like to follow orders and do their duty, they don't have inner motivation at all". However this focus on 'completing the syllabus' is perhaps more understandable when seen in the context of teachers' purpose and knowledge beliefs. If teachers believe their purpose is to produce high examination results, and that the most effective means of achieving this is for students to memorize knowledge transmitted by teachers, then why would they waste time on 'activities'?

Other research too suggests that teachers' primary objective is 'completing the syllabus' or following orders, rather than seeing their role as related to student learning (Dyer et al, 2004; Ramachandran & Bhattacharjea, 2009; Ramachandran, Bhattarcharjea & Sheshagiri, 2008). Some point to this lack of focus on outcomes as part of a larger cultural ethos, evident not only among teachers but also among trainers and the larger system. Ramachandran (2005) describes how school inspectors tend to view their work similarly: they visit schools merely to check registers, collect data, or have a cup of tea, rarely offering the kind of academic support to teachers intended on paper. Head-teachers too seem more concerned about administrative and infrastructure issues rather than learning outcomes. Training itself often becomes more of a ritualistic activity to be checked off as completed, than an opportunity for teachers to upgrade their skills (Ramachandran, 2005). Ironically, poorly-executed LCE reforms may themselves have contributed to the ethos of low responsibility for

learning outcomes. Kumar (2011) suggests that the 'cult of joyful learning' promoted in government schools has generated a 'culture of trivia that has become the norm of schooling of the poor':

> Superficial training has led many teachers to perceive their job as that of baby-sitters. A pattern of poorly conceived, shallow activities, aimed at keeping children occupied without learning anything substantial, has evolved into a full-fledged routine. Children come to school, get a free meal, and it matters to no one that they make tangible progress from day to day. (p.8)

Clarke (2001) traces the roots of this cultural ethos to a 'duty-based code of living' operating in Indian society. Drawing from Shweder's (1991) analysis of Indian culture, Clarke explains how in the Hindu worldview, the natural moral order is determined by one's *varnashrama dharma,* or a stipulated set of duties that one must fulfil, determined by one's caste and *karma*. In such a duty-based culture, one's duty is seen as an objective obligation, and success in life is determined by one's faithfulness in fulfilling this prescribed set of duties – not necessarily by the outcomes one achieves. Thus one is driven more by external duty than internal conscience. As summarised by Meenal (B3-L),

> [*Are there any problems you face as a teacher?]* There's no problem. My duty is to come here and teach…Whatever our *dharma* is, I follow. What else? I keep on doing whatever my duty is.

5.7 Professional commitment

According to research cited in Ramachandran, Bhattarcharjea & Sheshagiri (2008), one of the biggest factors that sets apart exceptional government schools is the presence of highly committed and sensitive teachers/head-teachers. The NCF 2005, the wider literature as well as the present research all suggest that the most successful learner-centred teachers are those who choose teaching as a valued vocation, committed to doing their best to serve children; but that many Indian government teachers lack this kind of professional commitment towards teaching.

'Our heart is not in our teaching'

A strong variation between low- vs. high-LCP teachers was evident in teachers' professional commitment and work ethic. 47% of all teachers felt if they could get a higher-paying job they would quit teaching (mostly low/mid-LCP). Fatema (M4-M) and Elizabeth (K2-M) say if they could change one thing about their life, they would change their job, since both originally wanted to pursue medicine, and found it "very frustrating" that they had to go into teaching instead. Swati (K3-M) admits to having a weak professional identity since teaching was not her first choice: "I enrolled in the course, but even now I don't think I'm a teacher".

Neena (B1-L) admits that her heart is not in her teaching, while Lata (B2-L) thinks about resigning every day: "If I don't get job satisfaction, then I should at least get money. Right now I am getting neither – then what am I doing here?" Low professional commitment also results in little desire to grow or improve as teachers. Seema (M1-L) remarks honestly, "I don't want to remain a teacher. So I don't think I can or want to improve."

Teachers' commitment is often associated with whether they chose teaching as their first choice. Out of 60 teachers, 36 revealed that teaching was not their first choice. Of these, 15 became teachers because they couldn't qualify for other options but could get into teaching easily. Others started teaching due to financial need (10), because it was their family's decision (11), or because it was seen as a suitable job for women (10). There is a definite gendered dimension to the choice, with several pointing to the short hours and long holidays as making it easier for women to balance work and home life. Meenal (B3-L) explains why she chose teaching:

> Because I am a woman, and was not allowed to go far out of the home, that's why. There was nothing much to do after getting married…It's better than just sitting at home. I got an offer, so I figured, why not grab this opportunity?

The above reasons were very similar to those found by Ramachandran et al's (2005) study of teacher motivation in Rajasthan. Batra (2005, p.4347) similarly describes how 'school teaching in India has declined to the status of a least-favoured profession. It has become a last resort of educated unemployed youth'. Most opt for teaching because of the low entry qualifications, and the easy opportunity to gain good salaries, benefits, lifetime job security, and plenty of time for other activities (Ramachandran & Bhattacharjea, 2009).

Several trainers spoke about teachers' low motivation and commitment to their job as a major factor impeding their openness to new pedagogies.

> If you came into this job willingly, without any social pressures, you would regard the job as more of a calling than just a profession. Then you wouldn't just care about the financial gains. These teachers are motivated to teach their students well. (3T7)

According to the trainers, many government teachers do not work with devotion or commitment (2T11), they do not "teach from their heart" (2T4): "they do a job but cannot be a professional in it" (1T5). Several trainers said the reason teachers have not changed their pedagogy is not because they are incapable but because they are unwilling to put in the extra effort that the new approach requires.

Shaped by larger cultural and systemic factors

Once again, the above cultural ethos is confirmed by interviews with educationists as well as the wider literature. The PROBE survey (1999, p.57) found that 'most teachers convey a deep lack of commitment to the promotion of education in the local community…Few teachers see their work as a vocation.' Various studies have highlighted the low levels of

motivation pervading government teachers, and that many are eager to change jobs (Rao, Cheng & Narain, 2003; Ramachandran et al, 2005). Research indicates many teachers have simply 'given up', are indifferent to children's learning, have reduced their teaching activity to a minimum, and instead spend their time maintaining records, sipping tea, reading comics, or sitting idle (PROBE team, 1999; Dyer et al, 2004; Ramachandran et al, 2005). The 'quiet inertia' characterizing many government teachers has 'become a way of life in the profession' (PROBE team, 1999, p.63). Ramachandran et al found that even teachers who claimed to be 'motivated' typically meant coming to school daily, following orders and supplying information asked by officials. Teachers lack not only a committed but also a professional view of their work as teachers. They view their role more as baby-sitters who need to be kind and punctual, rather than requiring any pedagogical expertise or research-based understanding of how children learn (Batra, 2005; Kumar, 2011).

Teachers' low professional commitment can be seen as tied to other beliefs discussed in this chapter. A significant source of teachers' low motivation seems to be the low salary and status associated with teaching, which corresponds with purpose beliefs that prioritize socio-economic mobility. Teachers' professional commitment may also link to their 'equality' beliefs: social prejudices and high social distance between teachers and poor/low-caste students determine teachers' willingness to teach these children with love and commitment (PROBE team, 1999; Dyer, 2004). Educational administrators admit that 'no one is really interested in government schools that cater essentially to poor children' (Ramachandran et al, 2005, p.34), and since most administrators send their own children to private schools, they have little personal stake in improving the system. Moreover, teachers' duty-oriented beliefs are also pertinent: trainer 2T13 observes how teachers "only like to follow orders and do their duty, they don't have an inner motivation."

Analysis of interviews and the literature suggest that the low work ethic is shaped by both systemic and cultural factors:

> There is a fundamental ethos of negligence especially in the government system – the assumption that you have the freedom to be negligent. You can't just blame the teacher – it's part of a larger embedded institutional ethos in the government system. (Interview with educationist, 12/03/10)

According to Lata (B2-L), "there is no proper guidance…nobody to check whether or not you are doing it right", no "fear of losing your job," no incentives or disincentives for working hard. The lack of extrinisic motivation seems to deepen the lack of intrinsic motivation. Kingdon (2008) and Page (2005) attribute practices like teacher absenteeism or low performance to the virtual lack of accountability in government schools. Teachers themselves seem to justify unprofessional practices such as absenteeism or arriving late in light of their family responsibilities as well as their poor working conditions. What Neena (B1-L) most dislikes about her job is

> the part about coming on time and leaving the house work halfway…The school is also far and the road is bad, that's why I feel like being absent today and coming tomorrow. If the road gets made, then I would come daily.

There is also a pervading school culture that generates peer pressure against working 'too' hard. Anu (K2-H) describes instances when she put in extra work beyond class hours to help weaker students improve their learning:

> Many teachers did not like this. They felt I was trying to outsmart them or point out lacuna in their teaching….they told me, 'if you start teaching like this, parents will ask us too to teach like this. Don't make more work for us.

'I will serve as a teacher till I die'

In contrast to the above 'ethos of negligence', about a third of teachers (most mid/high-LCP) display a high work ethic and professional commitment. Vinod (M2-M) wanted to teach especially the poor "to serve my family and society," because he didn't want other children to struggle due to financial hardships as he himself did when young. His commitment is evident: "I will serve as a teacher till I die". Teachers with high professional commitment typically opted for teaching as a first choice. They display pride and satisfaction in seeing children succeed, and express a commitment to working hard with sincerity and dedication, as if teaching their own children. They see their role as going beyond narrowly performing their 'duty', to putting in the hard work required to prepare before class, thoroughly check students' understanding, give extra support to students who need it, and attend trainings to learn new teaching methods.

A key aspect of these teachers' professional identity lies in the concept of 'vocation' or 'calling'. These teachers tend to view teaching as a worthy profession: "teachers are the ones who give leadership for bringing about change in society…teaching enables me not only to look after my family but also serve society" (Sonu, K1-H). They see a difference between those who view their work merely as a 'job' and those with a deeper commitment to teaching as a calling: "Some teachers just take their job as a job, they know they'll get their monthly salary no matter what, so they don't invest anything in the children at all" (Priya, M2-H). They see their work of guiding children as closely tied to a larger mission. Lalita (K4-H) remarks:

> God has given me some duty to do something not only for my family…I can do something to [contribute to] the curriculum, the society, and to children's education…This is my purpose in life, because education is the backbone of any country. [I have] no other life mission, no other dream.

This deep conviction of her work as a God-given mission drives Lalita to turn down several promotions to teach in high school, in order to continue as an elementary school teacher and teacher trainer. It motivates her to constantly evolve new strategies for helping children learn:

> I started thinking: the government is giving me Rs.1000 per child – am I actually putting in value for this money? This thought disturbed me; I thought, I need to do more.

5.8 Change

NCF 2005 advocates 'a predisposition towards social change' as a 'core component of [educational] quality' (p.9). Its vision of a democratic citizen is one who critically examines both old and new, and 'courageously reject(s) what arrests the forces of justice and progress' (p.7). In contrast, many teachers in this study displayed preference for sticking to tradition, resistance to change, or lack of a personal sense of responsibility for bringing change.

Preference for tradition

In general, many more low-LCP teachers tend to favour tradition over change. Both Smita (B4-L) and Seema (M1-L) resort to tradition in explaining why it is important for children to attend school: Smita feels because "for years people have been studying", while Seema believes it because that is where tradition is taught. When asked if there is any need for bringing change in the education system and whether it is worth trying, many of the low/mid-LCP teachers felt there is no need, since the system is OK as it is. A few teachers expressed resistance against recent changes in the system towards LCE: some preferred the old stricter, examination-based system since fear motivates students to study harder. Others who did feel the need for some change mostly talked about top-down material changes: that the government should provide more money, infrastructure, facilities, less non-teaching duties, or lower Pupil-Teacher Ratios. Almost no low-LCP teacher talked of changes related to curriculum, pedagogy or learning. Moreover, few of the low-LCP teachers felt any sense of personal responsibility for bringing change: Farida's (B4-L) response was "I am retiring so do not ask me. The next generation should bring about change". Asha (B2-L) felt that

> Change should take place from top to bottom. Only teachers can't be expected to bring change. The Government should be more aware. If the top officer is changed, then only their subordinates are changed.

Cultural trends

Many trainers agree that there is a culture of resistance to change among teachers, which they see as a key obstacle to the implementation of innovative pedagogies. One Bihar trainer explains:

> What happens is our mentality is very traditional. It's like what happened to Galileo: when he said that the sun is stationary and the earth revolves around it, people were not ready to accept it. We encounter a similar situation here. If I say this is true, people are not ready to accept. (1T5)

Trainer 3T8 sees this culture as extending to Kerala as well, where he laughingly remarks that teachers need to be given a class on 'attitude change' in order to start embracing change:

> It is part of Kerala culture that something that is new to the culture is difficult to be accepted easily by us Keralites! We have a love for tradition…There is something in our culture that prevents us from accepting something new.

Several trainers felt the reason many teachers have not implemented LCE is that they believe the old approach is better, or they feel new methods will be more difficult, time-consuming, or will require more work. Trainers find that older teachers seem particularly resistant to change. For Trainer 3T10, the mark of a good teacher is her readiness to experiment and change: "That mentality will help to be a better teacher – that mentality to change, based on what is best for the students." Four Maharashtra trainers, when asked what helped them personally shift towards LCE approaches, pointed to a positive attitude to change as one of the key factors: "I needed to change in order to progress" (2T2).

Dyer et al's (2004) study of Indian teachers in three states (Gujarat, MP, Rajasthan) found a similar attitude among teachers, of not feeling personally responsible for bringing change in the status quo, or even believing it possible. She recommends that

> Teacher development programmes need to be able to convince teachers of their own capacity directly to effect change…Ongoing attempts to develop teachers' skills without attending to this issue are likely to continue to meet barriers. (p.51)

Teachers' feeling of inability to effect change in the system is partly shaped by their low status and autonomy in the government educational hierarchy:

> That smallness they feel, of 'Nothing I do will make a difference,' will then affect everything else. It forms the basis of their way of looking at themselves in the school and the system. (Interview with educationist, 10/19/10)

Teachers' acceptance of the status quo may also be partly influenced by the cultural belief in *karma,* as suggested by both Batra & Nawani (2010) and Rao, Cheng & Narain (2003). According to *karma,* failure and success as well as social inequalities are divinely ordained, and thus must be accepted rather than challenged. Indeed, 46% of all teachers surveyed believe that one's lot in life is a result of *karma* (out of which 32% strongly agree). Rao, Cheng & Narain describe both positive and negative consequences of this belief in Indian society including among teachers: 'the acceptance of fate is often an excuse for inaction' (2003, p.167).

We can and should work for change

In contrast, many high-LCP teachers strongly felt that we can and should work towards change. Siby (K2-H) believes that "we can change anything with effort", while Sonu (K1-H) asserts that it is teachers' responsibility to bring change in the system:

> We often blame the system and wash our hands off…If we don't see any changes it is our fault, not that of the system. We have to first bring about change in ourselves.

Several mid/high-LCP teachers see adaptability to change as an important positive value and an essential quality of a good teacher. Some feel that the main reason children should go to school is not to learn tradition, but to stay abreast of changes in knowledge and society. When speaking of changes needed in the education system, many mid/high-LCP teachers spoke not of material changes but of the need for changes in curriculum and teaching methods to better support children's learning. Siby and Nafisa (K1-H) both believe that curriculum and pedagogy should reflect societal changes: Siby wants to receive training not only in the "tried-and-tested" established methods but in new experimental methods, while Nafisa says the reason she is interested in learner-centred education is because it has come about as a result of much reform and is itself bringing in a lot of changes and even a revolution. According to Swati (K3-M) and Alka (K4-H), a good teacher is one who keeps well abreast of current affairs and changing trends in society, who makes changes in her way of teaching, and who takes risks.

Conclusions

In response to RQ1, this chapter has pointed to eight categories of beliefs held by a significant proportion of teachers in this study which directly contradict the learner-centred assumptions of NCF 2005. These eight beliefs also tend to differ considerably between teachers with lower and higher learner-centred practice, suggesting some correlation between the beliefs held by teachers and their extent of learner-centred practice. For the sake of clarity, Table 5.9 presents a very reductive summary of these eight categories in terms of the differences in beliefs between low-LCP and high-LCP teachers:

Table 5.9: Beliefs of teachers with low vs. high learner-centred practice

Belief Dimensions	Beliefs of 'Low-LCP' teachers	Beliefs of 'high-LCP' teachers
1. Inequality vs. equality of human worth and ability	Students from 'lower' (caste/class) backgrounds are less capable or deserving of learning	All children must and can learn, if teacher gives enough efforts
2. Hierarchical vs. democratic relationships	Children should be controlled through fear and discipline	Teacher-student relationship should be democratic and friendly
3. Uniformity vs. diversity	Learners are assumed and preferred to be alike	Diversity seen as positive, uniqueness to be encouraged
4. Learning as knowledge transmission vs. construction	Knowledge must be transmitted from teacher/ textbook	Children construct knowledge through active exploration
5. Purpose of education: material success vs. social justice	Doing well in exams to get a lucrative, high-status job	Developing values and skills that contribute to a more ethical, just society
6. Teachers' duty: completing task vs. ensuring outcomes	Teacher's duty is to 'complete the syllabus'– if students don't learn it's their own/ their family's fault	Teacher feels personally responsible for ensuring all students learn

7. Low vs. high professional commitment	Low sense of commitment, accountability or work ethic	Teaching seen as a calling; high sense of professionalism
8. Valuing of tradition vs. change	Preference for sticking to tradition	Believe that we can and should work towards change

By linking the beliefs found among teachers with comments from trainers and educationists as well as with other studies on Indian teachers, this chapter has shown that these beliefs are not idiosyncratic to this group of 60 teachers, but perhaps suggestive of wider societal trends embedded in deeply-rooted cultural ideologies. Indeed, when I showed the above chart to educationists I interviewed, several remarked, "I agree with all of them – these are the most common mindsets we encounter in every training session" (03/07/13), or "You're right on. These are the things that we need to attack in training; these are the barriers we need to break down" (04/01/13).

At the same time, my own experiences and observations suggest that these beliefs can be seen not only among teachers but in fact at almost every level of the government education system. The literature cited in this chapter suggests that these beliefs are not only prevalent across the government education system but also suggestive of wider cultural trends. Teachers' beliefs and classroom practices are in many ways a reflection and perpetuation of wider societal ideologies, which is discussed further in Chapter 7. However, hope persists in the fact that for each of the eight beliefs described above, there were teachers who resisted dominant ideologies and chose to stand for different beliefs. Chapter 7 will unpack what kinds of factors enabled teachers to adopt different beliefs and ultimately practices.

For now, Chapter 6 builds on the analysis in this chapter by supplementing it with analysis of quantitative data. It examines in more detail the nature of the relationship between these eight beliefs and specific pedagogical practices.

Chapter 6 – Empirical Relationship between Teachers' Beliefs and Pedagogy

> *[Referring to grassroots work 30 years earlier attempting to train teachers in constructivist pedagogy]* These beliefs [being explored in this study] were definitely important in our work…these would certainly have an impact on constructivist pedagogy. I wished we had studied these things.
>
> – (Interview with educationist, 29/11/10)

The central questions at the heart of this thesis relate to the nature of the relationship between teachers' beliefs and pedagogy (RQ2), and any other factors involved therein (RQ3), which will be explored through the next two chapters. RQ2 especially is not an easy question to answer, since it touches on issues of causality – something difficult to establish in either quantitative or qualitative investigations. There are many other factors implicated in this relationship, which prevent us from establishing a clear linear relationship between these two constructs. A strength of this thesis is that it not only employs a mixed methods approach, but then analyses both quantitative and qualitative data through a critical realist theoretical lens, which enables a more nuanced, sophisticated response to this complex question. In keeping with this multi-layered approach, Chapter 6 first presents quantitative findings to answer these two questions[27]. Thereafter, Chapter 7 probes deeper into these empirical findings using qualitative data as well as a critical realist lens on the relationship between teachers' beliefs and pedagogy and factors shaping both, before exploring implications for policy and practice in Chapters 8 and 9.

The two central constructs in this thesis are teachers' beliefs and teachers' pedagogical practice, and specifically the extent to which both are aligned to the LCE paradigm advocated by policy documents. My hypothesis laid out in Chapter 1 is that pedagogy (and, specifically, learner-centred education) involve both external teaching practices, as well as the underlying beliefs in which they are rooted. But in order to establish this relationship empirically and conceptually, this thesis begins with an empirical and conceptual separation between these two constructs. Two separate scales were developed for assessing teachers' beliefs and pedagogy in terms of their alignment to LCE, and the creation of these scales is discussed in section 6.1. Chapter 5 already examined the extent of teachers' alignment to LCE beliefs; Section 6.2 now looks at their alignment to LCE pedagogy, and Section 6.3 analyses the background factors associated with both beliefs and pedagogy. Next, Section 6.4 presents the overall relationship exhibited within the sample between these two measures, and discusses potential interpretations thereof. Finally, Sections 6.5 and 6.6 draw upon both quantitative and qualitative data to explore relationships between individual

[27] All statistical tests used are explained in Appendix-6.1.

beliefs and practices, and to speculate which of the individual beliefs and practices examined in the study appear most central and strategic to target within teacher education programmes.

6.1 Designing quantitative scales for exploring teachers' beliefs and pedagogy

Creation of belief scales

In order to empirically analyse the relationship between teachers' beliefs and pedagogy, the first step was to assign each teacher a score for these two measures, and to create these scores through a scale that was reliable in measuring the same construct for all teachers. The belief scale was based on a combination of teachers' survey and interview responses.

For the survey, the accuracy of translation had been verified by getting items re-translated back into English prior to data collection. Despite these measures, I later found seven items to have been poorly translated, and I decided to delete them from the final data set due to the possibility that they might have been misunderstood. Based on initial qualitative analysis, I collapsed the original ten belief domains into eight (as discussed in Chapter 5), and rearranged some survey items that seemed to fit more appropriately in a different scale than originally conceptualized. Next, I checked the internal reliability and consistency of scales using principles of classical test theory – inter-item correlations and Cronbach's Alpha (α). Based on correlations I deleted items that were negatively correlated with other items in that scale, and using Cronbach's α I deleted items which significantly brought down the α value – resulting in 16 items further deletions. Thereafter, all scales except Scale-3 (Uniformity vs. Diversity) showed good correlations (all items significantly correlated at $p<.01$) and good α coefficients (most above 0.7, but Scale-3 had $\alpha=0.26$), as shown in Appendix-6.2.

I then conducted factor analysis to confirm whether the items measured a single underlying factor for each scale (Appendix-6.3)[28]. Factor analysis enabled me to construct a questionnaire to measure a single underlying variable for each scale, and to reduce the data set to a more manageable size while still retaining as much information as possible (Field, 2009). Exploratory factor analysis was deemed more useful for my analysis since the scales were being developed and tested within this study itself and with a relatively small sample. Other scoring methods like Rasch analysis usually work better on scales with well-established

[28] The reliability testing and factor analysis presented in Appendices 6.2 and 6.3 include a wider sample of 230 additional teachers and 229 additional trainers as mentioned in Chapter 4, in order to provide a larger statistical basis for developing the survey scales. Some simple descriptive statistics on these extra teachers/trainers is presented in Appendix-4.3, though they were not included in any of the other analysis.

psychometric properties and with larger samples. For this reason, items in the factor analysis did not always load onto a single factor, which is to be expected for exploratory factor analysis with a small sample. Factor analysis showed positive results for all scales except 3, as in the correlations and Cronbach's Alpha analysis. Scale-3 was consequently deleted from the quantitative analysis. This does not mean that teachers' diversity beliefs are unrelated to teachers' pedagogy, but simply that the present survey instrument was not a reliable tool for assessing this belief, and requires further refinement. While this reduces the data set, this should not significantly affect my quantitative analysis of the relationship between teachers' pedagogy scores and the remaining seven beliefs. Using factor analysis, I generated single scores for each of the 7 remaining scales for each teacher, and added these up to create a total 'Survey Score' for each teacher (where higher scores indicate more learner-centred beliefs as expressed in the surveys). Equal weighting was assigned to all 7 individual belief scales, since I did not have any theoretical basis for weighting one belief above another.

Meanwhile, interview responses were coded qualitatively as described in Section 4.4, and then each assigned a quantitative rating. For each of the eight belief domains, I analysed the range of teachers' responses within that category, and classified responses in terms of whether they were less or more aligned with the LCE assumptions of policy documents, assigning each response category an index from 1 to 5. This yielded a score of 1 to 5 for each teacher for each of the 8 beliefs, which were added to create an overall 'Interview Score' for each of the 60 teachers (with higher scores indicating more learner-centred beliefs). The Survey and interview scores showed fairly high correlations for individual belief domains (presented in Appendix-6.4). This indicates that teachers' Likert scale responses were consistent with my own coding of their interview statements, suggesting that both instruments were fairly reliable measures of teachers' beliefs in these specific domains. The only scales that did not show significant correlations between Survey and Interview Scores were Scales 1 and 3. This could indicate poor Likert-scale construction of Scale 3 as discussed above, and perhaps for Scale 1-Equality which is a controversial topic, teachers might have felt more self-conscious to give socially desirable answers in an interview than in an anonymous survey.

Finally, the survey scores and interview scores were combined to create a composite 'Belief Score'. First, the survey scores (ranging from -15.3 to 10.7) and the interview scores (from 8 to 35) were standardised, by subtracting their means (0.3 and 21.3 respectively) from each of the scores, and dividing by their standard deviation (5.9 and 6.9 respectively). I then took the average of these two standardized z-scores to create the composite Belief Score (ranging from -1.2 to 1.9), thereby giving roughly equal weighting to the two scales[29]. The combined score was created partly to make use of the maximum amount of available information on teachers' beliefs, and also to help counter possible response bias which may

[29] Thus a teacher with a score of zero has average beliefs across the two scales, a teacher with +1 has one standard deviation above average, while someone with -1 has one standard deviation below average.

invariably come across in a single instrument. Moreover, regressions showed that the combined scale offered much greater predictive power in relation to the construct of interest (pedagogy), compared to either the interview or survey scales alone. A similar process of standardising and averaging was followed for each of the seven belief domains, resulting in a composite Belief Score for each of the seven beliefs for each teacher.

Creation of pedagogy scales

For creating pedagogy scores for the teachers, first I added up the raw scores obtained from the two Pedagogy Observation tools (key observation questions, and time tracking tool). This yielded a raw score for each of the ten pedagogy categories, which combined gave an overall pedagogy score per teacher, as shown in Table 6.1.

Table 6.1: Creating pedagogy scores from the two observation tools

Pedagogy Category	Key Observation Questions: Possible Range	Time Tracking: Possible Range		Total Possible Range
1. Holistic Learning	3-15			3-15
2. Community linkages	2-10			2-10
3. Variety of Learning Materials	2-10	Use of Materials	21-105	23-115
4. Student exploration & active involvement	3-15	Group Interaction Teachers Role Students' Activity	63-315	66-330
5. Building on existing knowledge	2-10			2-10
6. Cognitive engagement	7-35	Cognitive Activity	21-105	28-140
7. Student questioning	1-5	Questioning	21-105	22-110
8. Emotional Environment	2-10			2-10
9. Democratic & Inclusive environment for every child	2-10			2-10
10. Continuous Assessment	2-10			2-10
		Overall Pedagogy Score		56-370

The method discussed above gave unequal weighting to some of the pedagogy categories in calculating the overall pedagogy score, based on having more observations for certain categories. However, there is no reliable method presented in the literature for calculating the learner-centredness of teachers' pedagogy, with firm criteria for which aspects of LCE should be weighted most strongly. To test the robustness of the method I used, I tried comparing the raw scores to alternative scores that gave equal weighting to all ten pedagogy categories (by creating a percentage of the total for each category, and adding these for a total 'equalized' score). Pearson correlations revealed extremely high correlation between the raw

and equalised pedagogy scores (coefficient of 0.99 for individual categories and 0.91 for the total scores, with $p < 0.01$ for all). Cronbach α and factor analysis yielded similar results for both options, suggesting that both scales show high reliability. I also tried using the two Pedagogy Score options to test correlation with the Belief scores, as well as regressions using belief scores as predictors and either Pedagogy Score as the outcome, and both these tests showed similar results for both Pedagogy Score options.

When I explored the internal reliability of the raw Pedagogy Scale using classical test theory, this yielded very positive results (shown in Appendix-6.5). Cronbach's $\alpha=0.77$ ($\alpha=0.93$ using standardized items), and Pearson correlations showed significantly positive correlations between nearly all ten pedagogy categories ($p<0.01$ for almost all correlations). Similarly, factor analysis yielded a very strong first factor, suggesting a potentially powerful single dimension or latent trait explaining pedagogical behaviour. This suggests that the initial scale is a fairly reliable measure of teachers' learner-centred pedagogy, with the different pedagogy categories tending to cluster together: teachers who scored high on some of the LCE categories also scored high on the others. Thus I decided to use the initial raw Pedagogy Scores for my quantitative analysis.

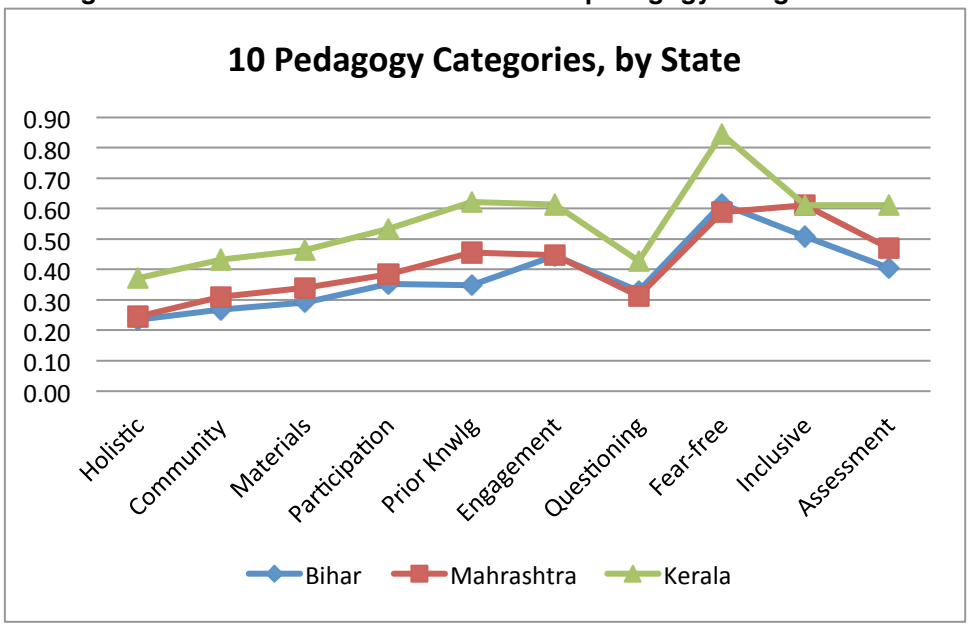
Appendix-6.6 shows the final belief and pedagogy scores obtained for the 60 teachers using the processes described above, and individual scores for each of the belief and pedagogy dimensions, along with simple descriptive statistics of each. Since the belief scores were created by standardizing and combining the survey scores generated through factor analysis and the assigned interview scores, some of the values generated ended up being negative. For the pedagogy scores, since the raw data obtained through observations was used directly, all the values for this scale were positive. The following section looks at the extent to which teachers in the sample implemented LCE pedagogy. The sections that follow then explore other factors associated with belief and pedagogy scores, before examining the relationship between the two.

6.2 Teachers' implementation of LCE pedagogy

Broad overview of the 3 states in terms of implementation of LCE Pedagogy:

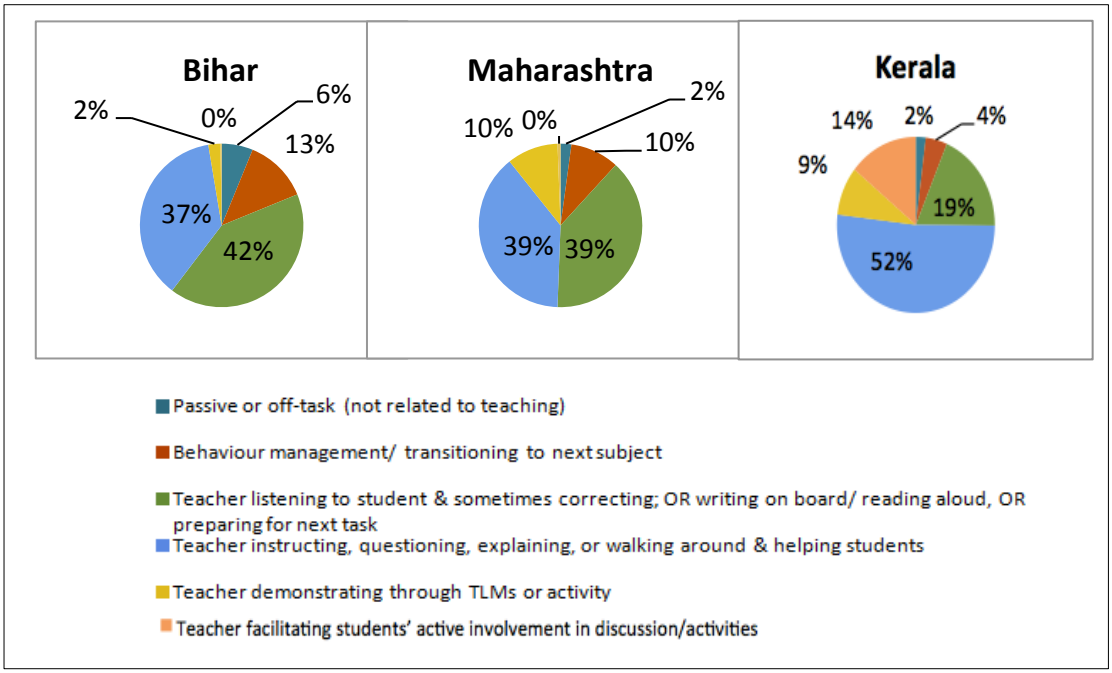
Among the three states, Kerala is by far the furthest in terms of implementing some of the learner-centred elements envisioned by policy documents. Comparison in mean pedagogy scores across the three states is depicted visually in Fig.6.1, and presented numerically in Appendix-6.7. Kerala teachers scored significantly higher than both Bihar and Maharashtra teachers in their overall LCP scores as well as in all ten individual pedagogy categories. In contrast, there was not a large difference between the pedagogy scores of Bihar and Maharashtra teachers, except that Maharashtra teachers scored slightly higher in variety of materials, student participation, prior knowledge, and inclusive environment.

Figure 6.1: State-wise differences in LCE-pedagogy categories



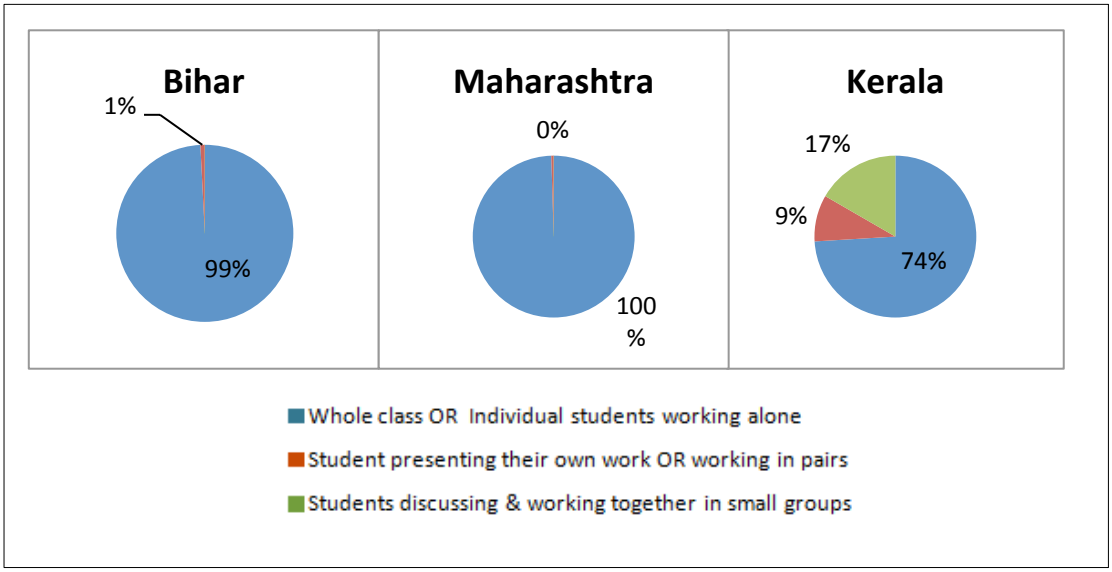
In addition, Figures 6.2-6.7 show the nature of classroom activity predominant in each state during the period of observation.

Figure 6.2: Teacher activity



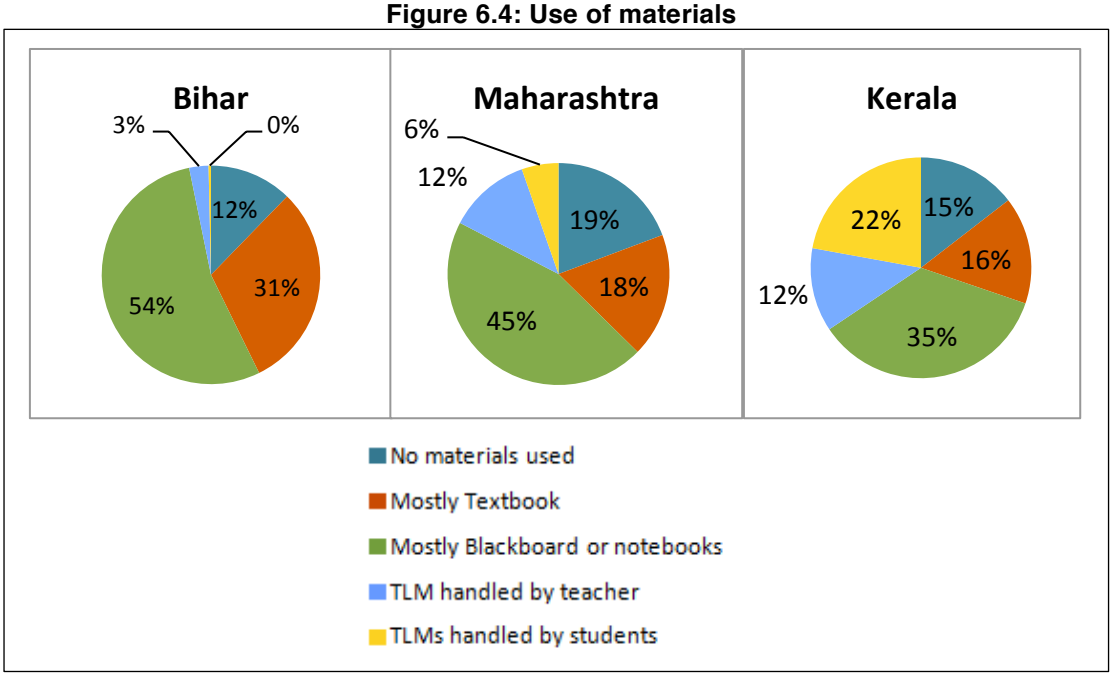
In terms of teacher activity, Bihar and Maharashtra teachers spent around half the time on either passive or semi-passive tasks such as behaviour management, reading aloud, writing on the board or listening to students reading/reciting (compared to 25% of the time in Kerala). In turn, Kerala teachers spent 60% time in more involved activity such as explaining, questioning, helping individual students or demonstrating through TLMs/activities (compared to 40-50% time in Bihar/Maharashtra), and 14% time facilitating students' active involvement in discussions/activities (compared to 0% time in Bihar/Maharashtra).

Figure 6.3: Group interaction



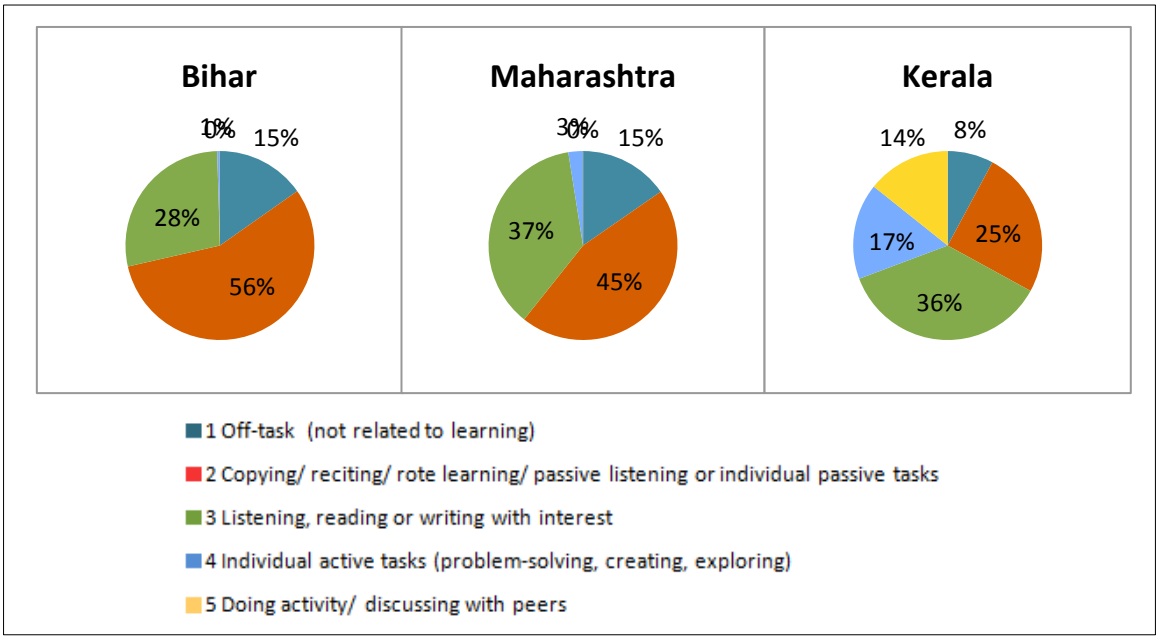
While whole-class teaching or students working alone were the primary group interaction in all three states, Kerala teachers also spent 26% of class time allowing students to present their own work or to work in small groups, whereas this was absent in the other two states.

Figure 6.4: Use of materials



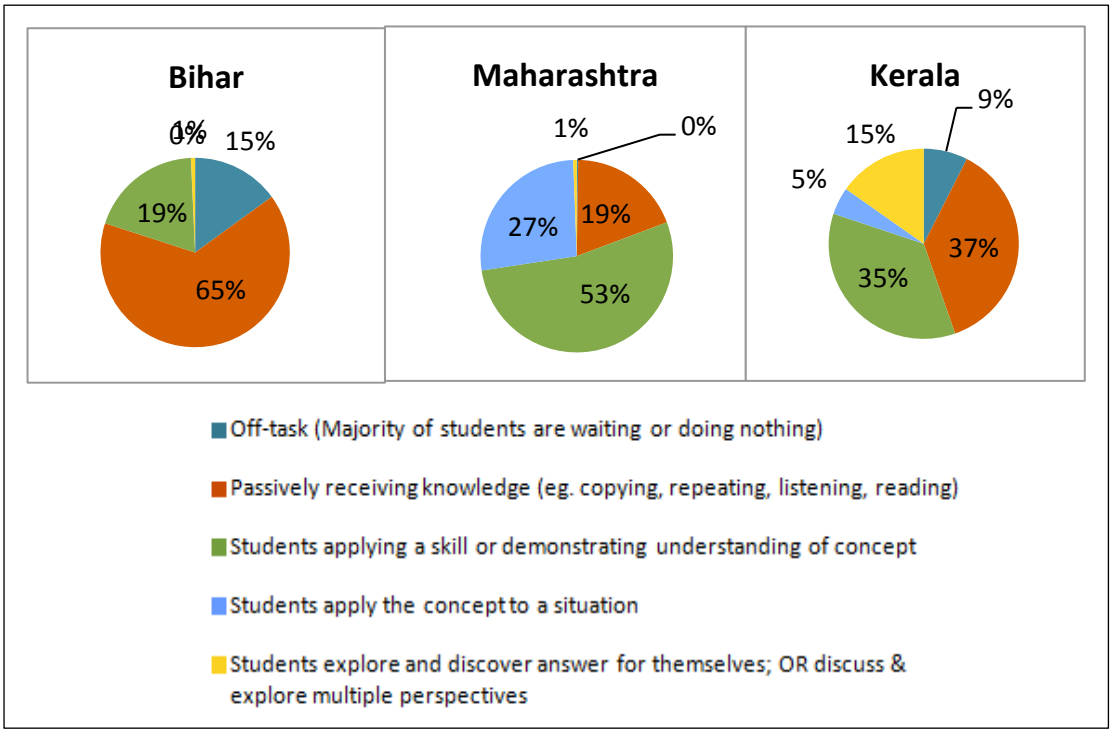
In Bihar and Maharashtra, teachers used mainly textbook, blackboard or no material for the majority of their teaching, whereas in Kerala about 34% of the time was spent in the teacher or students themselves handling Teaching-Learning Materials (TLMs).

Figure 6.5: Student activity



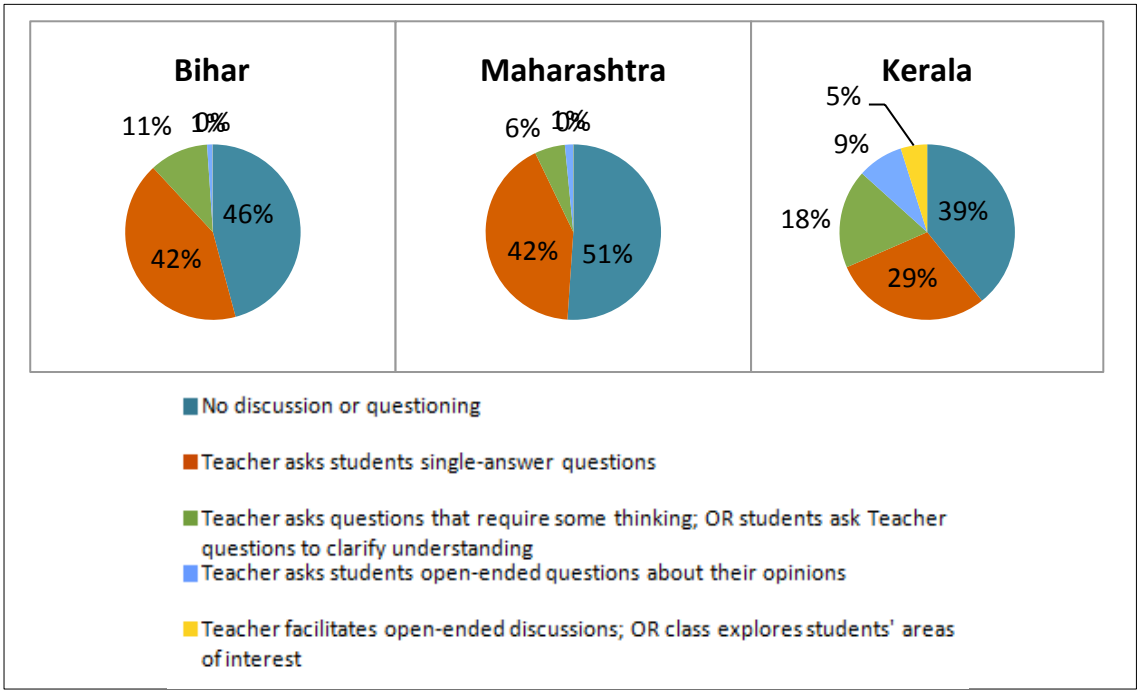
In terms of student activity, students were observed off-task 15% of the time and passively copying/reciting/listening for 45-55% time in Bihar/Maharashtra (versus 8% and 25% respectively in Kerala). Listening/reading/writing with interest took up a similar proportion of time in all three states (30-35%), but in Kerala 30% time was also spent in more engaged tasks such as problem-solving, creating, exploring, or activities with peers, whereas this was mostly absent in Bihar/Maharashtra.

Figure 6.6: Cognitive engagement



More specifically, students' cognitive engagement was assessed based on whether or not students seemed engaged, interested, actively thinking – though this is invariably a subjective measure when assessed by an external observer. Surprisingly, Maharashtra seems to have the highest proportion of time (80%) where students were either demonstrating understanding of a concept or applying a skill to a real-life situation. This is because a larger proprtion of classes observed in Maharashtra were maths lessons, and the time spent in solving maths problems was grouped under this category. Kerala was the only state where 15% time was spent in students discussing or exploring answers for themselves.

Figure 6.7: Questioning



Discussion or student questioning was mostly absent in Bihar/Maharashtra classrooms, and interaction was mostly limited to single-answer questions by teachers. In contrast, about 30% class time in Kerala was spent either in students asking questions or teachers asking open-ended questions, questions that required some thinking, or facilitating discussions.

Trends in low vs. high LCE-pedagogy teachers

The following section explores key differences in lessons taught by low-LCP and high-LCP teachers, particularly along the 10 pedagogy categories assessed in this study, to provide a snapshot of both groups. It can be noted that this grouping corresponds somewhat to the above state-wise divisions, since 16 of the 20 high-LCP teachers were from Kerala, while all 20 low-LCP teachers were from either Bihar or Maharashtra. It should also be noted that while this grouping was created for the purpose of analysis, teachers did not all fall into discrete

categories of either 'learner-centred' or 'non-learner-centred', but instead fell more along a continuum. Many teachers displayed some practices that were more learner-centred but others that contradicted its spirit (especially those in the 'mid-LCP' category). But in general, low-LCP teachers displayed primarily the latter while high-LCP teachers practiced primarily the former.

Figure 6.8: Teachers' scores in 10 Pedagogy Categories, by Pedagogy Index

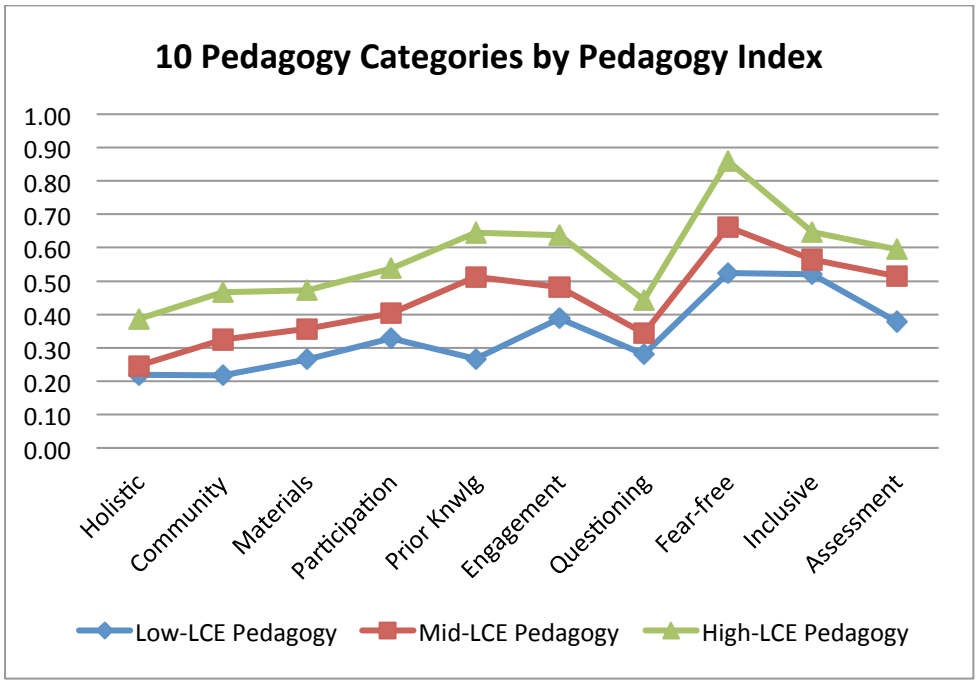


Figure 6.8 shows there were clear differences between High-, Mid- and Low-LCP teachers along all 10 categories, and that all 3 categories of teachers showed a consistent pattern across the 10 pedagogy parameters. This suggests that these ten parameters do consistently group together and may indeed indicate different pedagogy styles. The largest differences between High- and Low-LCP teachers were found for Prior Knowledge (.38) and Fear-free environment (.33), while the smallest differences were in Inclusive Environment (.13), Student Questioning (.16), and Holistic Learning Outcomes (.17). This could indicate that perhaps the latter are areas where even the more learner-centred teachers are still not particularly learner-centred in their practice. Alternatively, this could also indicate a limitation of the observation tools, and an inability to adequately gauge these practices in the limited time observed, sugesting an area for further research.

Appendix-6.8 shows specific differences between low-, mid- and high-LCP teachers in the ten categories, based on the Key Observation Questions used in the pedagogy observation tool. These differences are summarized briefly below.

1. *Holistic outcomes:* High-LCP teachers occasionally made connections to learning goals beyond the textbook, related to values, artistic or other co-curricular skills, or made connections across subjects. This was mostly absent among low-LCP teachers.

2. *Community linkages:* High-LCP teachers sought many more opportunities than low-LCP teachers to link learning to children's real-life context or community, though real-life issues were seldom discussed critically among either group.
3. *Variety of materials:* High-LCP teachers often used a variety of teaching-learning materials (TLMs) in their lesson, and occasionally a few teachers encouraged students to seek out knowledge from sources besides the textbook. This was mostly absent among low-LCP teachers, who largely restricted themselves to the textbook or blackboard.
4. *Student participation:* Many high-LCP teachers often encouraged active student participation by providing opportunities for students to interact with each other, handle objects, move around, or participate in activities. These teachers tended to allow students to think, explore and discover answers for themselves, in contrast to low-LCP teachers who tended to give answers directly to students.
5. *Prior knowledge:* Many high-LCP teachers often encouraged students to share what they already knew about a given topic and built on that prior knowledge while teaching new content. This was done only occasionally by low-LCP teachers.
6. *Cognitive engagement:* High-LCP teachers were more often enthusiastic and dynamic, tried to generate students' interest in the topic, encouraged students to express their thoughts in their own words, and their students generally appeared more engaged. For low-LCP teachers, this was the case only sometimes.
7. *Student questioning:* High-LCP teachers sometimes asked open-ended questions and encouraged students to give a variety of answers, with a few teachers doing this often. Low-LCP teachers in turn asked mostly closed questions and accepted a single correct answer.
8. *Fear-free environment:* High-LCP teachers were more often warm, friendly and approachable, gently correcting off-task students. In contrast, low-LCP teachers were sometimes harsh and punished or scolded students, or more often were simply neutral – neither harsh nor warm, without making much effort to manage their classroom.
9. *Inclusive:* In most classrooms observed for both groups, these was no overt evidence of discrimination during the limited time observed. But high-LCP teachers occasionally displayed special efforts to support marginalized or weaker students.
10. *Continuous assessment:* High-LCP teachers often stopped to check if students could demonstrate understanding, identified individual students' difficulties, and supported them accordingly. This was less frequent among low-LCP teachers.

Two illustrative examples are presented below, of a low-LCP and a high-LCP teacher, who were found similar to many of the other teachers within their category. Anil (M4-L) is a 23-year-old male from a Hindu Dalit (*Vanjari*) background, teaching a Class 5 Civics lesson in a Maharashtra urban English-medium school. 35 students are seated in a small room on small benches, with three students on one bench, and some students on the floor for shortage of benches. Anil writes 'Our Democracy' on the blackboard and immediately begins reading the lesson from the textbook. He intermittently explains the content to the students in Hindi. He attempts to relate the notion of government representatives to the 'class monitors' the students

have in their class, asking students to list the duties of these class monitors. He asks students what we as citizens expect from the government. He continues reading from the textbook while students follow along in their books, and this continues for about 25 minutes. He occasionally asks questions, but the students appear scared to answer, and listen quietly for most of the time. If a student does answer and makes a mistake, he corrects them in a stern voice. Once the chapter is finished, Anil asks students to turn to the questions listed at the end of the chapter and answer them in their notebooks, while he sits at his desk. He eventually calls out the 'correct' answers which students copy down in their notebooks.

Siby (K2-H) is a 42-year-old Christian male teaching Class 5 social science in a Kerala rural school. His classroom is bright and well-ventilated, with large wall paintings depicting a story from the textbook, and has 18 students (two to a desk). His lesson on 'Dignity of labour', taken from the prescribed curriculum, lasts for all three periods observed, as per the organization of the school timetable in Kerala. Students appear happy and enthusiastic, and there seems to be an extremely friendly relationship between teacher and students. Siby begins by narrating a story from the textbook about a girl who felt ashamed of her father being a rickshaw-puller. Students listen attentively and freely ask questions to clarify their understanding. Siby then asks students to write in their notebook how they would have responded if they had been in the girl's place, while he walks around looking at their work. Students take turns presenting what they wrote, while the teacher listens and gives constructive feedback. Siby then asks students to read the textbook story silently while he prepares for the next task. Next, he asks open-ended questions which get at students' understanding of the story. He facilitates a dynamic discussion about hand-pulled rickshaws and respecting different types of work, with students actively engaged. He asks students 'if Lakshmi's father was doing what kind of job would Lakshmi have been proud of?' Students call out different professions (doctor, engineer, etc.) which Siby writes on the board. He then asks 'if people only chose such white-collar jobs, what jobs in our society would not get done?' Students write answers individually, followed by a lively discussion with students eager to share their answers while Siby writes them on the board. The class becomes quite loud, and Siby attempts to manage the classroom using some warm-up exercises.

Next, students copy the responses in their notebooks while Siby walks around checking their work. He notices that one child seems unusually quiet and after inquiring the reason why, offers to help him with his problem, and the student looks visibly relieved. Siby continues discussing about how if there were only white-collar jobs we would not receive many of the services we take for granted. He asks different students to share which of the jobs listed on the board they felt was the most valuable, giving reasons why. He then asks them which of the jobs involves the most hardship. This leads to students excitedly sharing what jobs their parents do. Siby asks if any of their parents' professions had not been included, and adds these to the list on the board. Next, he instructs students to work in small groups to divide the jobs listed on the board into categories such as labour-intensive vs. not intensive, and high- vs. low-paying. Siby asks them to come up with more such categories. Students excitedly discuss in groups leading the class to get quite noisy again. Finally, Siby concludes the lesson

by asking students to write 1-2 sentences on what they have grasped from today's class. He assigns a vacation assignment for them to collect newspaper articles related to waste management.

6.3 Factors associated with teachers' beliefs and pedagogy

Having painted a picture of the extent to which teachers observed are implementing LCE pedagogy, this section moves towards trying to understand the background factors that appear to contribute to both teachers' beliefs and pedagogy, by examining what teacher variables are statistically associated with teachers' belief and pedagogy scores. This context will enable us to better understand the relationship between teachers' beliefs and pedagogy (RQ2), explored in the section that follows.

Factors associated with LCE beliefs

I conducted t-tests and one-way ANOVA tests between different groups of teachers, in order to examine whether there were significant differences in teachers' belief means when divided along different teacher variables. I found that teachers' alignment to LCE beliefs varied most significantly by state. Table 6.2 shows the mean belief scores obtained by teachers from different states, represented graphically in Figure 6.9 (higher scores indicate greater alignment with LCE beliefs).

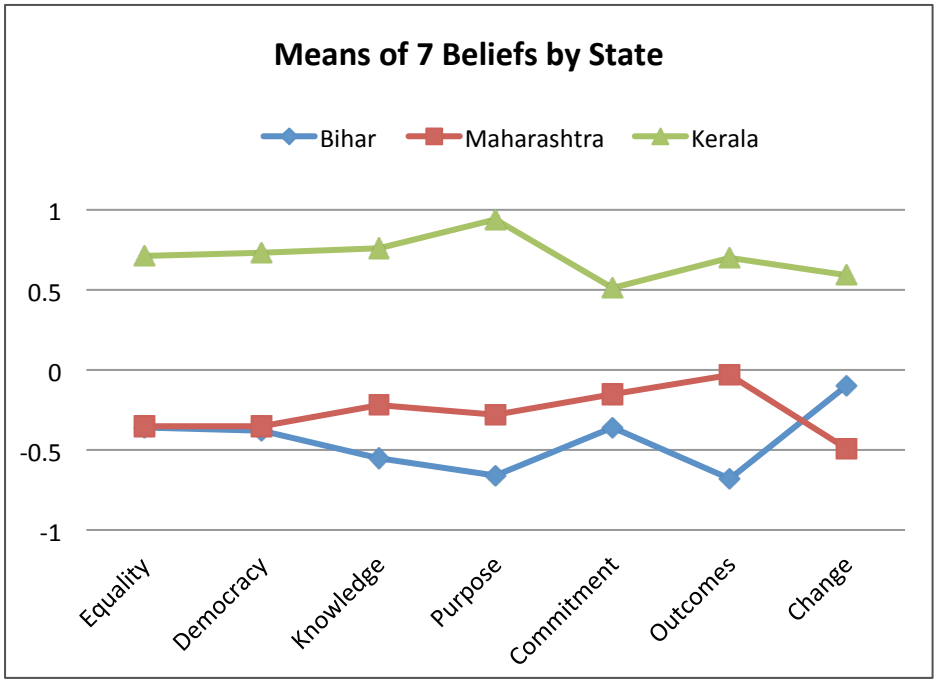
Table 6.2: Teachers' mean belief scores by state

Survey Categories	Bihar Teachers [n=20]	Maharashtra Teachers [n=20]	Kerala Teachers [n=20]	All Teachers [n=60]
Overall belief score	-0.57	-0.32	0.90***	-2.84
1-Equality	-0.36	-0.35	0.71***	-0.42
2-Democratic	-0.38	-0.35	0.73***	-0.44
4- Learning	-0.55	-0.22	0.76***	-0.40
5-Purpose of education	-0.66	-0.28**	0.94***	-0.26
6-Outcomes	-0.68	-0.03***	0.70***	-0.41
7- Commitment	-0.36	-0.15	0.51***	-0.44
8-Change	-0.10	-0.49	0.59***	-0.47

Note1: Significance for t-values indicated as per t-test for difference in means for Maharashtra vs. Bihar teachers, and Kerala vs. Bihar teachers.[30]
Note2: T-test for Kerala vs. Maharashtra teachers (not shown) indicated Kerala teachers' beliefs significantly higher than Maharashtra's for all 7 scales ($p \leq 0.001$).
Note3: Overall belief scores range from -1.3 to 1.8, and for individual beliefs from -2.0 to 2.0.

[30] Throughout this chapter, significance values are indicated at *p<0.1, **p<0.05, ***p<0.01, unless otherwise indicated.

Figure 6.9: Comparison of state-wise belief score means



Kerala teachers scored significantly higher than both Bihar and Maharashtra teachers in all belief scales. Maharashtra teachers scored slightly higher than Bihar's, though most of these differences were not significant except for 4-Purpose and 6-Outcomes (at $p \leq 0.05$ and 0.01 respectively). My expectation was that Maharashtra teachers would indeed be further ahead than Bihar's in alignment to LCE, but it was perhaps surprising that the difference between these states was not greater. It is possible that Bihar teachers' worldviews may have been influenced by large-scale LCE-focused in-service teacher training programmes under DPEP, which may have taught them LCE rhethoric even without having the skills and other conditions required for implementing LCE pedagogy (Singh, 2006).

T-test and ANOVA findings for the remaining variables revealed that besides state, also teaching qualifications and religion are significantly associated with differences in teachers' belief scores: D.Ed. and Christian teachers score significantly higher than their counterparts. These findings are shown in Table 6.3, which compares the mean belief scores for different groups of teachers, and highlights which background variables display significant differences between groups.

Table 6.3: Teachers' mean belief scores compared by background variables

Teachers' Characteristics	Means Belief Scores (n=60)	Significant Differences
Age		
20s	.09	None
30s	-.09	
40s	-.03	
50s	.19	
Gender		
Female	.02	None
Male	-.11	
General Education		
10^{th} or 12^{th}	.13	None
Bachelors	-.15	
Masters	.03	
Teaching Qualifications		
No Degree	-.58	D.Ed. higher than No Degree and B.Ed. (p<.05)
D.Ed.	.19**	
B.Ed	-.69	
Family Income		
Below 15,000	-.40	None
15-30,000	.09	
Above 30,000	.17	
Religion		
Hindu	-.14	Christian higher than Hindu (p<.001)
Muslim	.06	
Christian	.85***	
Caste		
SC/ST	.01	None
OBC/Muslim	.01	
Dominant	-.11	
Location		
Rural	.14	None
Urban	-.14	

Note: Belief scores range from -1.3 to 1.8.

It is surprising to note that having a Bachelors, Masters, or B.Ed. degree did not appear associated with teachers' beliefs, and neither did age, gender, caste, income level or location. However, given the small sample size, one cannot conclude that these factors are unrelated to teachers' beliefs. For example, in Bihar, OBC and dominant caste teachers tend to have less egalitarian beliefs, but this is likely due to the sample size since the Bihar sample had only two

SC teachers. These findings are only indicative, and further research is needed on these with a larger data set.

This raises the question of whether the variables that appear associated with higher LCE-beliefs (teaching degree and religion) are in fact correlated to another variable influencing teachers' beliefs: state. This is especially given that the Kerala sample, compared to the other two states, has significantly more Christians (100% of all Christians), and more D.Ed.'s (42% of all D.Ed.'s). To explore this further, a linear regression was conducted,[31] in order to check if the relationship with these variables disappears when we control for state. The regression model used Belief Score as the outcome variable, and explored the effect of various background characteristics on teachers' beliefs, with and without their interaction with the state variable. The term 'effect' used in the subsequent analysis implies a *predictive* effect indicating a greater association, not a *causal* effect indicating a measurable cause that can be directly manipulated by policy.

When no interaction variables are included (shown in Appendix-6.9), the model accounts for 68% of variance in teachers' beliefs, and state and gender appear to be the only significant predictors of teachers' belief scores. When we include state interaction variables to explore how the effect of different variables vary by state (Table 6.4), we find that religion is no longer significant, but that age, gender, teaching degree and location are now significant predictors of beliefs. However, the relationship with these variables is different in different states. It appears that in Bihar younger, male, urban teachers have higher belief scores, but in Maharashtra it is in fact older, female teachers who have higher belief scores, while in Kerala these variables do not have much association. It is understandable that the effects of age and gender play out differently in different state contexts based on differing experiences and exposure. The lack of effect of gender in Kerala could be possibly because in Kerala both men and women are exposed to progressive ideas, Kerala being a more egalitarian society. Surprisingly, in Maharashtra teachers with a D.Ed. degree score lower than those without a teaching degree, calling into question the extent to which Maharashtra's D.Ed. programmes are aligned to LCE beliefs.

Table 6.4: Regression results for factors predicting belief scores, with state interactions

Variable	B	t-value	Significance
(Constant)	.502	.733	.467
Maharashtra	-.772	-.888	.380
Age	-.038	-2.175**	.035
Male	.801	3.312***	.002

[31] The type of regression used is 'Ordinary Least Square', explained in more detail in Appendix-6.1.

D.Ed.	.446	1.816*	.077
B.Ed. or M.Ed.	.298	.953	.346
Muslim	.550	1.430	.160
Rural	-1.350	-3.435***	.001
Age*Maharashtra	.072	2.778***	.008
Age*Kerala	.051	2.073**	.045
Male*Maharashtra	-1.323	-3.404***	.001
Male*Kerala	-.440	-.813	.421
Rural*Maharashtra	1.242	2.658**	.011
Rural*Kerala	1.221	2.674**	.011
D.Ed*Maharashtra	-.925	-1.751	.087
D.Ed*Kerala	-.589	-.566	.574
Muslim*Maharashtra	-.591	-1.134	.263
Muslim*Kerala	-.170	-.322	.749
Christian*Kerala	-.014	-.057	.955

Note 1: R = .897, R_2 = .805, F = 9.377***
Note 2: Predictor variables include state, age, gender, teaching qualification, religion, location, and their interaction with state.

In terms of individual beliefs, Appendix-6.10 shows a summary of regression results that were significant for factors associated with each of the seven beliefs, which are similar to the above findings. When controlling for other factors, the strongest effects are also found in terms of age, gender, degree and location: overall, younger, male, D.Ed., urban teachers score higher in beliefs like equality, democratic relationships, and openness to change. This might be expected considering these teachers may have received greater exposure to progressive ideas. However these results are the opposite in Maharashtra. Some results also differ in Kerala, where older, rural teachers score higher in equality and openness to change.

Factors associated with LCE Pedagogy

The only background characteristics associated with differences in pedagogy scores according to one-way ANOVA are state (Kerala significantly higher than both other states; no significant difference between Bihar and Maharashtra), and religion (Christians higher than both Hindus at $p<.01$ and Muslims at $p<.05$). The effect of religion is possibly driven by state, since the only Christians in the sample were in Kerala. It is noteworthy but not surprising that teaching qualifications makes no significant difference in predicting learner-centred pedagogy, given the disconnect between LCE reforms and mainstream teacher education programmes.

Moreover, pedagogy scores did not vary significantly based on age, gender, general education, family income, caste or location.

This was examined further using a linear regression to explore the effect of various background characteristics on pedagogy scores, with and without their interaction with the state variable. When no interaction effects are included, the model accounts for 71% of variance in teachers' pedagogy (Appendix-6.9). Controlling for other factors, the strongest predictor of pedagogy is state, with Kerala being a highly significant predictor. Some association is also seen with having a Masters' degree, though not as significant. When state interactions are controlled for, the model now accounts for 89% variance in pedagogy scores (Table 6.5). The effect of Kerala continues to be strong, but now also age, gender, education, religion and location are associated with pedagogy, though their effects differ in different states. In Kerala, older teachers, those with masters', and Christian teachers have greater learner-centred pedagogy, compared to no significant effect of these variables in the other two states. Although one might expect older teachers to be more resistant to change, it is possible that given Kerala's longer history of LCE reforms, Kerala's older teachers may have a longer exposure to and better understanding of LCE ideas. In Maharashtra male teachers have significantly lower scores (compared to higher scores in the overall sample). Moreover, the overall sample has a positive effect for rural teachers, but this positive effect is driven by Bihar – in both Kerala and Maharashtra this effect is negative. In other words, in Bihar urban teachers display lower LCE-pedagogy (understandable given the highly adverse conditions in the urban schools visited), whereas in Maharashtra and Kerala urban teachers score higher in LCE-pedagogy (possibly due to greater exposure among urban teachers to progressive pedagogies).

Table 6.5: Regression results for factors predicting pedagogy scores, with state interactions

Variable	B	t-value	Significance
(Constant)	277.868	3.948	.001
Maharashtra	52.760	.649	.522
Kerala	-207.236	-1.731*	.095
Age	-1.607	-.770	.448
Male	44.630	1.837*	.078
Bachelors	83.852	1.662	.108
Masters	46.592	1.119	.274
Income-Above15k	21.987	.668	.510
Rural	69.193	2.636**	.014
Muslim	-53.322	-1.356	.187

Age*Maharashtra	-.764	-.313	.757
Age*Kerala	6.359	2.149**	.041
Male*Maharashtra	-71.544	-2.035*	.052
Male*Kerala	23.887	.442	.662
Bachelors*Maharashtra	-78.942	-1.474	.153
Bachelors*Kerala	-26.181	-.441	.663
Masters*Maharashtra	-19.860	-.349	.730
Masters*Kerala	116.732	2.009*	.055
Above15k*Maharashtra	-6.959	-.178	.860
Above15k*Kerala	77.476	1.654	.110
Muslim*Maharashtra	64.799	1.316	.200
Muslim*Kerala	73.250	1.443	.161
Christian*Kerala	52.063	2.068**	.049
Rural*Kerala	-87.188	-2.447**	.021
Rural*Maharashtra	-99.624	-2.715**	.012

Note 1: R = .944, R_2 = .892, F = 8.941***
Note 2: Predictor variables include state, age, gender, general education, teaching degree, income, religion, location.

Having examined the extent of teachers' alignment with LCE beliefs and pedagogy and the factors that appear to influence both, the next section explores the relationship between the two.

6.4 Nature of relationship between teachers' beliefs and pedagogy

Statistical relationship between belief and pedagogy scales

Based on their belief and pedagogy scores, the 60 teachers were each assigned a pedagogy index or belief index (from 1-3), by dividing them into three equal groups for each score. A cross-tabulation of these two indices shows a clear association between teachers' belief and pedagogy indices (Table 6.6) .

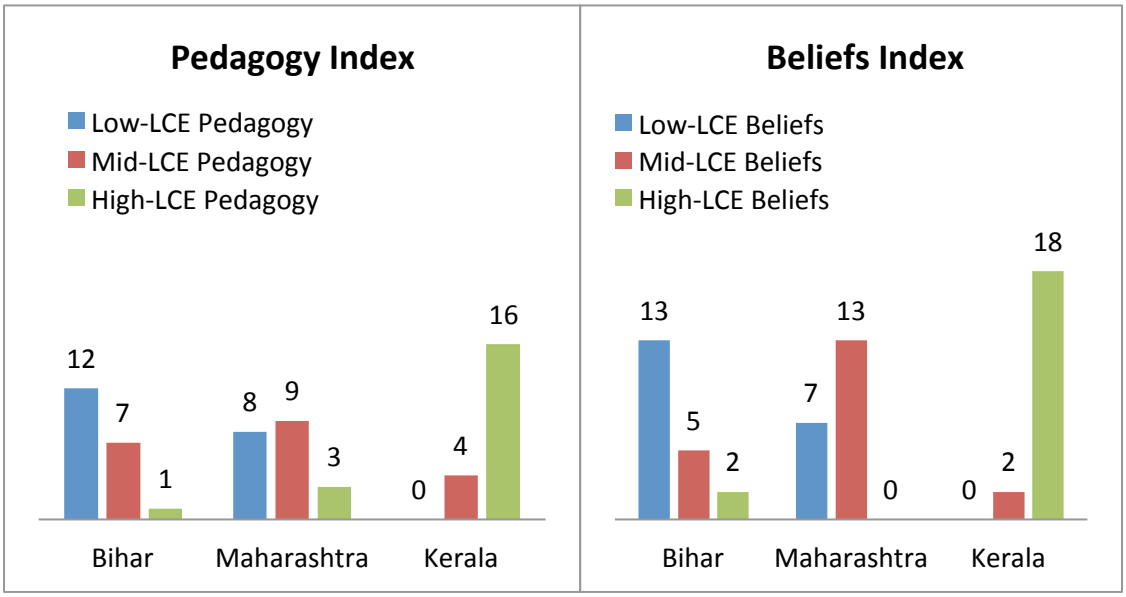
Table 6.6: Cross-tabulation of teachers' belief vs. pedagogy Index

	Low-LCE Pedagogy	Mid-LCE Pedagogy	High-LCE Pedagogy
Low-LCE Beliefs	13	7	0
Mid-LCE Beliefs	7	9	4
High-LCE Beliefs	0	4	16

Most teachers displaying more learner-centred pedagogy also tend to have more learner-centred beliefs, and vice-versa. No teacher with low-LCE beliefs displayed high-LCE pedagogy, and no teacher with high-LCE beliefs showed low-LCE pedagogy, suggesting a definite association.

The association is also evident when one looks at the breakdown of pedagogy and belief index separately by state (Fig 6.10). It is clear that state appears to be a driving factor in influencing both teachers' pedagogy and belief indices, with Bihar having mostly teachers with low-LCE beliefs and pedagogy, Maharashtra teachers having a mix, and Kerala teachers having mostly high-LCE beliefs and pedagogy.

Figure 6.10: State-wise differences in teachers' Pedagogy and Belief Indices



Pearson's correlation also showed a highly significant correlation between teachers' belief and pedagogy scores, $r = .73$, $p < .001$. However the belief-pedagogy correlations divided by state show quite different results: both Bihar and Kerala show a significantly positive correlation (.63** and .60** respectively, p≤ 0.01), while Maharashtra shows a non-significant negative correlation (-.23).

Further light was thrown on this correlation by grouping teachers into three groups based on the nature of their beliefs-pedagogy relationship, shown in Table 6.7. Teachers were labelled 'traditional' if they had low scores for both beliefs and pedagogy, 'transitional' if they had a mix of low-LCE and high-LCE beliefs and/or pedagogy, and 'transformational' if they had high scores for both[32].

[32] These terms are similar to the three categories used by Levit (2002), reviewed in Chapter 3, although she defines the terms differently. My use of these 3 terms and the way in which I have conceptualised them are discussed further in Chapter 7 (Section 7.2).

Table 6.7: Three categories of teachers based on the nature of beliefs-pedagogy relationship (by state)

Categories	Description	Total	Bihar	Maharashtra	Kerala
1. Traditional	Low-LCE beliefs, low-LCE pedagogy	13	10	3	-
2. Transitional	Mix of mid-LCE beliefs and/or practices	31	9	17	5
3. Transformational	High-LCE beliefs, high-LCE pedagogy	16	1	-	15

One-way ANOVA tests conducted between these three groups reveal that transitional teachers were significantly younger than both traditional and transformative teachers. It is understandable that younger teachers may be caught in the transition between traditional and LCE pedagogies, while older teachers may be more set in their ways on either end of the spectrum. The only other significant differences were in state (as evident in Table 6.7), and in income (transformational teachers had significantly higher income than transitional – though this too could perhaps be correlated with the state variable). These three groups are further broken down and analysed qualitatively in Chapter 7, to obtain a more complex picture of the nature of these relationshps and what accounts for these differences.

The above table sheds some insight on the different beliefs-pedagogy correlation observed in each state. In Kerala, most teachers are transformational (high-LCE beliefs *and* pedagogy), thus showing high belief-pedagogy correlation. In Bihar, more teachers are either traditional (10 with low-LCE beliefs and pedagogy), or transitional (3 with mid-LCE beliefs and pedagogy), thus also showing high correlation between beliefs and pedagogy. However in Maharashtra, more teachers have mid-LCE beliefs coupled with either low or high-LCE pedagogy, accounting for the lower correlation between beliefs and pedagogy. Some of the Maharashtra teachers' higher pedagogy scores may have been influenced by observer bias, since the research assisstant who observed 3 out of 4 Maharashtra schools was later noted to have a somewhat limited understanding of LCE, and may have assigned some ratings that were higher than those assigned by the other observers. In turn, the Maharashta teachers who had mid-LCE beliefs coupled with low-LCE pedagogy are all urban teachers – perhaps more exposed to LCE ideas and terminology, but unable to implement LCE given adverse conditions such as an average pupil-teacher ratio of 60:1. Other possible reasons for the state differences in belief and pedagogy scores and their relationship are discussed in the following sub-section and in Chapter 7.

The belief-pedagogy relationship was further examined through linear regression using pedagogy score as the outcome variable. When I controlled for all teachers' background characteristics which could presumably affect the belief-pedagogy relationship (state, age,

gender, general education, location, religion, and their interaction with beliefs), this model accounted for 81.1% of variance in teachers' pedagogy (Table 6.8). The model showed that when all these factors are controlled for, belief is still a significant predictor of teachers' pedagogy. Moreover, location, age and religion have an effect on the beliefs-pedagogy relationship, which was stronger for older, urban, and Christian teachers.

Table 6.8: Regression for belief – pedagogy relationship, with background variables controlled for

Variable	B	t-value	Significance
(Constant)	212.777	4.688	.000
Beliefs	-156.747	-1.896*	.065
Maharashtra	34.484	1.214	.232
Kerala	104.009	2.719**	.010
Age	.620	.664	.511
Male	6.327	.307	.760
Bachelors	21.181	1.506	.140
Masters	26.987	1.256	.217
Rural	30.799	2.056**	.046
Muslim	29.809	1.435	.159
Christian	-80.735	-1.675	.102
Maharashtra*Beliefs	43.296	1.007	.320
Kerala*Beliefs	11.116	.293	.771
Age*Beliefs	4.255	2.409**	.021
Male*Beliefs	36.079	1.327	.192
Bachelors*Beliefs	15.764	.845	.403
Masters*Beliefs	35.723	1.481	.146
Rural*Beliefs	-54.550	-2.981***	.005
Muslim*Beliefs	-16.459	-.662	.512
Christian*Beliefs	119.246	1.953*	.058

Note 1: R = .900, R_2 = .811, F = 9.016***
Note 2: Predictors include beliefs, state, age, gender, general education, location, religion, and the interaction of all the variables with beliefs.

Discussion

Overall, across the sample, teachers with more learner-centred beliefs did have more learner-centred pedagogy, even when other factors including state are controlled for. This suggests that the belief scale is a fairly good predictor of teachers' pedagogy. But besides beliefs, state is also highly significant in predicting both teachers' pedagogy and belief scores: Kerala teachers still have significantly higher pedagogy and beliefs, even when other factors are controlled for. The state differences could be related to differences in both the cultural context and educational context of the 3 states, discussed further in Chapter 7. Moreover, the beliefs-pedagogy relationship itself is different for different states: strongest in Kerala, and weakest in Maharashtra.

In addition, teachers' other background characteristics also affect both their belief and pedagogy scores as well as the belief-pedagogy relationship, but these effects also differ in different states. Teachers' belief scores vary according to state (higher for Kerala), age (higher for younger teachers in Bihar, older in Maharashtra, no effect in Kerala), gender (higher for males in Bihar, females in Maharashtra, no effect in Kerala), and location (higher for urban teachers in Bihar, but no effect in Maharashtra and Kerala). As for pedagogy, this varies based on age, religion and location, even when state and beliefs are controlled for: learner-centred pedagogy and the beliefs-pedagogy relationship are stronger for older, Christian, and urban teachers specifically in Kerala. Gender and general education also affect teachers' pedagogy (with higher scores for females in Maharashtra and Masters' graduates in Kerala), but these effects disappear when beliefs are controlled for.

These findings suggest that there are systematic differences between teachers in the different states on a number of key variables. This makes it difficult to separate the effects of variables that cluster at state level, or to identify every within-state effect separately, due to the small sample size. Some of these differences are explored further qualitatively in the following chapter, but this also points to a useful avenue for further research with larger samples. From this exploratory analysis, one can conclude that the effect of variables like age, gender, rural/urban location on teachers' beliefs and pedagogy vary depending on the state cultural and systemic context in which teachers operate. We cannot assume that these variables have a stand-alone effect – they very much depend on teachers' cultural, personal and professional context. These differences also deter us from seeking one-size-fits-all solutions: the obstacles to change in Bihar or Maharashtra are different from those in Kerala, and solutions that work in Kerala may not work in the same way in other states.

One hypothesis for explaining the findings regarding the beliefs-pedagogy relationship is that although there is a positive relationship between the two, there are also other conditions that need to be in place in order for teachers to be able to translate their high-LCE beliefs into high-LCE pedagogy. For example, successful LCE implementation also necessitates a supportive educational systemic context (curriculum, textbooks, pupil-teacher ratio, teaching

resources, school culture, school head, quality of training). In Kerala, both teachers' beliefs as well as systemic conditions tend to be more supportive of LCE – thus the majority of teachers are Transformational, able to implement their LCE beliefs into practice. Only five teachers are still Transitional (i.e. they have mid to high LCE-beliefs, but still struggling to implement learner-centred pedagogy, with low to mid-LCP scores). In fact in Kerala there might be a third variable – a more egalitarian cultural ethos (rooted in centuries of missionary activity and socialist land reform movements) that contributes both to LCE beliefs, and to a longer history of educational reforms and thus better systemic alignment towards LCE. Perhaps both contribute to teachers' higher belief and pedagogy scores (as discussed further in Chapter 7).

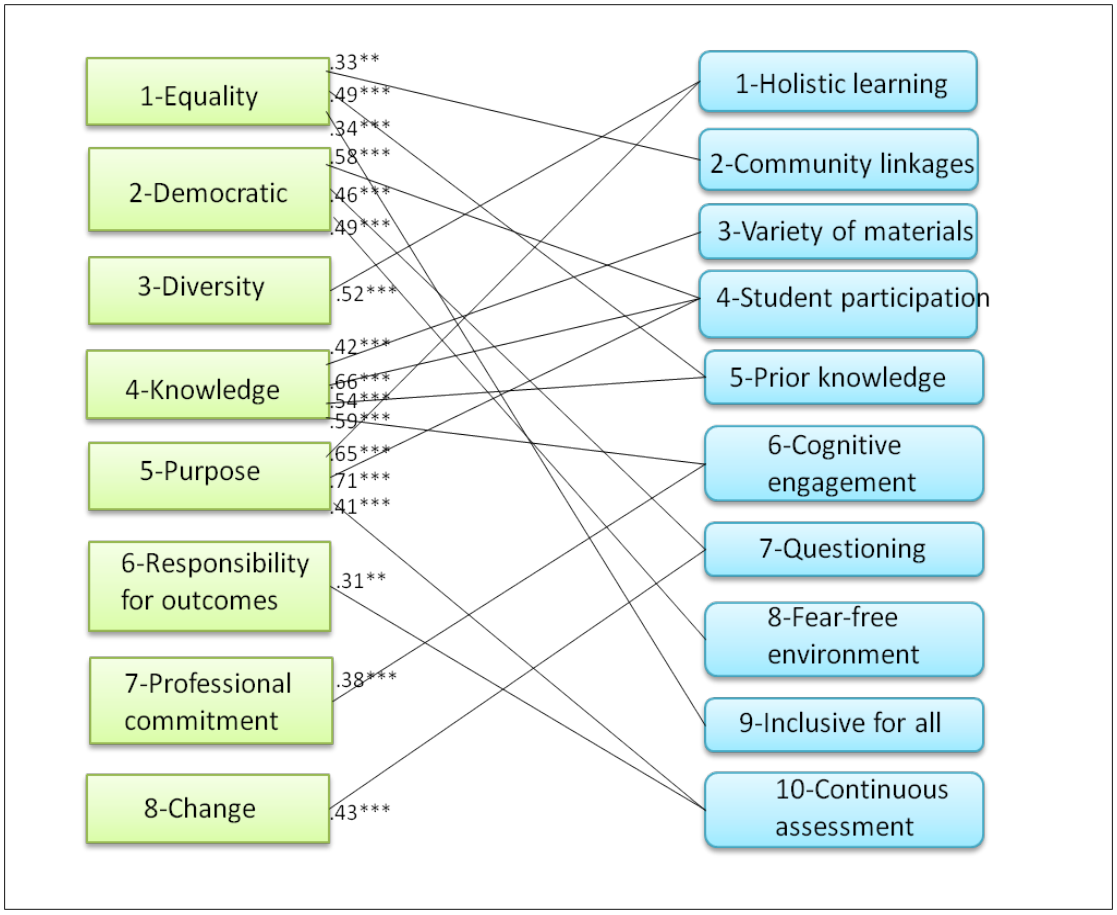
But when these enabling conditions are *not* in place, even having high-LCE beliefs is not sufficient to predict LCE pedagogy. In Bihar**,** both teachers' beliefs *and* the systemic conditions tend to not be supportive of LCE – thus teachers' beliefs and pedagogy tend to be more Traditional (thereby showing high association). In Maharashtra**,** urban teachers have relatively higher beliefs (possibly from being more exposed to progressive ideas in the cosmopolitan urban setting of Pune). But they still face adverse teaching conditions (the urban schools were crowded and chaotic, with multigrade classrooms and an average PTR of 60:1), and were thus unable to implement LCE. It is also possible that since the urban schools were English-medium, both students and teachers faced a greater language barrier in understanding curricular content, leading to more didactic methods of instruction. On the other hand, rural schools (which are Marathi-medium) have relatively better physical conditions, and teachers are also able to implement more learner-centred pedagogy, despite still having mixed beliefs. This could perhaps explain why Maharashtra teachers showed a slighlty negative correlation between their beliefs and pedagogy, in contrast to the positive correlation seen in Bihar and Kerala.

Overall, findings suggest the importance of not only teachers' beliefs, but also of the context in which they teach, and their own background characteristics, in influencing teachers' ability to implement learner-centred pedagogy. The presence of transitional teachers in both Bihar and Maharashtra, and of one transformational teacher in Bihar, suggests that teachers' pedagogy can indeed become more learner-centred (or even transformational) when their beliefs are also learner-centred, despite a context unconducive to LCE (such as a Bihar urban school). Due to the small number of observations (60), it is difficult to control for all variables at once, or to determine the precise effect of beliefs, state, or other background variables on teachers' pedagogy scores. However one can conclude that teachers' beliefs, context, and background characteristics all contribute to shaping teachers' ability to implement learner-centred pedagogy.

6.5 Relationship between individual beliefs and practices

Beyond the above overall relationships between teachers' belief and pedagogy scores, one can also identify associations between individual beliefs and individual practices, from both the quantitative and qualitative data. Pearson correlations between the eight beliefs and ten LCE practices were mostly consistent with my own initial hypotheses about which beliefs would be associated with which practices. Figure 6.11 depicts visually the relationships that both showed high correlations and fit within my hypothesised framework (full correlation tables are presented in Appendix-6.11).

Figure 6.11: Pearson correlations between individual beliefs and practices

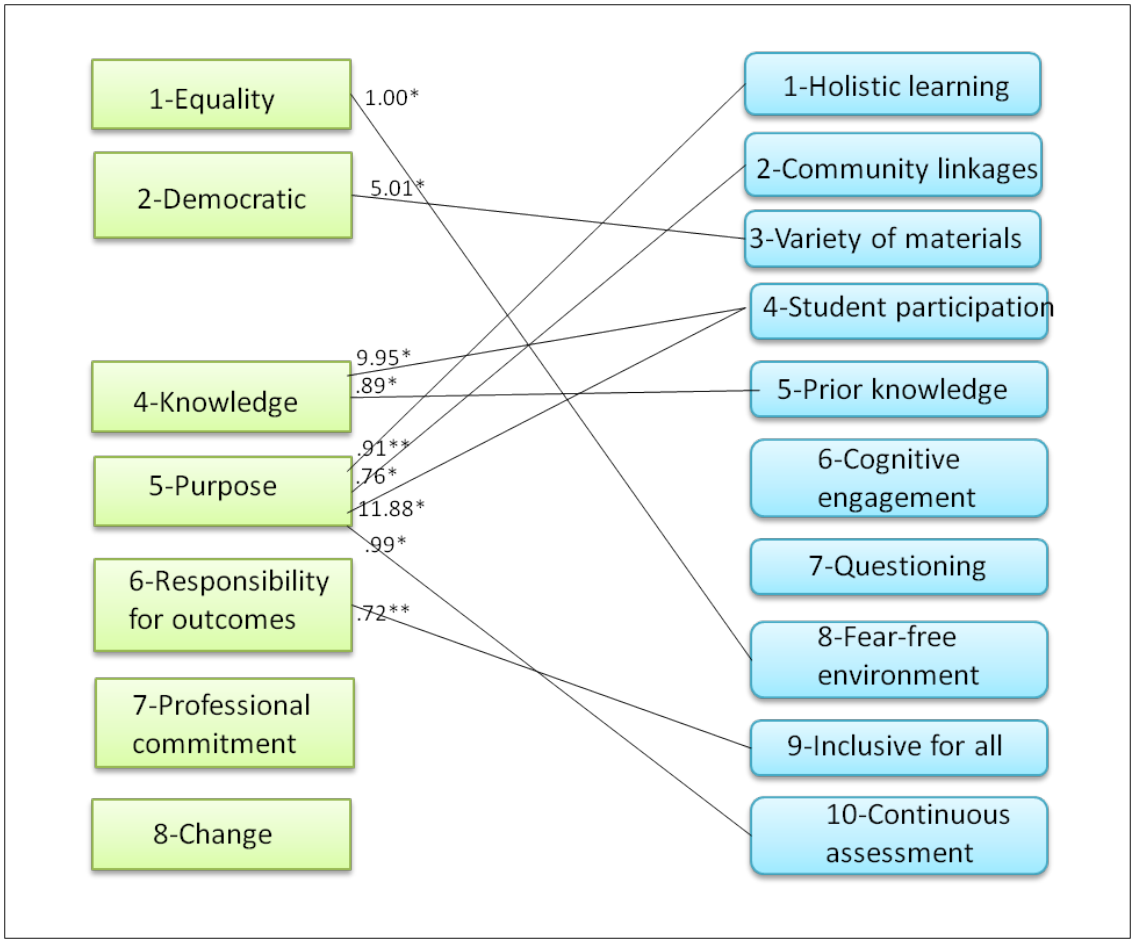


Since correlations could possibly result from both variables being correlated with a third omitted factor, a regression was also carried out with the seven beliefs (Scale 3 being omitted) as predictors of each of the ten pedagogy categories. Significant predictors are depicted visually in Figure 6.12, and overall results are presented in Appendix 6.11.[33] Regression shows that even when controlling for other factors, certain beliefs are still significant predictors

[33] Due to the small sample size (60), all control variables could not be included in these regressions, which limits the interpretations that can be made.

of nearly all learner-centred practices, particulary beliefs related to purpose of education, knowledge, and also beliefs about equality, democratic relationships, and responsibility for outcomes, discussed more in Section 6.6.

Figure 6.12: Summary of regression results for 7 beliefs as predictors of 10 practices



The relationships shown above that display the most significant correlations and also fit within my hypothesised framework, are explained in more detail below. For each belief, I begin with the key quantitative correlation findings that make sense conceptually, and supplement this with illustrative qualitative examples of teachers who epitomise these relationships (drawing from both interviews and classroom observations). The examples used represent the 'expected' relationships, though there are cases where teachers' expressed beliefs were inconsistent with their observed behaviours.

1. Equality:

Teachers who believe strongly in human equality are more likely to create an inclusive classroom environment. Moreover, it makes sense that they would also affirm the value of teaching poor or low-caste children – and are thus more likely to affirm and draw linkages to

children's communities, and to value the prior knowledge that all children bring. For example, Lata's (B2-L) inequality beliefs are evident in her interview: she makes several discriminatory comments like Scheduled Castes "do not have tendency to work hard", "they smell, they stink actually", they are "uncivilised", and "they don't learn anything, these groups." Such discrimination is also evident in her pedagogical practice: she scolds one student "you are stupid and you'll never be able to learn". When asking students to list differences between living and non-living things, she says "students who are intelligent should list all the names; those who are weak, list at least two points". Teachers like Neena (B1-L), Ajay (B1-L) and Suman (M3-L) who also display strong inequality beliefs (based on their composite belief scores), are observed to call on the same few students sitting in the front, while ignoring students at the back who are obviously struggling. In contrast, teachers with high equality beliefs (Sandeep B4-H, Reshma K1-H, Siby K2-H) were observed making special efforts to involve children who were not paying attention, to help individual students who were struggling, to encourage girls especially to present their ideas, and to congratulate students that they are all smart.

2. Democratic relationships:

Teachers with more democratic beliefs are more likely to promote a fear-free emotional environment, to encourage students to participate actively and ask lots of questions. For example, teachers with strongly hierarchical beliefs (e.g. Seema M1-L, Usha M2-L, Meenal B3-L, Aisha B3-L) create a strong environment of fear to maintain discipline. They were observed hitting the desk with a stick to get students' attention, hitting students for talking in class, and yelling loudly or hitting students for making mistakes. In contrast, Sandeep (B4-H), Shobha (K2-H) and John (K3-H) all display strongly democratic beliefs. They are also warm, approachable and friendly with their students, and students seem very comfortable around them, mostly on-task and engaged in classroom activities, with few instances of behaviour management needed.

3. Diversity:

Teachers who value children's uniqueness and encourage them to pursue diverse fields, are more likely to seek to develop children's talents in diverse extra-curricular areas beyond a narrow range of curricular areas. For example, Reshma (K1-H), possessing high diversity beliefs, gives ample opportunities while teaching for students to engage in various activities like singing, drawing, colouring, or physical movement. School B3, where most teachers score low on diversity beliefs, did not place much emphasis on extra-curricular goals beyond getting students to memorize textbook content. The one period scheduled for drawing was cancelled by the teacher due to lack of blackboard or drawing materials. Rather than encouraging students to draw with pencils in their notebooks, she left to sit in another class while students

sat idle for the last half hour of the day, reflecting the low priority placed on drawing for its own sake.

4. Learning as knowledge construction:

Teachers who view learning as a process of constructing knowledge rather than memorizing transmitted content, are understandably more likely to draw out students' existing knowledge, and to encourage students to participate actively and interact with a variety of materials in order to arrive at new concepts. In many of the Bihar and Maharashtra classrooms, students listen quietly to the teachers talking, with only one right answer accepted, and the textbook and workbook used exclusively as the only source of learning. Many of the Maharashtra teachers spend the majority of class time reading from the textbook, and writing points on the board to be copied (e.g. Seema M1-L, Suman M3-L, Anil M4-L – all who view knowledge as transmitted). Seema occasionally asks students closed questions, but if students cannot answer, she loudly provides the correct answer herself. Aisha (B3-L) begins by asking a student to read the lesson aloud, but when he doesn't read well, instead of helping him she picks another student to read, and soon just starts reading out herself, while students listen quietly. Meanwhile Ruth (K4-H), who sees learning as knowledge construction, teaches addition and subtraction problems by distributing paper money which she had prepared the night before, and allowing students to interact in groups to trade bills in order to arrive at the answers themselves. Such instances of students interacting in groups, moving around, handling TLMs (e.g. chalk, marbles, plants, chits of paper, cardboard flashcards), and sharing what they already know is common among teachers who view knowledge as constructed (e.g. Priya M2-H, Reshma K1-H).

5. Purpose of education as social justice:

Teachers' purpose beliefs are evident in what they emphasize in their teaching: whether things like discipline, writing correct answers and getting high marks, or whether they prioritize genuine understanding and holistic learning of values and skills that will contribute positively to society. For example, teachers like Lata (B2-L), Aisha and Meenal (B3-L) see the primary purpose of education and of their own teaching as discipline, and achieving good marks in order to get a good job. This is manifested in their practice: their primary objective is to get students to sit quietly and write correct answers – even if this involves scolding or hitting students to make them do so. For most of Meenal's lesson, students are off-task, and most of Meenal's time is spent asking students to keep quiet and fill out their workbooks, hitting students who do not listen, and writing the correct answer herself for those who get it wrong. On the other hand, Reshma (K1-H), Shobha (K2-H) and John (K3-H) see education as a means for cultivating the skills and values needed for developing productive citizens and contributing to a more ethical society. In their lessons, they often use classroom incidents as

opportunities for emphasizing values such as healthy competition, honesty, kindness, cooperation, and helping at home.

6. Responsibility for outcomes:

Similar to purpose beliefs, teachers who see themselves as personally responsible for ensuring that students learn are more likely to continuously check whether or not students have understood what is being taught, and to give individual help to those who haven't. Aisha and Supriya (B3-L), who see their primary duty as punctuality and discipline, did not seem too concerned about maximizing class time for student learning. They spent most of the class time lecturing or correcting notebooks, while students sat memorizing, answering questions from the book, or were off-task. They rarely encouraged application of concepts, checked whether students understood, or offered help to students who didn't. Anil (M4-L) does occasionally ask students questions about what he is teaching, but simply waits for one student to answer, and then carries on – regardless of whether others have understood. In contrast, Anita (M1-H) walks around helping individual students as they write, ensuring every child answers for themselves. Sheila (M2-M) asks students to help and check each other's work, and asks every student to read aloud the examples they came up with.

7. Professional commitment:

Teachers' excitement and commitment toward teaching as a profession, was also reflected in the enthusiasm and engagement they displayed in their teaching and generated among their students. Ram (M1-L), who "never wanted to become a teacher at all", has no motivation to improve as a teacher because, he says, he doesn't even want to remain a teacher. This lethargic attitude carries over to his work: he enters class late talking on his cell phone, and again later leaves the class twice to answer his phone. He was clearly not well prepared for class, seemed bored, and so did his students – they seemed reluctant to answer questions even if they knew the answers. Anita (M1-H), who always wanted to become a teacher and loves teaching, appears very animated during her lesson. She uses various TLMs (radio, charts, marbles) and uses actions while reciting poems to facilitate understanding, and students listen with excitement, eager to answer questions.

8. Change:

Teachers who are positively disposed towards questioning tradition and change, are more likely to ask open-ended questions and encourage students themselves to ask questions. Many teachers with low change-belief scores also did not encourage much questioning in their classes. At most, they asked single-answer questions, and if students couldn't answer they would eventually provide answers themselves (e.g. Lata B2-L, Usha M2-L). Ajay (B1-L) reads

out questions from the textbook and accepts only one answer: “Do you have a sister?” “Yes, I have a sister” he gets students to repeat in chorus. In turn, Siby (K2-H), (who scored highest in change-beliefs), gives plenty of opportunities for students to discuss, freely share their opinions, and ask questions. He himself asks many open-ended questions that stimulate student thinking, and the concept of right or wrong answers never comes up – the focus is on sharing ideas. He facilitates a lively critical discussion that challenges social stereotypes about various occupations and the dignity of labour, encouraging students to explore perspectives other than their own.

6.6 Key practices and beliefs central to teachers’ LCE implementation

Key LCE Practices

Having established the important role of both beliefs and practice in the implementation of learner-centred education, policymakers and teacher educators aiming to address either teachers beliefs or practice would need to know which are the key practices and beliefs to begin with. Consequently, an attempt was made to identify which were the key learner-centred practices which figured most prominently among teachers with high-LCE beliefs and/or high-LCE pedagogy. First, I explored which practices correlated most highly with Belief Score, Pedagogy Score, and with the most number of other practices. These are presented in Tables 6.9 and 6.10.

Table 6.9: Correlations between 10 individual practices and total belief/pedagogy scores

	Belief Score	Pedagogy Score
1. Holistic outcomes	.607***	.785***
2. Community linkages	.449***	.653***
3. Variety of materials	.491***	.746***
4. Student participation	.741***	.983***
5. Prior Knowledge	.557***	.724***
6. Cognitive engagement	.652***	.950***
7. Critical questioning	.606***	.848***
8. Fear-free environment	.587***	.690***
9. Inclusive environment	.442***	.446***
10. Continuous assessment	.354***	.502***

Table 6.10: Pearson correlations between individual practices

	Ped1	Ped2	Ped3	Ped4	Ped5	Ped6	Ped7	Ped8	Ped9	Pd10
Ped1	1									
Ped2	.608***	1								
Ped3	.539***	.225*	1							
Ped4	.753***	.609***	.701***	1						
Ped5	.566***	.746***	.351***	.691***	1					
Ped6	.695***	.645***	.663***	.918***	.676***	1				
Ped7	.714***	.692***	.402***	.825***	.740***	.784***	1			
Ped8	.627***	.481***	.481***	.655***	.560***	.655***	.525***	1		
Ped9	.469***	.533***	.193	.423***	.490***	.362***	.420***	.455***	1	
Pd10	.593***	.525***	.326**	.446***	.445***	.411***	.453***	.535***	.551**	1

These tables suggest that key LCE practices that correlate most highly with other beliefs and practices include active student participation, cognitive engagement, student questioning, holistic learning and prior knowledge. In other words, transformational teachers tended to score highest in these specific practices, while non-learner-centred teachers scored lowest in these practices.

To further verify these findings when controlling for other factors, I carried out various regressions for each individual practice as outcome, with belief score and state as predictor variables (summarised in Table 6.11).

Table 6.11: Summary of regression results for belief score and state as predictors of individual practices

LCE Practice (Outcome):	Significant Predictors:	
	Belief Score	*State*
1. Holistic outcomes	.74**	
2. Community linkages	.65*	
3. Variety of materials	-	Kerala 19.92***
4. Student participation	13.4***	Kerala 40.00***
5. Prior Knowledge	1.33***	
6. Cognitive engagement	7.88**	Kerala 11.94*
7. Student questioning	7.54***	

8.	Fear-free environment	1.04**	
9.	Inclusive environment	.98***	Maharashtra .76**
10.	Continuous assessment		Kerala 1.72*

Note: For each of the ten regressions above, each individual practice is used as outcome, and predictors include belief score and state. See Table 6.1 for how individual practice scores were calculated.

Regressions showed similar results as correlations: practices most associated with LCE beliefs are student participation, cognitive engagement, questioning, prior knowledge, and inclusive environment. This could suggest that perhaps these practices form a 'nexus' of key learner-centred practices that set apart the most learner-centred teachers (Schweisfurth, 2013), and could perhaps point to key practices that define LCE in an Indian context. In other words, teachers with the most learner-centred beliefs tend to create opportunities for students to actively participate in classroom activities: to explore for themselves, make mistakes and correct themselves. They are enthusiastic and try to keep students interested and cognitively engaged for the majority of class time towards achieving a clear learning goal. They ask open-ended questions and encourage students to question, discuss, and explore areas of their curiosity. They draw out and build on students' prior knowledge while teaching new topics. Finally, they create an inclusive classroom environment where every child feels valued and encouraged to participate.

At the same time, Table 6.9 suggests that some practices are also significantly predicted by state, and some only by state and not beliefs. For example, practices like 'variety of materials' and 'continuous assessment' are only significant for Kerala, and not for beliefs. Perhaps these practices are more an outcome of the state's systemic context – e.g. the curriculum and teaching resources available in that state are supportive of LCE – and less dependent on teachers' beliefs. Moreover, practices like student participation, cognitive engagement and inclusive environment are influenced by both teachers' beliefs and the state context (e.g. whether the curriculum and textbooks are set up in that way).

Key LCE Beliefs

In order to aid policymakers and teacher educators seeking to address teachers' beliefs, an attempt was also made to identify core beliefs which appear most associated with LCE pedagogy, and also most connected with other beliefs. To this end, I examined which beliefs correlate most highly with Belief Score, Pedagogy Score, and with the most number of other beliefs (shown in Tables 6.12 and 6.13). I also looked at which beliefs correlated with the most number of LCE practices, shown earlier in Figures 6.11 and 6.12.

Table 6.12. Pearson correlations between individual beliefs and belief/ pedagogy scores

	Belief Score	Pedagogy Score
1- Equality	.88***	.64***
2- Democratic	.82***	.59***
4- Knowledge	.78***	.65***
5- Purpose	.87***	.70***
6- Outcomes	.86***	.63***
7- Commitment	.73***	.43***
8- Change	.76***	.44***

Table 6.13. Pearson correlations between individual beliefs

	1- Equality	2-Democ	4- Knowg	5- Purpose	6- Outcomes	7- Commt	8- Change
1- Equality	1						
2- Democratic	.71***	1					
4- Knowledge	.63***	61***.	1				
5- Purpose	.69***	.64***	.72***	1			
6- Outcomes	.72***	.62***	.66***	.77***	1		
7- Commitment	.61***	.54***	.29**	.57***	.58***	1	
8- Change	.65***	.65***	.52***	.54***	.51***	.61***	1

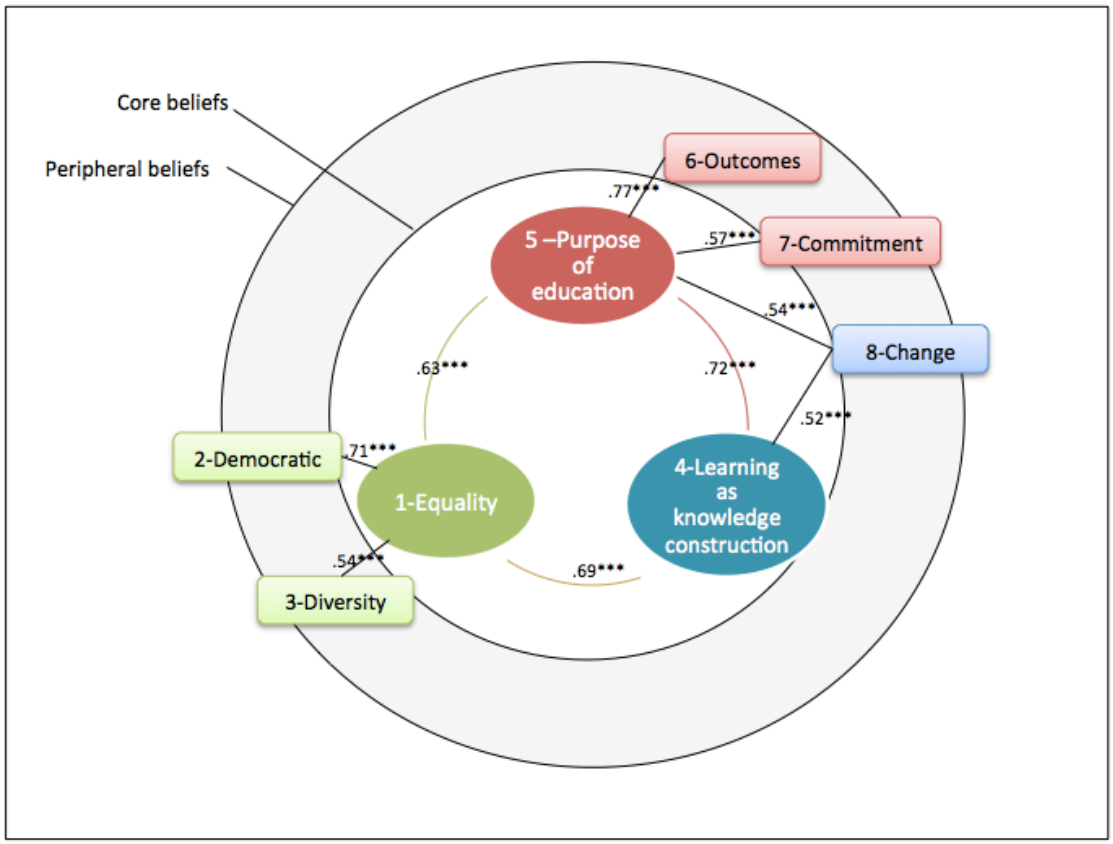
The results from all the above tests showed high correlations for nearly all beliefs ($r > .5$, $p < .01$), but the highest and most significant correlations were for beliefs about purpose of education, equality, learning as knowledge construction, democratic beliefs, and responsibility for outcomes. One could argue that 'responsibility for outcomes' is a subset of beliefs regarding 'purpose of education' (the purpose one sees for one's work as a teacher), and indeed the two show a strong correlation (.69, $p<.01$). Similarly, democratic beliefs is strongly correlated with equality (.71, $p<.01$) – if one sees all humans as equal, one is more likely to favour democratic relationships. Thus overall, it appears that key beliefs associated with learner-centred pedagogy are beliefs about:

1. purpose of education as social justice
2. equality of human worth and ability
3. learning as knowledge construction

Going back to the theoretical framework expounded in Chapter 1, these three beliefs can be seen as related to the three foundational types of beliefs that constitute one's worldview – one's teleological, ontological, and epistemological beliefs. These foundational worldview beliefs – typically derived from a culturally-shared or religiously-shared unified

framework of beliefs – in turn shape the rest of a person's beliefs and values. As discussed in the conceptual framework presented in Chapter 1 regarding the structure of beliefs, beliefs are typically organized like an atom, distributed along a core-peripheral dimension, and held in clusters of interconnected beliefs. Accordingly, the relationship between the eight beliefs highlighted in this study could be conceptualized as shown in Figure 6.13. The figure includes Pearson correlations between beliefs presented above in Table 6.13.

Figure 6.13: Relationship between 8 beliefs



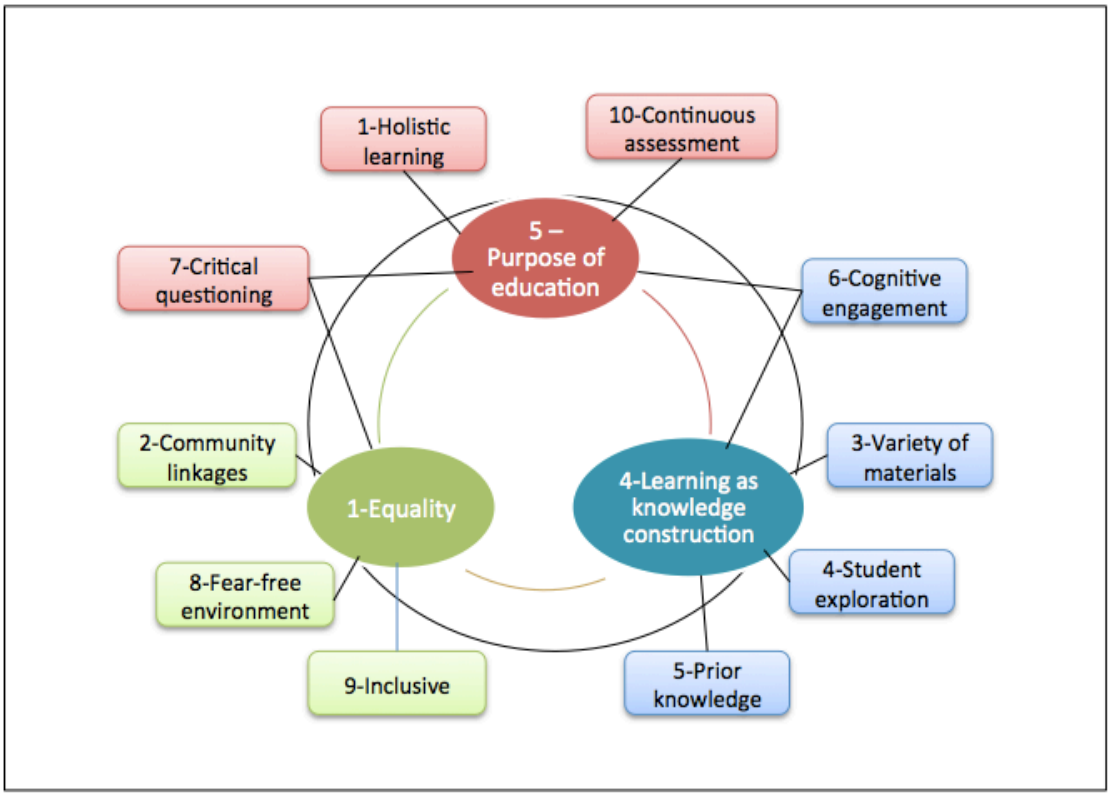
As shown above, a teacher's beliefs about equality, purpose of education and learning are part of their core worldview beliefs[34] which are themselves highly correlated with each other, and which shape the rest of the teacher's beliefs. More specifically, a teacher who believes all humans possess equal worth and learning ability is more likely to value democratic teacher-student relationships and diversity among students. A teacher who sees the purpose of education as contributing to a more just society, is likely to be more committed to their work as a calling, and feel personal responsibility for students' learning. A teacher who sees their

[34] Mine is different from the definition in the teacher beliefs literature of core beliefs as those which are both stated and enacted, and peripheral beliefs as those which are stated but not enacted (Phipps and Borg, 2009; Haney and McArthur, 2002). In my model, core beliefs are those foundational worldview beliefs which are most central in shaping one's other beliefs and values. Depending on other factors such as teachers' context or competencies, these core beliefs may or may not be enacted into practice.

purpose as contributing to social justice and who sees learning as a dynamic process of knowledge construction, is more likely to be positively disposed towards working for change.

One can also conceptualize how these three core beliefs are closely tied to the 10 LCE practices – shown in Figure 6.14.

Figure 6.14: Relationship between 3 core beliefs and 10 LCE practices



Whether a teacher believes the purpose of education is the individual's material success or the larger social good, possibly influences whether s/he pursues holistic learning outcomes beyond just exam success, and whether s/he continually assesses whether all students have indeed understood and can apply what they learn. Similarly, a teacher who believes in equality is more likely to affirm students' community backgrounds, and to promote a democratic, fear-free and inclusive classroom environment. A teacher who views learning as a process of knowledge construction is more likely to solicit students' prior knowledge, and create opportunities for them to interact and explore a variety of materials for constructing new ideas. Finally, whether she promotes student questioning is likely influenced both by the purpose she sees for education, and whether she believes in equal, democratic relationships. Also, her enthusiasm in generating students' cognitive engagement is likely related to her own purpose and commitment towards teaching, as well as her beliefs about knowledge and learning.

Thus, teachers' core beliefs about equality, purpose of education and knowledge perhaps would most need to be targeted in teacher education programmes attempting to shift teachers towards learner-centred pedagogy.

Conclusions

This chapter has shown how teachers in this study displayed a strong relationship between their beliefs and pedagogy, in terms of alignment towards LCE. Across the sample, teachers with more learner-centred beliefs displayed more learner-centred pedagogy, even when controlling for other factors. At the same time, teachers' pedagogy was also significantly associated with state, as well as teachers' other background characteristics (age, gender, religion, location). Overall, findings suggest that enabling learner-centred pedagogy requires that teachers' beliefs are aligned towards LCE, but also that their context needs to be conducive towards enacting their LCE beliefs into practice. The above quantitative findings on the nature of the beliefs-pedagogy relationship and the factors shaping it, will be explored further in Chapter 7 through in-depth qualitative analysis, seen through the lens of theory.

The above findings tentatively suggest that shifting teachers towards an LCE paradigm requires an engagement with not only teachers' practice, but also with teachers' beliefs that may be hindering this shift – especially beliefs related to equality, purpose of education and learning. Teachers will have difficulty implementing LCE pedagogy if they do not value each child and their potential equally (especially poor/low-caste children), have a sense of mission or calling towards their work as teachers as contributing to greater social justice, and see learning as a process of constructing knowledge. Moreover, this chapter suggests a few key learner-centred practices that may perhaps be easier to begin with for LCE efforts in an Indian context, namely: getting students to participate actively, to be cognitively engaged in learning, to ask many questions, to share what they already know about the topic, and for teachers to create an inclusive environment. Finally, in describing the development of scales for measuring the extent of teachers' learner-centred beliefs and learner-centred pedagogy, this chapter has presented fairly reliable instruments that could potentially be used by future research seeking to study learner-centred beliefs and pedagogy in India.

Chapter 7 – Causal Mechanisms Underlying Teachers' Beliefs and Pedagogy

> This study will pose a challenge to our whole Indian ethos.
> – (Interview with educationist, 12/03/10)

This chapter draws upon critical realism's theory of causality to analyse what are the deeper 'causal mechanisms' that can help explain teachers' beliefs and pedagogical practice, and what conditions enable more learner-centred beliefs to be enacted into practice (RQ3). In this manner the chapter takes further the statistical analysis presented in Chapter 6, which suggests potential associations between teachers' beliefs, practices and background variables, but which cannot establish causal relationships. At the same time, CR's theory of causality is not intended to make law-like generalisations or reliable predictions of future action. Thus the explanatory account offered in this chapter is not meant to generalise over the entire population of teachers in India or in the three states included in this study, thus seeking to avoid the danger of homogenising teachers.

This chapter uses a critical realist lens to further explicate the relationship between teachers' beliefs and pedagogy, through in-depth case studies and cross-case comparisons. It then probes further into causal mechanisms shaping the formation of teachers' beliefs, by analysing the role of ideology. The final section brings these findings together to elucidate a critical realist analysis of causal mechanisms underlying teachers' pedagogy. This helps us better understand the limited impact of LCE-oriented reforms thus far, and offers insights to guide reform efforts and teacher education programmes attempting to shift teachers towards more learner-centred education.

7.1 A critical realist theory of causality

Based on its stratified ontology, critical realism offers a strong theory of causality which can help identify causal mechanisms to 'explain' teachers' pedagogy, and to elucidate how teachers' beliefs relate to their pedagogy. CR's ontological realism sees reality as independent, and as stratified into three levels: the empirical (observable actions), the actual (the sum of actions within events that may or may not be observed), and the real (deep structures and mechanisms that are unobservable but which cause the observable acts) (Bhaskar, 2008; McEvoy & Richards, 2006). For example, if a leaf falls from a tree, the empirical level lies in someone seeing it occur, the actual level denotes all the leaves falling even if no one sees it happen, and the real level entails what actually causes the leaves to fall: e.g. gravity and molecular degeneration at a microscopic level (Zachariadis et al., 2010).

CR assumes that most practices and structures are effects of deeper underlying mechanisms. Thus the aim of research is targeted at the 'real' level: to move beyond manifested phenomena to identify underlying causal mechanisms (Bhaskar, 2013a). In contrast to positivism and interpretivism,

> For critical realists, the ultimate goal of research is not to identify generalisable laws (positivism) or to identify the lived experience or beliefs of social actors (interpretivism); it is to develop deeper levels of explanation and understanding. (McEvoy & Richards, 2006, p.69)

The goal is not to find predictive laws, but themes and tendencies – to propose a theory which has the greatest explanatory power for all the existing data. Since the level of real is not directly observable, every theory of causal mechanism is held tentatively and must be inferred from the empirical level, through a combination of empirical investigation and theory construction.

Thus for critical realists quantitative analysis is more useful in the exploratory phase of research, since it can identify unobvious patterns and develop accurate descriptions and comparisons (McEvoy & Richards, 2006). Correlation and regression analyses can identify repeating causal factors (e.g. background characteristics associated with teachers with high-LCE beliefs or pedagogy), but this only indicates conditions related to a phenomenon's existence – it cannot reveal deeper unobservable causal mechanisms that generate the phenomenon (Tao, 2012). In Sayer's (1992) example, this is like a person trying to identify the cause for his drunkenness by examining what he drinks on successive nights – whisky and soda, gin and soda, and vodka and soda – and concluding that the soda must be causing his drunkenness. By looking only at correlated factors, he ignores the deeper unobservable properties of alcohol, such as its addictive nature. Critical realists are thus wary of using regression analysis to infer a causal relation, since statistical tests can only access the 'empirical' level, not the unobservable 'real' causes of events. Sayer notes that quantitative analysis of correlated factors must thus be followed up with qualitative investigation to discern deeper mechanisms that may have relevant causal powers[35]. Chapter 6 has identified potential causal factors associated with high-LCE beliefs, pedagogy, and a strong relationship between the two – the strongest of which is teachers' state context. However, this must be followed by a qualitative analysis of deeper mechanisms that can explain the influence of state on teachers' beliefs and pedagogy. This chapter undertakes this deeper analysis of generative mechanisms that could explain findings regarding teachers' beliefs and pedagogy.

[35] At the same time, critical realists acknowledge the limitations of qualitative analysis too in discerning causal mechanisms, since although reality exists independently, its knowability is always mediated by researchers' subjective interpretations. Thus any causal theory advanced by critical realists is only provisional, based on having the most explanatory power to make sense of existing data, but nevertheless subject to further critique.

7.2 Five categories of belief-pedagogy relationship

In order to probe deeper into the nature of teachers' belief-pedagogy relationship, I further divided the 3 categories of teachers shown in Table 6.7 into 5 categories, by splitting the 'transitional' category into 3 parts. Table 7.1 lists the names of teachers who fall into each category. These labels are of course reductionist, as categories are bound to be, and the labels themselves each have certain connotations that must be kept in mind, but they at least provide a framework on which to build further.

Table 7.1. Five categories of belief-pedagogy relationship

Five Categories	Category descriptions	Bihar	Maharashtra	Kerala
1. Traditional (13)	Low LCE-beliefs, low LCE-pedagogy	Neena-B1, Ajay-B1, Lata-B2, Meenal-B3, Aisha-B3, Supriya-B3, Radha-B3, Noora-B3, Smita-B4, Farida-B4	Seema-M1, Usha-M2, Anil-M4	
2. Motivated-traditionals (7)	Mid LCE-beliefs, low LCE-pedagogy	Asha-B2, Prakash-B2	Suman-M3, Amita-M3, Shweta-M3, Richa-M3, Savita-M4	
	Low LCE-beliefs, mid LCE-pedagogy	Preeti-B1, Kiran-B2, Manisha-B4	Leena-M1, Deepa-M1, Sheila-M2, Vinod-M2	
3. Transitional (20)	Mid LCE-beliefs, mid LCE-pedagogy	Rohit-B1, Vishal-B1, Rajini-B2	Sunita-M1, Hema-M2, Ameena-M3, Kavita-M4, Fatema-M4	Mary-K4
	High LCE-beliefs, mid LCE-pedagogy	Abdul-B4		Elizabeth-K2, Annie-K3, Swati-K3
4. External-Adopters (4)	Mid LCE-beliefs, high LCE-pedagogy		Anita-M1, Priya-M2, Aditi-M4	Aruna-K2
5. Transform-ational (16)	High LCE-beliefs, high LCE-pedagogy	Sandeep-B4		Reshma-K1, Jaya-K1, Nafisa-K1, Yasmeen-K1, Sonu-K1, Anu-K2, Shobha-K2, Siby-K2, John-K3, Meera-K3, Madhuri-K3, Sarah-K4, Alka-K4, Ruth-K4, Lalita-K4

As discussed in chapter 4, I employed critical realist strategies of abduction and retroduction to study extreme cases who showed a strong belief-pedagogy relationship (i.e. traditional and transformational teachers), as well as exceptions who did not show a strong belief-pedagogy relationship (i.e. motivated-traditionals and external-adopters). Cross-case comparisons of features shared by teachers across each category allowed me to isolate key factors contributing to teachers' beliefs and pedagogy within each category. The five categories are described briefly below, followed by in-depth case studies of five teachers who were found to be representative of each of these categories.

1. *Traditional*[36] teachers, who score low in both LCE-beliefs and LCE-pedagogy, illustrate the importance of beliefs, competencies[37] and context in shaping teachers' pedagogy. These teachers are mostly from Bihar and a few from Maharashtra, and are mostly older. In addition to low-LCE beliefs, most of them have negative dispositions towards teaching – they have low motivation, professional commitment, desire to grow, and reflectiveness. Moreover, their understanding of LCE is quite narrow, seeing it as an additional teaching tool (using songs, games, actions) to be added alongside their regular textbook-centred teaching. Finally, their school contexts are mostly unsupportive of LCE: over-crowded classrooms, poor infrastructure, limited resources, many non-teaching duties, and hierarchical or passive HMs.

2. *Motivated-traditionals* have slightly more LCE-oriented beliefs, but their pedagogical practice remains traditional. What seems to set them apart is their higher professional commitment. Most of these are younger females from Maharashtra with higher educational levels – they have presumably been exposed to some progressive ideas, which may have shaped their beliefs and professional commitment. They are reasonably motivated, somewhat reflective, and want to improve their teaching. However what they most seem to lack is LCE competencies – like traditional teachers, their skills and understanding of LCE are quite limited. Coupled with a context that is generally unconducive to LCE, the result is that their pedagogy remains teacher-centred.

3. *Transitional* teachers are mixed in both their beliefs and pedagogical practice. Many did not originally want to become teachers, but through some factor (e.g. a mentor who encouraged them), they developed a reasonably high motivation level, professional commitment, and desire to grow as teachers. Moreover their school context is reasonably conducive to LCE – many said they did not face any particular problems that affected their

[36]The term 'traditional' may at times have derogatory connotations, but here it is used simply to denote teachers whose practice do not show significant evidence of LCE as defined in policy documents

[37] I use this term to denote teachers' professional competence, including their knowledge (content and pedagogical content) and skills. I am not referring to the 'competencies' approach in teacher training, which has been critiqued for its focus on efficiency to the exclusion of political and cultural factors.

teaching. However their understanding of LCE is mostly limited. Moreover they do not have a strong, motivated HM who can mentor them in their professional growth. Thus despite some LCE elements in their beliefs and pedagogy, they have not fully transitioned to LCE. Many still prioritize things like socio-economic mobility as the central purpose of education and thus of their teaching. While the term 'transitional' typically implies some sort of movement, in some cases these teachers simply displayed a mix of LCE and non-LCE elements in their pedagogy – they did not always display a desire to grow or a movement towards more learner-centred pedagogy.

4. *External-adopters* display mid-LCE beliefs, but what seems to drive their pedagogy more towards LCE is their very positive dispositions towards their teaching and students. All four teachers in this category have high motivation, enjoy teaching, and derive satisfaction from students' success. Even though three of them did not choose teaching as a first choice, they later became devoted to the job and developed a strong professional identity. Although their LCE competencies appear somewhat limited, their context is overall positive, and enables them to implement elements of learner-centred pedagogy. However these teachers lack a thorough foundation of commitment to LCE beliefs, despite having some LCE-oriented beliefs, which limits their ability to deeply understand, adapt and innovate LCE, and thus limits the sustainability of their LCE pedagogy.[38]

5. *Transformational*[39] teachers, like traditional teachers, also demonstrate the importance of context, beliefs, and competencies in enabling learner-centred education. All except one of these teachers are from Kerala, illustrating the crucial role of state – i.e. cultural and educational context – in enabling LCE beliefs and practice. Their LCE-oriented beliefs have mostly been shaped by positive personal and educational contexts: a loving family who provided freedom and support, an inspiring mentor, strong training or curriculum geared around LCE. Grounded in LCE-oriented beliefs, these teachers developed a positive disposition towards learner-centred teaching: strong professional commitment (even if teaching had not been their first choice), and a reflective disposition. This is coupled with a sound nuanced understanding of LCE as a process of enabling children to think for themselves, construct knowledge and share their own ideas. Finally, a supportive school environment with readily-available resources, a collaborative culture and a dynamic HM enables them to put into practice their learner-centred beliefs and competencies.

[38] Thus the term 'external-adopter' implies lack of a deeper cognitive foundation for their LCE practice, although there is some internal dimension of dispositions involved.

[39] The term 'transformational' denotes both that the teachers themselves are in a process of transformation, and that their pedagogy can potentially enable transformation of learners and society.

7.3 Case studies: The making of a teacher

This section highlights one case study for each of the five categories described above, of a teacher who is representative of many of the teachers in that category. The case studies give us rich insights into the various factors that go into the making of a teacher in each of these categories.

1. Traditional Neena: the importance of beliefs, competencies and context

Neena's (B1-L) personal context, professional identity and disposition are reasonably positive and could potentially support LCE pedagogy. However her beliefs, competencies and school context are not conducive to LCE, with the result that Neena scores quite low in LCE pedagogy as well.

Though Dalit, caste does not seem to shape Neena's identity strongly, and she has not faced much caste-based discrimination. Neena had a happy childhood: "the environment I grew up in was very good. My father took good care of me…he gave us good education." Her father has been a source of inspiration, "because he himself was educated, and he used to encourage us to study". Neena has a reasonably strong professional identity: she sees her purpose in life as both running her home properly, and teaching well so that her students grasp what she is teaching – "this is my purpose". She is confident in her abilities as a teacher, stating that one of her best qualities is "my ability to teach children. They can understand the way I teach… This is my strength." Though Neena does not seem particularly reflective, her attitude towards teaching is fairly positive: she enjoys disciplining the children, teaching, writing on the board, and making sure they understand what she wrote – "if they read properly then that is rewarding".

However, the lowest factors for Neena in terms of conduciveness to LCE are her beliefs and competencies, as well as the school context. Neena scored low for nearly all eight LCE belief domains. Moreover, her understanding and skills in LCE are quite limited. Her view of LCE involves teaching children "in a playful mode – the child should think that we are playing and not know we are learning." Her examples of LCE include using pictures, songs or actions while teaching – arguably a rather limited notion of LCE. She lacks strategies for multi-grade teaching or classroom management: for two of her lessons she had two classes sitting together, with one sitting idle while she taught the other. She uses hitting to maintain discipline, but this could be because she simply does not know other strategies to manage the class:

> We are not allowed to use sticks…But the rule is a problem, because sometimes it happens we have to control our hands. They should have allowed at least one or two slaps – that doesn't matter so much.

Neena's school context is also not supportive of LCE pedagogy. Relationships among teachers and with the HM are reasonably friendly but little focused on professional growth, and the limited resources make it quite difficult to implement LCE. Out of three lessons observed, two were conducted outside in hallways due to insufficient rooms, and two had combined classes due to insufficient teachers.

These various factors make it difficult for Neena to go beyond her traditional beliefs and pedagogy. Her teaching consists primarily of whole-class instruction, writing things on the board for students to copy or read aloud, or correcting students' notebooks while other students sit idle or off-task.

2. Motivated-traditional Shweta: the need for competencies

Shweta's (M3-L) context, professional identity, beliefs, and dispositions are all reasonably conducive to LCE. However her competencies in LCE are quite poor, and consequently her pedagogy continues to be quite traditional.

Shweta had a happy childhood; both her parents and husband provided her love, freedom and support. Shweta's mother, also a teacher, was a role model who influenced her views on teaching. She has exposure to diverse ideas, with a husband who likes exploring the internet and also encourages her to do so. He has travelled to various countries for work and she enjoys reading about the different cultures he visits. Shweta has a reasonably strong professional identity, and sees her purpose in life to be happy, but also to contribute to society by helping her students attain good positions and become good citizens. Her beliefs show some elements of learner-centredness: while she still scores low in beliefs on equality and responsibility for outcomes, she scores very high on professional commitment, and medium in her beliefs about relationships, learning, purpose of education and change. Her metaphor for a good teacher is that they "should become a child with the children…children should feel free with the teacher, they should feel that the teacher is one among them". She is positively disposed towards teaching – she loves children, enjoys her job, and likes the friendly staff she works with. She is highly motivated in her work: "whatever I do, I do it wholeheartedly". She has many dreams and ambitions, including studying further, teaching at college level, starting a company with her husband, and even opening a Montessori school.

However, what Shweta is lowest in is her understanding and skills for implementing LCE. When asked whether she is familiar with any new approaches in teaching like activity-based, child-centred or constructivist learning, her first response was "Yeah, right now the new thing is 'save the environment'," and described various environmentally-friendly steps she had taught her students. When probed further, she finally shared her understanding of LCE: involving students in making projects and charts – for example, she got them to make an August chart where they collected items related to holidays in August. The main difficulty she found in using LCE approaches was lack of resources like an overhead projector – revealing a rather narrow, resource-intensive view of LCE. Moreover, Shweta's working context is better

than some others in the study, but still not very conducive to effective learning. Her classroom is dilapidated, dirty, poorly-resourced, poorly-ventilated, and very loud, facing an extremely noisy road. It has insufficient benches, with some students sitting on the floor, and several broken benches – one table fell apart noisily during the observation. Several teachers mentioned that their requests to the school management for TLMs and cleaner classrooms had fallen on deaf ears.

Consequently, Shweta's Class 2 lesson remains mostly whole-class teacher-centred instruction. She reads the text aloud one word at a time while students repeat in unison. When asking questions, either she immediately gives the correct answer as if to pre-empt a wrong one, or students answer in chorus – though some students are clearly just mouthing the words, while another is asleep.

3. Transitional Elizabeth: the centrality of professional identity

The case of Elizabeth (K2-M) illustrates that context and beliefs alone are not sufficient determinants of LCE pedagogy. Although Elizabeth's context and most of her beliefs are supportive of LCE pedagogy, her professional identity and disposition towards teaching are quite low, and Elizabeth's pedagogy remains transitional, scoring only a mid-LCE-pedagogy score.

Elizabeth's personal context has been overall positive: she had a happy childhood in a large rural family, and appears content with her current life and family situation. Her current school and classroom context are also conducive to LCE pedagogy: in fact the four other teachers in this school selected for the study all scored high-LCE pedagogy. Her classroom is spacious and well-ventilated, and she has only 4 students in her Std. 2 class, which presumably would make it easier to implement LCE. The Kerala curriculum and textbooks are geared towards LCE, with activities and open-ended questions already in-built into the lessons. Most of Elizabeth's beliefs are learner-centred, including her beliefs about relationships, learning, purpose of education, diversity, and change.

However Elizabeth has a low professional commitment and disposition towards teaching. Teaching was not her first career choice – she had wanted to become a nurse, but because she could not qualify and there was a teacher training college near her house, she became a teacher instead. Even now, when asked what she would change if she could change one thing about her life, her response was "my job! I would be a nurse!" Her primary identity and the happiest or proudest moments in her life are unrelated to teaching – they relate to having a child or receiving her first salary. She has no explicit sense of purpose in life:

> I have never felt that I have a specific role or purpose in life. I never had such thoughts!…I believe I am too old to have any kind of role or purpose in life.

Similarly, she has no dreams or goals that she wants to achieve in life – she is content with her life as it is. In terms of inspiration, she has had no mentors that have shaped her, no other teachers in her past that she admires, and no books or reading materials that have influenced

her. She also does not appear to be too confident or reflective – though she claims to be bold and assertive in expressing her opinions, in the interview she seemed quite inhibited and insecure, giggling self-consciously or having no answer for several questions.

Elizabeth's low motivation comes across in her teaching. Her engagement with her students is superficial and disinterested – she hardly tries to motivate or capture students' interest, and makes little attempt to check their understanding. Students in turn are disengaged for most of the lesson, and reluctant to answer questions – they appear unaccustomed to classroom discussion. Often the teacher's questions remain unanswered and she provides answers herself. Although she says she treats students like her own children, her behavior contradicts this – she seems distant and aloof, and particularly rude to one 'weaker' students, making statements like,

> You are always slow.
> Read louder…didn't you have your mid-day meal today?
> Read loudly, I am growing old, I cannot hear!

Elizabeth is the only rural Kerala teacher who does not display high LCE pedagogy.

4. External-adopter Priya: The role of dispositions

Priya's (M2-H) personal context, professional identity, educational context, and competencies are reasonably oriented towards LCE though not extremely so. But the factor that seems to make the biggest difference in shaping Priya's pedagogy towards LCE is her positive disposition towards her teaching and students.

Priya's beliefs have been partly shaped by her childhood – particularly a loving father and husband who treated her with equality, freedom and support:

> I was very attached to my father and was influenced by what he thought of me. He used to invest a lot in all of us…My father was educated and so there was never a discrimination done with us, I was treated alike with my brothers.

Priya was also influenced by a supportive high school teacher, who "encouraged me so much that I topped the tenth exams". Although she wanted to be a teacher since childhood, Priya's professional identity is not a defining feature for her – her foremost value seems to be family, a recurring theme in many of her answers. Her primary goal in life is to be "a best parent", and her happiest and proudest moment is when she became a parent. If she could change one thing about her life she would get her extended family living together again, and her most important advice for her children revolves around the importance of family. Priya does not have a particularly strong sense of mission or self-efficacy tied to her identity as a teacher. Similarly, Priya's educational context and competencies neither strongly incline nor hinder her from implementing LCE. Her classroom context is fair, with 40 children sitting two to a bench in a bright, cool, reasonably well-resourced classroom. She sees LCE as a way of teaching

children through games or things they are interested in so that it "etches on their minds better", but her understanding of LCE does not go too much beyond that.

What does seem to set Priya apart is her disposition towards her work and students. She has high internal motivation, shaped by strong religious beliefs:

> Before I do anything I pray once and then begin my day. This has shaped me as a teacher. I get my motivation from this belief I have.

In turn, this has given her a positive attitude towards her work: she likes spending time with her students, feels satisfied at their growth, loves to learn new things, and views problems as opportunities, trying "to make something good out of it". Her metaphor for a good teacher is one of "belongingness – teachers should treat the children their own", to "think of children's growth first". So although Priya's teaching beliefs are not fully aligned with LCE and are still mixed with some low-LCE beliefs, her religious beliefs do positively shape her dispositions towards her work and students, which consequently appears to influence her pedagogy towards more learner-centred pedagogy.

5. Transformational Lalita: The power of a coach

Lalita (K4-H) is by far the most extreme LCE-oriented teacher in the study, both in her beliefs and pedagogy. Lalita exemplifies the power of personal and educational context, and particularly mentors, in facilitating transformation.

Some of Lalita's beliefs and pedagogy were shaped by her context, both personal and educational. Lalita was raised by orthodox Brahmin grandparents who did not give her much freedom, love or acceptance during childhood. But she attributes her democratic attitude to the freedom and respect she received from her husband, who encouraged her to study and pursue her career as a teacher and trainer. She was able to undergo transformation "because I got strength from my husband! He was so supportive…he gives that much respect and freedom to me. So I could see the drastic change". Lalita's transformation was also enabled by her educational context. A year after she become a teacher, Lalita's school was selected for Kerala's new DPEP programme. She received strong LCE training and on-site support from the local DIET, plus revised textbooks geared entirely around LCE. Soon after, a DIET lecturer noticed her keen interest in pedagogy and invited her to become a trainer. So Lalita received further training and became a DPEP trainer for many years, growing strong in her understanding and skills in LCE.

But by far the biggest factor that shaped Lalita's professional identity was a mentor – one of her trainers, Dr. Arvind. She says of him,

> It is he who made me a teacher.
> Still he is my guru – he is my inspiration.
> His philosophy made me to change.

The role Dr. Arvind played for Lalita was really that of a *coach* – believing in her, affirming, inspiring, and challenging her. Firstly, he exposed teachers to new ideas, and modeled this

new approach with them: “From Dr. Arvind, we got insights of how to think in a different way, how to work in a different way. That inspired us.” He made teachers reflect on their life mission, stirring them with fresh vision. He engaged them in extensive dialogue, urging them to think and look inside themselves rather than just following his words. He believed in Lalita and affirmed her, building her own self-confidence and courage. Finally, he encouraged her to take bold new steps, like presenting at a seminar – which became one of the happiest and proudest moments of her life. From Dr. Arvind, Lalita came to see training (and teaching) as a process of *liberation,* of giving individuals freedom to think and act for themselves:

> We are always in chains. A facilitator must help teachers to liberate themselves….At first I was just imitating [Dr. Arvind]. Now I am liberated and I can do things independently.

Through this process, Lalita developed an extremely strong professional identity, with a high sense of mission and self-efficacy. Lalita considers it her life purpose to promote educational innovation, and to convince children, parents, and teachers about critical pedagogy: “This is my purpose in life, because education is the backbone of any country….I must do this. It is my life mission!” She refused several promotions to teach in high schools, because she is passionate about elementary education and teacher education. Her dream is to open a school with freedom of choice and expression, where she can fully experiment and show others. She is confident in her abilities as a teacher and trainer, and proud of her talents in interacting with a group “according to the pulse of the group”. She deeply enjoys her job, is highly motivated, and wants to keep reading and growing as a teacher. Her favourite aspects of her work are doing innovative research, creating new ideas, and inspiring others to change. For Lalita, “a teacher should be a researcher,” entering into students’ thought processes, analyzing what problems they are facing that day, and thinking how to adapt the textbook creatively to students’ needs.

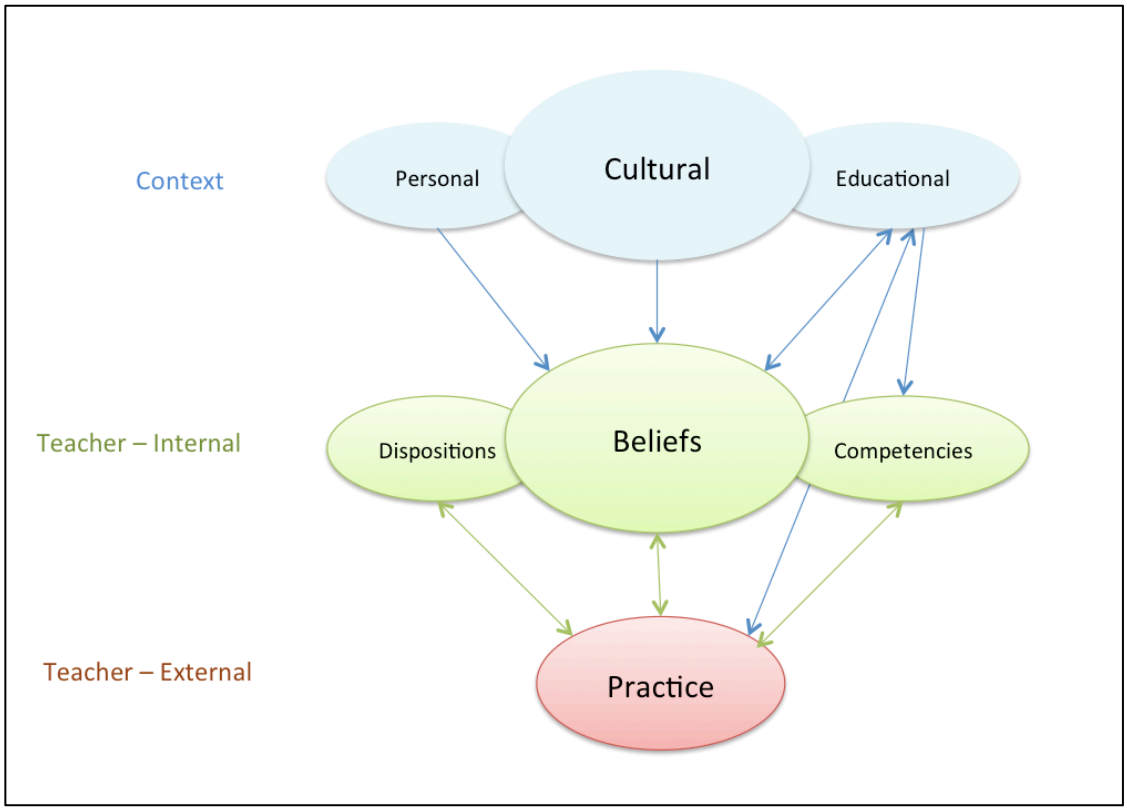
The above categories and case studies illustrate that teachers’ pedagogical practice is shaped not only by their beliefs, but also by their context (state, personal and educational) and competencies. These factors and the relationship between them are examined further in the ensuing section.

7.4 Cross-case themes: Key factors influencing beliefs and their enactment into practice

A critical realist analysis of my data allowed me to identify underlying conditions common across different cases that enable high-LCE beliefs, and to isolate preconditions required to enable high-LCE beliefs to be enacted into high-LCE pedagogy. CR’s abductive and retroductive analysis can help generate new conceptual frameworks that appear most

plausible in explaining observable phenomena (i.e. teachers' practice), which must then be continually verified and edited against the empirical data and the existing literature. Through this back-and-forth process, I arrived at the following conceptual framework to depict the factors affecting teachers' beliefs and practice, and the relationship between these factors (see Figure 7.1).

Figure 7.1: Factors shaping teachers' beliefs and practice



As shown in the above model, teachers' external practice is strongly influenced by the teacher's internal world – something often overlooked by current LCE reform efforts in India. Teachers' internal world includes their beliefs – which has been the primary focus of this study – but also their dispositions and competencies, both of which are partly shaped by and partly interact with their beliefs. Secondly, both teachers' beliefs and practice are influenced by the context in which teachers operate – first and foremost, their cultural context shaped by ideology. Cultural context in turn both shapes and interacts with teachers' personal context (past and present) and their education context (past and present). While both dispositions and competencies are also influenced by teachers' context, the influence on dispositions is arguably mediated through beliefs, whereas teachers' educational context more directly influences their competencies and practice. Overall, three factors mediate the relationship between beliefs and practice: teachers' dispositions, competencies, and context. Teachers may possess learner-centred beliefs, but often these beliefs fail to be translated into learner-centred practice when one or more of these three factors are not aligned in support of LCE.

Several of the relationships in the above model are bidirectional. First, practice itself can precipitate change in beliefs: if a teacher experiences success in an LCE classroom, and finds that students learn better or enjoy learning more, this may help change her beliefs. This is similar with dispositions and competencies – while both shape a teacher's practice, positive experiences in the classroom can positively influence both teachers' dispositions and their competencies (or vice-versa). Finally, increasingly LCE-oriented beliefs and practice can presumably instigate shifts in the educational context, which may in turn contribute to changes in the cultural context. Herein lies the possibility for teachers to become agents of change, and for teacher education programmes to contribute to shifts in both the educational and wider cultural contexts – which will be further discussed in Chapter 8. For now, each of these factors is explained below.

1. Cultural context

Perhaps the strongest factor shaping teachers' beliefs is their wider cultural context. This is reflected in the fact that state seems to make the strongest difference in influencing both beliefs and pedagogy scores, with Kerala teachers displaying the highest scores in both beliefs and pedagogy, and showing radical differences from those from Bihar and Maharashtra. Critical realism argues that observable social phenomena like teachers' beliefs and behaviours can only be understood by uncovering the wider social structures that produce them – such as culture and ideology. Section 7.4 will discuss in more detail the role of ideology in shaping teachers' beliefs, specifically by examining the different ideologies operating in Kerala vs. Bihar and Maharashtra.

2. Personal context

Teachers' personal context (past and present) appears to directly shape their beliefs, and indirectly their dispositions. This includes their family and daily life experiences, both in their childhood and in their current lives. Several teachers, particularly ones with high-LCE beliefs, spoke of the influence of family members, inspiring teachers, mentors, childhood events or difficult personal circumstances in shaping their beliefs or motivations. Several mentioned parents or husbands who gave them extensive freedom and support, as a key contributing factor.

3. Educational context

Teachers' beliefs are also shaped by their educational context: past schooling and training experiences, and present working environments – both systemic and school-level. Many of the teachers with low-LCE beliefs and practice are simply replicating the pedagogy they experienced in their own school or teacher education classrooms, which are often still rooted

in a behaviourist paradigm (Interview with educationist, 24/05/10)[40]. Similarly, my own experiences and observations suggest that many of the eight beliefs identified in this study can be seen not only among teachers, but at nearly every level of the government education system. This includes the way teachers themselves are treated by those above them – from local educational functionaries to senior-level government officials. It is possible that teachers' beliefs are reinforced by the wider systemic culture of the government education system, giving rise to what one educationist in her interview referred to as a 'government ethos'. Moreover, systemic conditions such as the curriculum, textbooks and examination system must be oriented towards LCE for teachers to successfully implement learner-centred practice – as is more the case in Kerala. The school context including relationships and resources must be supportive of LCE:

a. *Relationships*: Many of the transformational teachers worked in a collaborative school culture where they received regular on-site help from their colleagues, HM and trainers. Often, these teachers had HMs or trainers who were highly motivated, who themselves believed and practiced the eight LCE beliefs discussed here, and who personally invested in mentoring the teachers.
b. *Resources*: Many of the transformational teachers also worked in schools that were well-resourced with sufficient classrooms, teaching staff, adequate infrastructure and teaching aids, which enabled their LCE practice.

4. Teacher's beliefs

The data suggests that transformational teachers are particularly shaped by their professional identity, i.e. their beliefs about their self-efficacy and their purpose. Many transformational teachers appeared to have strong self-efficacy beliefs – confidence in their own ability as teachers to effect learning in their students. Similarly, many seemed to have a sense of mission related to their work as teachers, and derived satisfaction from watching their students succeed or from contributing to the larger societal good. Although teaching may not have been their first career choice, many of them developed a strong professional identity and high commitment to their work as teachers, which seemed to make a significant difference in orienting both their beliefs and practice towards LCE.

5. Teacher's dispositions

Some of the dispositions that arise most prominently in the data as potentially influencing teachers' practice include their attitudes towards learners, teaching, work, and LCE. In this study I focused primarily on teachers' dispositions towards teaching, and looked at three central components: level of motivation as a teacher, enjoyment or satisfaction derived from

[40] It was beyong the scope of this study to examine teachers' training experiences and how these have shaped their beliefs and pedagogy, though presumably this may play a significant influence, and points to an area for further research.

teaching, and desire to learn and grow professionally. Transformational teachers tended to have a positive disposition towards teaching: they often chose teaching as their first choice or later became devoted to the profession, enjoyed teaching or being with children, and had a strong desire to grow as teachers and see their students succeed. Some other dispositions seen among transformational teachers include empathy towards students, and courage to venture new approaches, though this would benefit from further research.

6. Teacher's competencies

Besides their beliefs and context, the other strongest difference between Kerala teachers and those from Bihar and Maharashtra lies in their LCE understanding and skills. With only a few exceptions, most Bihar and Maharashtra teachers have a rather narrow view of LCE. Most equate LCE with using songs, actions, games or drawings, as a separate tool to be added alongside their regular textbook-centred teaching. The main reasons stated for using these methods are that children become more interested, learn faster, and remember for longer: "Children learn faster. Poems are easier to remember through this way" (Manisha, B4-L). The ultimate goal of learning has not changed – it remains to remember information, and LCE is only one means to that end. This seems to be the view of LCE acquired from training, such as the *Ujala* in-service training mentioned by several Bihar teachers, which is their main exposure to LCE. Many also lack the skills needed for an effective LCE classroom, such as multi-grade teaching or positive discipline strategies. In contrast, most Kerala teachers have a much deeper understanding of LCE. Their goal for teaching is not memorizing, but constructing knowledge – eliciting children's own ideas, exploration, understanding and creativity. While Bihar and Maharashtra teachers often talk about LCE as merely something they were told to do by trainers (e.g. Aisha-B2L, Manisha-B4M, Abdul-B4M, Sheila-M2M), Kerala teachers seem to practice LCE more from an internal conviction: "I employed child-centred methods even before SSA come along" (Reshma-K1H). Finally, teachers' degree of reflectiveness also appears to mark a difference between between traditional and transformational teachers, though this was not an explicit focus of this study and would require further research.

Thus while 'teacher beliefs' is a crucial but largely unexplored factor in Indian educational reform requiring much greater attention, it is clearly not enough to only target teachers' beliefs to bring change. Change efforts must also target teachers' competencies and context in order to support teachers' transformed beliefs to be enacted, which is discussed further in Chapter 8. While all the factors listed above appear to contribute to shaping teachers' beliefs and pedagogy, the factor that perhaps had the biggest impact in transforming both beliefs and practice was the role of mentors – as portrayed vividly in the case of Lalita. Thus while teacher education may not be able to directly impact teachers' context (cultural, personal and educational), perhaps building strong mentors may be one powerful way of bringing change in teachers' beliefs and competencies, and ultimately their practice.

7.5 Causal mechanisms underlying teachers' beliefs: the role of ideology

In trying to understand the roots of teachers' beliefs, one must look not only at the level of individual teachers (as above), but also at the level of societal structures – specifically, ideology. As discussed in Chapter 1, ideological beliefs typically create an uncontested 'false consciousness' that supports the dominance of certain groups and the oppression of others. Gramsci's (1971) analysis of hegemony explains how people learn to embrace certain beliefs and values as natural, taken-for-granted, common-sense wisdom – even beliefs that actually work against their interests and serve those of the ruling elite. Eventually, individuals take pride in learning and acting on the very beliefs that serve to enslave them, becoming willing partners in their own oppression. For Althusser, the relationship between ideological beliefs and practices lie in 'ideological state apparatuses': our day-to-day interactions and institutions (e.g. family, education, religion) which 'reflect a wider ordering of power relations that is unconsciously confirmed in these practices' (Brookfield, 2001, p.15). According to Althusser, it is impossible for one's beliefs to be completely neutral and free of ideological distortion, since everyone is steeped in ideology, often without realizing it. Thus any analysis of the roots of teachers' beliefs must look at what are the larger dominant ideologies operating in Indian society to shape teachers' worldviews.

Brahmanism as dominant ideology in India

Numerous critical Indian scholars have written about the role of Brahmanical ideology in shaping dominant cultural ideas and practices in India. Brahmanism denotes how, in the words of Wankhede (2013), for centuries dominant groups have successfully imposed their beliefs and cultural practices on oppressed groups, to support their socio-political supremacy.[41] According to sociologist Braj Mani (2015), 'ideology as an instrument of domination….finds its archetypical expression in Brahmanism' (p.24). In *Debrahmanising History*, Mani rigorously critiques Brahmanism as a cultural-religious construction of power that has utilised sacred texts, a hierarchical social structure, and religio-political institutions, in order to keep the majority ignorant and disunited for centuries. While many would argue this effort is deliberate, others may emphasize more the unintended effects of these structures, but it is clear there are now vested interests seeking to preserve the Brahmanical status quo. Brahmanism's primary system of social stratification has been the caste system, by which castes (*varnas*) and sub-castes (*jatis*) are hierarchized based on occupation and ancestry, and

[41] While the terms 'Hinduism' and 'Brahmanism' are sometimes used synonymously in general talk and writing, both deriving from Vedic texts, Hinduism is a more amorphous term coined by foreign historians, and denotes a fusion of various South Asian cultures and traditions linked by shared mythology, rituals, and texts. The term Brahmanism, more specifically, is used in this thesis to denote the dominant religiously-sanctioned ideology that privileges 'upper' caste Hindus while denigrating 'backward' castes.

separated from each other by rules of purity and pollution in matters of food, marriage, and physical contact. Two of India's foremost subaltern social reformers, Mahatma Phule (1827-1890) and B.R. Ambedkar (1891-1956), both spearheaded movements for liberating India's masses from caste-based oppression. Phule saw Brahmanism as 'both an ideological imposition upon the lower castes and…a cause of their material impoverishment' (O'Hanlon, 1985, p.122). Ambedkar, 'perhaps the greatest thinker on caste and its consequences' (Mani, 2015, p.28), saw Brahmanism as 'a diabolical contrivance to supress and enslave humanity' (Ambedkar, 1948 [online]). According to Ambedkar, caste is a system of institutionalized, graded inequality in which castes are arranged in 'an ascending scale of reverence and a descending scale of contempt' (GoI, 1931, p.439).

The dominant-caste hegemonic minority consists of no more than 10-18% of India's population (Ramachandran, 2015). Yet, through the development of a caste-based religion, the idea of hierarchy was institutionalised and injected into the life-blood of Indian culture at conscious, subconscious and unconscious levels (Mani, 2015). By assuming an incontestable spiritual sanctity, backed by the force of canon and coercion, caste ideology became internalized into the Indian psyche, reproduced by the very groups oppressed by it. This outworking of hegemony explains why caste has persisted for centuries, pre-empting the rise of general opposition against blatant equality. The unified notion of Hinduism, increasingly presented by elite groups as synonymous with 'Indian-ness' and cultural nationalism, tries to 'encapsulate all the indigenous religious sects, denominations, and practices into one entity in a hegemonic manner,' though 'drawing largely on Brahmanism in thought, scriptures, and rituals' (Mani, 2015, p.43). Nevertheless, there is no denying that despite the variety of ethnic groups and religions throughout India, 'nearly every part of Indian culture bears the historical imprint of Hindu thought and practices' (Sen, 2005, p.53) – specifically of Brahmanical ideology.

How Brahmanism shapes teachers' beliefs

When one analyses this study's findings through the lens of ideology, one sees that many of the beliefs identified are consonant with aspects of Brahmanical ideology. This is especially true for teachers' three core beliefs relating to equality, learning and purpose, identified in chapter 6 as foundational in shaping the rest of teachers' beliefs.

Ontological beliefs

Most fundamentally, the caste system is based on the belief that humans are unequal at birth, determined by one's actions in previous births, which justifies differential access to wealth, power and enjoyment in this life (Zachariah, 1986). Although non-egalitarian practices and even beliefs can be seen in many societies around the world, Indian society is unusual in

that here inequality is not merely descriptive but prescriptive; 'in India Inequality is not only institutionalised, but also legitimised' (Oomen, 2016). Inequality is sanctioned by religion itself, making Hindusim unique in this respect among all the major world religions.[42] Since its inception, caste ideology 'was meant, among other things, to drive in a sense of degradation among the lower castes and to perpetuate inequality even in principle' (Sahu, 2009, p.45). Hindu theology places no importance on the mastery of sacred texts by ordinary people, and for centuries education was restricted to only upper-caste males. This is epitomised in the story of Eklavya, presented in the Hindu epic *Mahabharatha* as the ideal *shishya* (disciple) in his extreme devotion to his guru. Eklavya, a lowly tribal boy, greately desired to learn archery, a skill permitted only for the upper castes. When Eklavya taught himself to become a master archer, Dronacharya, whom he had mentally adopted as his guru, demanded as *guru dakshina* (tribute to a guru) Eklavya's right thumb, so that Eklavya would not emerge as superior to Arjun, Dronacharya's favourite (upper caste) student (Agnihotri, 2002). According to the Brahmanical text *Manusmriti,* an attempt made by a *shudra* to acquire knowledge is a crime; if he listens to sacred texts being recited, his ears are to be filled with molten lead; if he recites them, his tongue is to be cut off (Ambedkar, 1949). The notion that educating low-caste children is unnecessary and even undesirable is not easily shaken by teachers, as seen in Chapter 5.

This ideological analysis helps throw light on the inequality beliefs seen not only among teachers in this study, but confirmed by the wider literature on Indian teachers. One educationist interviewed confirms, "Caste is one of the main factors that have influenced notions of hierarchy and inequality in our society" (30/07/10). Weiner (1991) found that caste resulted in a deeply-held belief among middle-class Indians – even those who profess to be secular – in a division between their own children and poor children, between those who work with their minds and rule and those who work with their hands and are ruled. Education is seen as meant to reinforce rather than break down this differentiation, leading to concerns – even if unarticulated – that ''excessive' and 'inappropriate' education for the poor would disrupt existing social arrangements' (p.5). According to Weiner, this explains why Hinduism has not been a force promoting mass education in India, and why until today there has not been widespread social pressure to provide quality education for the poor – unlike in many Western countries where religious beliefs and institutions played a major role in the diffusion of mass education.

Related to the core belief in inequality is the peripheral belief of valuing hierarchical relationships (Belief-2) and uniformity (Belief-3), which can also be found consistent with Brahmanical ideology. 'Hierarchy remains the basic principle behind the caste system' (Sahu,

[42]Equivalents of 'outcast' practices may be found in some societies outside South Asia. For example, the Japanese *Burakumin* ('hamlet people'), consisting of those associated with 'impure' occupations tainted by death, such as executioners, undertakers and butchers, have historicalled faced severe discrimination. However, this ostracism was a result of the feudal social organization, with no known or claimed religious sanction.

2009, p.44). Not only *jatis*[43] themselves are hierarchically organised in relation to each other, but the individual's own preferences and ambitions are subordinated to the interests of the extended family and *jati.* In his psychoanalytic analysis of Indian society, Kakar (1978) describes how, based on centuries of tradition and deeply-ingrained patterns of child rearing, 'for an Indian, superior and subordinate relationships have the character of eternal verity and moral imperative' (p.117). The overriding principle of hierarchical ordering in the extended family gets extrapolated onto every other institution in Indian life, to this day. Thus while teachers may do well at learning about constructivism as a theory, "the culture itself is extremely authoritative…In India we have the caste system, and that itself sets us up to believe that some people are more important for us to listen to than others" (Interview with educationist, 10/19/10). One can easily conceptualise how centuries of this hierarchical social ordering would contribute to creating an authoritarian teacher who expects a submissive posture from students – as seen both in this study, and in the wider literature (Clarke, 2001; Gupta, 2006; Sarangapani, 2003). Similarly, the core inequality belief presumably also contributes to teachers valuing uniformity above diversity. In their analysis of exclusion of marginalised children in Indian classrooms, Deshkal Society (2010) points out how dominant cultural beliefs of seeing children from excluded communities as 'culturally deprived', led teachers to expect everyone capable of assimilation to attain a common upper-middle-class standard.

Epistemological beliefs

One can also trace ideological roots for the second core belief in learning as knowledge transmission vs. construction. Kumar (2004) attributes this view to British colonial rule, which posited the colonizers as producers of knowledge and the colonized as consumers of knowledge, leading Indians to 'cease to see themselves as people capable of producing new knowledge' (p.26). However, while colonial impact cannot be denied, one must acknowledge that aspects of this view is evident long before British rule, and resonates with a Brahmanical epistemology. In classical Brahmanical texts, knowledge production is seen as a process of remembering ancient, pre-existing truth: 'To produce knowledge was to recapture the pristine knowledge of the past alongside its vision of social hierarchy as a natural phenomenon' (Mani, 2015, p.25). Societal progress was oriented not towards the discovery of new knowledge, but towards the past and the complete recovery of what was known more fully before (Pollock, 1985, in Mani, 2015). In this way Brahmanical epistemology served to reinforce the caste-based status quo rather than serving as an agent of change.

[43] *Jatis* denote the thousands of clans or sub-communities into which Indian society is divided, traditionally governed by rules of endogamy and occupation.

In ancient Brahmanical religious education, the *guru* was seen to 'possess sacred knowledge which he knew best how to transfer to a student' (Kumar, 2005b), p.196). Central to the educational process were religious texts, considered a sacred source of illumination rather than something to be interrogated, and transmitted orally through constant recitation (Alexander, 2001). This is similar to the conspicuous absence of critical challenging of the authority of both teacher and texts by students in present-day classrooms. Kumar (2009) also traces to caste ideology teachers' privileging of academic knowledge and derision of manual work or 'hands-on experience' as associated with lower castes who were traditionally assigned manual labour. One educationist describes her grassroots training for teachers on constructivist pedagogy: "There used to be tremendous resistance from upper caste teachers, who were not used to working with their hands" (29/11/10).

Teleological beliefs

The third of teachers' core beliefs – in the purpose of education as material success while preserving the existing social order, rather than social transformation towards an egalitarian society (Belief-5) – can also be found related to Brahmanical ideology. Interconnected with core beliefs in inequality and knowledge transmission, is the view that education is meant to reinforce rather than break down differentiations among castes. In the Brahmanical view, the four chief aims of life are *moksha* (spiritual liberation), *dharma* (one's cosmically-ordained path or duty), *artha* (material prosperity), and *kama* (pleasure, desire) (Leaman, 2001). The purpose of life and thus work (including teaching) is focused more inward, towards individual spiritual liberation and satisfying wordly interests, rather than outward towards societal reform. In this light, social struggle in the outside world becomes futile – 'such a struggle would be viewed as taking place on the wrong battlefield and fought with the wrong weapons' (Kakar, 1978, p.49). Real change must be targeted at the inner world, and not the outer world. It is not difficult to see how this teleological belief would serve the interests of hegemony, discouraging oppressed groups from challenging an unjust social order.

Tied to the core beliefs of inequality and purpose are teachers' peripheral beliefs in seeing their duty as task completion (Belief-6), and low professional commitment (Belief-7). A central concept in the Brahmanical worldview is that of *dharma.*[44] It is through unswerving adherence to one's *dharma* – duties dictated by one's caste or *jati* – that one can attain the larger goals of worldly prosperity as well as spiritual liberation, and can hope for a better life in the next incarnation (Vyas, 1992; Zachariah, 1986). What matters more than the content or even moral nature of the activity, is that it is in keeping with one's caste-assigned duty, and the spirit or devotion with which it is performed – since each individual has a rightful place and

[44] Dharma denotes the cosmic order that governs the universe and individual lives, including both universal virtues, and duties dictated by one's caste and station in life (Narayanan, 2010).

function in society (Kakar, 1978). This belief may presumably influence teachers to focus more on fulfilling what they see as their individual duty as teachers – often seen as maintaining discipline or completing the syllabus, as seen in Chapter 5. This is perhaps regarded as more important than ensuring that all students learn and progress (i.e. creating a more egalitarian society). Similarly, this focus on completing one's duty in a minimalist sense, coupled with the contempt for poor/low-caste children elicited by caste hierarchy, perhaps also contributes to teachers' low professional commitment towards the job of teaching poor children – seen as one of the lowest status jobs in Indian society. However the very notion of duty could arguably be conceived of in an expansive way and be used to garner deeper professional commitment in teachers towards the duty of helping every child flourish.

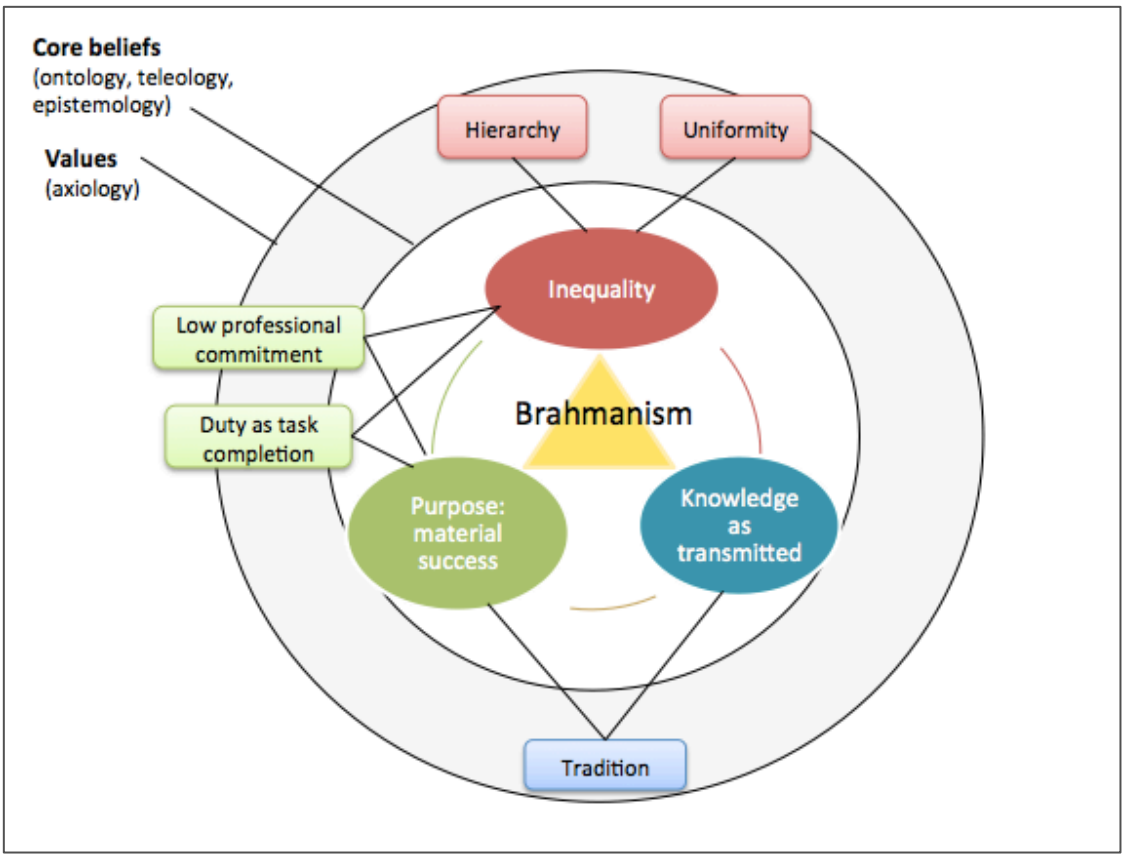
Finally, teachers' valuing of tradition vs. change (Belief-8) could be related to both their knowledge and purpose core beliefs. Brahmanical epistemology, which looks back to a golden age and seeks to recover past knowledge, 'harbours the sceptical conviction that social change is superfluous, an importunate deviation from traditional ways', leading to suspicion and avoidance of innovation (Kakar, 1978, p.38). Similarly, Brahmanical teleology holds that ultimate goals of *moksha* or achieving a better life in the next incarnation can be reached by embracing one's caste duty and engaging the inner world, rather than acting on the outer world. This leads to an acceptance rather than desire to change existing social realities, even oppressive ones:

> the injunction inherent in the karma doctrine [is] to accept and use outer reality for inner development rather than to strive to alter worldly realities (Kakar, 1978, p.107)

Thus one can see how all the teacher beliefs identified in this study as contradicting LCE ideals are potentially influenced at least to some extent by elements of Brahmanical ideology, which has strongly shaped the Hindu worldview in particular and Indian culture at large.[45] Caste ideology informs people's ontological view of themselves and others as fundamentally unequal, their epistemological view of knowledge as transmitted, and their teleological view of the purpose of life (and thus education and teaching) as individual advancement while maintaining social hierarchies. These core beliefs in turn shape teachers' axiological peripheral beliefs of valuing hierarchical vs. democratic relationships, uniformity vs. diversity, low vs. high professional commitment, duty as task completion vs. ensuring outcomes, and tradition vs. change. These are summarized below in Figure 7.2.

[45] The above analysis has focused specifically on oppressive dimensions of the influence of Brahmanical ideology on Indian teachers' beliefs. It has igored other perhaps positive influences on India's educational culture, for example the high value placed on knowledge and thus education, or the high respect accorded to teachers.

Figure 7.2: How Brahmanical ideology shapes teachers' beliefs



Education as a tool of hegemony

Analysing teachers' beliefs through the lens of ideology helps us understand how education and particularly pedagogy can end up perpetuating hegemonic relationships. Althusser explains how education is one of the key 'ideological state apparatuses' working to reproduce dominant ideology – not necessarily explicitly, but more by immersing learners in ideologically-determined practices (Brookfield, 2001). Giroux and Apple similarly point out how 'schools [are] both ideological and instructional sites' (Giroux, 2001, p.140), and how they act as vehicles of 'social reproduction of the values, norms, and dispositions' of dominant groups (Apple, 1978, p.384). However, ideology requires that this learning appear neutral, thus education is falsely perceived as free of ideology – neither teachers nor students are able to see the ideology that shapes their thinking.

There are various ideologies that interact to influence comtemporary Indian society and education, including consumerism, capitalism, modernisation theory, human capital theory, to name a few. But the influence of these is relatively recent, and none of these have been as ancient and as pervasive as Brahmanical ideology in shaping the core of individuals' worldviews. This worldview has in turn historically and powerfully shaped India's education system. For centuries dominant castes preserved their power by restricting education to

upper-caste males, thereby promoting mass ignorance. Phule 'argue[d] that by denying knowledge to the *shudras*, the Brahmins might be held responsible for the condition of masses and for the backwardness of Hindu society itself' (Mani, 2005, p.272). But even after education was opened to the masses, Brahmanical dominance continues to be preserved through the pedagogy that prevails in many Indian classrooms:

> When the powerful can no longer withhold education from the powerless, they see to it that the education imparted to the people does not encourage critical thinking. They ensure that people at large remain in the dark about larger social and cultural reality (Mani, 2015, p.56)

The ideologically-shaped beliefs held by many Indian teachers contribute to a pedagogy that reinforces hegemonic social practices and relationships within (and ultimately outside) the classroom. As argued by Freire (1970), the kind of 'banking' pedagogy seen in most Indian classrooms develops adults unequipped to think critically or question oppressive social conditions. Students from both dominant and oppressed groups unconsciously imbibe and perpetuate these hegemonic beliefs and practices, thereby preserving Brahamnical dominance in Indian society.

The case of Kerala: How a different ideology shapes teachers' beliefs differently

The unique case of Kerala illustrates how even within India, a different dominant ideology can produce very different prevailing beliefs and practices. Much has been written about what factors contributed to Kerala's unparalleled social development, making it an outlier among Indian states – some already discussed in Chapter 4. Ramachandran (2000) for example attributes Kerala's success to mass literacy, transformed agrarian relations, anti-caste movements, enlightened gender attitudes, and public policy interventions. However, it is worth asking whether some of these are outcomes rather than roots of what triggered change in Kerala. Ramachandran, like many attempting to explain Kerala's success, fails to acknowledge the role of ideology – which arguably contributed to all the above social changes in Kerala. Ramachandran's recommendation for replicating Kerala's success in other Indian states is through political action, along with 'an integrated movement against agrarian backwardness and against caste and gender discrimination' (p.112). But this again ignores the role of ideology – both in facilitating change in Kerala, and in impeding change in other Indian states.

Kerala was historically shaped by two major religious and political ideologies different from those that shaped other Indian states: Christianity and Communism. Both ideologies are rooted in an egalitarian worldview, in contrast to the hierarchical worldview dominant in most other states. The Communist Party spearheaded mass political movements in Kerala since the late 1930s. After the state of Kerala was formed in 1956, Kerala became the first state in the world to democratically elect a communist government, and the left remained in power for over

fifty years. Foremost on their agenda were things like land reform, health, education, decentralization, and public distribution of essential commodities. Yet centuries before Communism, Christianity had already contributed to propagating a more egalitarian worldview among Keralites. The Syrian Christian community in Kerala dates back to at least the 4th century AD and constituted nearly a third of the state's population. However the Syrian Christians did not challenge caste and maintained caste hierarchy in church practice (Lankina and Getachew, 2012). By the 8th century, Brahmins had begun settling and dominating in Kerala society, with 'some of the worst forms of untouchability in the country…practised in Kerala' (Ramachandran, 2000, p.100). By the early 19th century, rulers seemed indifferent to the plight of the masses, and education remained the monopoly of upper-caste males (Eapen, 1979).

Protestant missionaries in the nineteenth century were the first to radically challenge caste inequality and actively promote social advancement for the most disadvantaged in Kerala (Eapen, 1979; George & Sunaina, 2005; Lankina & Getachew, 2012; Tharakan, 2007; Weiner, 1991). Motivated by the ontological belief that all are created equal before God, the epistemological belief that all must be enabled to read and interpret the Bible for themselves, and the teleological belief that one's calling is to love the most marginalised, they opened the first modern schools in Kerala, and targeted them toward girls, the poor, and low castes. Weiner (1991) describes how missionary activity stimulated educational development not only by sparking greater popular demand for mass education, but also by spurring the state to promote education in response. This happened not only in Kerala, but also in other states with large Christian populations, like Goa, Nagaland and Mizoram, all having higher-than-average literacy rates today. Because mission schools were recognized for their high quality and preferred by dominant-caste Hindus as well, for the first time formerly stratified castes started studying together in the same school.

In their analysis of social development variations across Indian states, Lankina & Getachew (2012) point to the hitherto neglected factor of colonial-era Christian missions[46]. They found that Christian missionary legacies are much stronger predictors of literacy and democratic variation across India than the influence of colonial powers – possibly accounting also for commonly observed variations between Northern and Southern Indian states. In fact, they find the colonial legacy in promoting democratic development not very laudable, coloured by elitism, orientalism, and racially-based exclusion. The few fee-paying British government schools were mostly geared at training an indigenous male elite to staff colonial bureaucracy, often preserving caste segregation to avoid upsetting upper-castes (Bellenoit, 2007). Much of the impetus for mass education came from missionaries, generally disliked by the colonial elites, but whose activities 'impacted the social, economic, religious, political, moral and cultural aspects of life in Kerala' (Eapen, 1979, p.585). They insisted on caste integration in

[46] based on statistical analyses of longitudinal census and other data from both colonial and post-colonial periods for hundreds of districts across India, along with in-depth historical studies

their schools and hostels, fought for equal freedoms and opportunities for lower castes, built hospitals and popularized modern medicine, promoted civil society, social service and political activism (Lankina & Getachew, 2012). Of particular relevance to this study, Protestant missionaries were pioneers in adapting progressive Western pedagogical ideas in Indian schools:

> in promoting critical thinking, reflective debate on the moral and spiritual foundations of Indian and Christian faiths, and mass literacy in the vernaculars that enabled a personal interpretation of texts, Protestant schooling was a far cry from rote memorization and the feeding of 'ready-made answers' (Sengupta 2003, p.102) characteristic of both established Western and native schooling systems. (Lankina & Getachew, 2012, p.475)

How culture shapes pedagogy and the possibility of pedagogical change

The teachers in this study from three different states are an example of how teachers' pedagogy is powerfully shaped by cultural ideologies[47]. This can also be seen if one traces the roots of LCE and the factors that contributed to its gaining prominence in certain countries and not others. Sharpe (1997) presents a helpful Weberian analysis[48] of the ideological roots of the differences between the English and French education systems, and why child-centred education flourished in the former and not the latter. According to Sharpe, the differences arise from deeply-embedded cultural values rooted in differing dominant religious ideologies: Protestantism vs. Catholicism. Sharpe argues that structures of consciousness and social organisation originally developed in a religious context continue to shape secular institutions, social processes and value orientations in these two societies – including educational systems – long after the respective religious narratives have lost their prominence. Influenced by Catholicism, French education still tends to favour uniformity, hierarchical authority relationships, knowledge transmission, bureaucratic accountability, and a formalized, didactic environment. In contrast, Sharpe finds many parallels between English education and a Protestant ethic, both oriented towards diversity, democratic authority relationships, knowledge based on personal reflection and interpretation, personal accountability, and a flexible, negotiated environment.

In particular, Sharpe finds many parallels between a Protestant ethic and child-centred education now dominant in English education in the last century, described in Table 7.2.

[47] This analysis has focused on the impact of Hindu and Christian (Protestant) ideologies on teachers' pedagogy. Muslims, though comprising 13% of India's population, have separate schools outside the mainstream system and thus have not influenced mainstream Indian education to the same extent, thus Islam has not been discussed here.

[48] Weber (1992) demonstrated the impact of religious values in explaining the development of different economic systems.

Table 7.2: Value orientations shared by Protestant worldview and child-centred education
(adapted from Sharpe, 1997)

Protestant worldview	Child-centred education
Stress on individual believer	Focus on individual learner
Ministers as guides rather than authority	Teacher as facilitator rather than authority figure
Each must actively interpret Scriptures for themselves, vs. blindly accepting priests' words[49]	Each must actively question texts for themselves, vs. passively accepting teachers' words
Involves an inner commitment of one's whole being, not just intellectual assent to doctrine.	Involves the 'whole child' – including the child's inner commitments.
One builds a personal relationship with God through individual experience and prayer	Child builds knowledge through individual experience and reflection

Sharpe finds it unsurprising that Jean Piaget – a central architect of child-centred education – himself originated from a strongly Protestant background. This perhaps explains the paradox of why Piaget, who wrote in French, has had such little influence on French primary education, shaped by a Catholic ethic at odds with child-centred learning, while having such a huge influence on English education, shaped by a Protestant spirit congruent with Piaget's philosophy. Sharpe presents one perspective, and one could argue that we cannot prove a one-to-one correspondence between Protestant worldviews, features of the English education system, and child-centred principles. However this is a hypothesis worth considering to determine its applicability to an analysis of the impact of religious ideology on Indian teachers' pedagogy.

According to Sharpe, any policies that attempt to radically change dominant social values and processes will be 'severely constrained by institutional inertia and ideological conservatism' (p.346):

> …the influence exerted by these value systems may set limits on the possibilities of change. Such influence is powerful partly because it is long established, entrenched and manifestly durable, but also because it is profoundly moral. These are values built not only into the fabric of society but also into the very being of individual members, of teachers, of parents and of pupils. (Sharpe, 1997, p.347)

This theory perhaps sheds some light on why despite decades of reforms and training programmes, most Indian teachers remain relatively unchanged, and why on the other hand LCE has had significantly greater success in Kerala, shaped by ideologies more compatible with LCE. This line of argument suggests that LCE reforms may continue to face severe

[49] A Protestant worldview would be compatible with pedagoical constructivism though not with epistemological constructivism. While individuals are encouraged to interpret Scriptures for themselves, Scriptural truths are ultimately to be accepted on the basis of divine revelation along with reason and experience.

constraints in Indian classrooms if they do not challenge teachers' underlying ideologically-shaped beliefs.

7.6 Causal mechanisms underlying teachers' pedagogy

We are now in a position to elucidate a critical realist account of causal mechanisms to explain teachers' pedagogy, and the role played by teachers' beliefs in the implementation of learner-centred pedagogy. In CR's theory of causality, entities possess *causal mechanisms* by virtue of their nature or intrinsic structure, which bestow it with *causal powers* (Bhaskar, 2008). These causal powers exist at the non-observable level of 'reality', and they endure whether or not these powers are exercised. For example, a plane possesses the causal power to fly by virtue of its aerodynamic form, or gunpowder can explode by virtue of its unstable chemical structure, whether or not these powers are actualised (Sayer, 1992).

For humans, if they are free agents and their behaviour intentional (as opposed to say the compulsive action of psychiatric patients), then the *reasons* people have for doing things are equivalent to these causal mechanisms in nature:

> I am going to argue that intentional human behaviour is caused, and that it is always caused by reasons, and that it is only because it is caused by reasons that it is properly characterised as intentional. (Bhaskar, 1998a, p.80)

Reasons are causes in that they are typically the factor which 'so tipped the balance of events as to produce the known outcome…reasons are analogous to the causal structures of nature and…empirical knowledge of them is possible.' (Bhaskar, 1998b, p.83). Thus for Bhaskar people's reasons and accounts are the 'logically indispensable starting points (constituting the ultimate explananda) of social scientific inquiry' (Bhaskar, 1986, p.136). These reasons can take the form of 'beliefs rooted in the practical interests of life' (Bhaskar, 1998b, p.96), or they may entail a 'long-standing disposition', i.e. a *tendency* which endures whether or not it is exercised (Collier, 1994, p.155). This is similar to my findings above of beliefs and dispositions as influencing teachers' practice. Teachers' beliefs and dispositions are causes which incline them to teach in a more or less learner-centred manner.

Critical realists assert that individuals may or may not be conscious of the reasons behind their actions. A person's 'stated' reason for explaining their actions may differ from the 'real' reason or the causally efficacious reason that ultimately drives their actions (Shipway, 2011). Understanding the distinction between the two is, for Bhaskar, fundamental to what it means to be rational and self-reflective (Collier, 1994). For Bhaskar, self-critical thinking requires a willingness to question whether one's stated reasons are indeed one's real reasons, and to allow for the possibility that one is in error regarding their own or others' mental states.

> …the logical possibility of error about, misdescription and misrecognition of one's own state of awareness, and hence *inter alia* of one's reasons, is a condition of any reflexive intelligence. (Bhaskar, 1998b, p.91–92)

In this view, enabling teachers to reflect on and question their own beliefs – to examine contradictions between their stated beliefs and actions, and ways in which their beliefs may be shaped by ideology – is fundamental to empowering teachers as rational individuals.

This distinction between presumed and real reasons can help account for some of the inconsistencies observed between teachers' stated beliefs and their pedagogical practices. Teachers may sincerely believe that they are acting based on a particular reason, but their thinking may be distorted by ideology or 'false beliefs' in ways that they may not be aware of. According to Bhaskar, beliefs are considered false or ideological if they meet two criteria: if they can be shown as false in that there exists a superior explanation for the phenomenon to which they relate, and if there exists a reason why the false beliefs are being held (Bhaskar, 1998b). For example, teachers' beliefs about the lower learning capacity of poor/low-caste children can be empirically shown to be inaccurate, and they are perpetuated because they support Brahmanical dominance in Indian society. While beliefs about purpose of education cannot be empirically disputed since they relate more to values, beliefs about learning as knowledge construction versus transmission can be compared against evidence regarding how children best learn. In turn, both can be analysed in terms of their oppressive effects in Indian society, as argued above. For CR, oppressive structures in society rely on promoting 'false beliefs' for their perpetuation. Thus, teachers' ideologically-shaped beliefs and dispositions constitute reasons that act as causal mechanisms underlying their pedagogical practice.

However, unlike controlled experimental settings which are closed systems, human society is a complex open system, with various causal mechanisms unpredictably interacting with one another. People's tendencies exist amongst concurrently operating tendencies which have the power to either enable or constrain their action. These include *counter-tendencies,* or 'counteracting forces [that] can override and conceal the effects of the operation of a particular mechanism' (Collier, 2005, p.110). At the same time, individuals potentially possess agency or 'the personal power to reflect upon one's circumstances and to decide what to do in them' (Archer, 2007, p. 20). Such reflexive agency may result in individuals either opposing counter-tendencies and successfully enacting their tendencies (though perhaps in a constrained manner), or succumbing to the counter-tendencies thereby abandoning their disposed course of action.

Thus the critical realist view of causality is a generative-productive one, where 'causality is understood as a property of objects which may or may not be realized' (Scott, 2010, p.88). CR's causality does not depend on finding a constant conjunction between cause and effect in order to make empirical generalisations. Instead, CR examines the causal mechanisms which lead to certain tendencies in individuals, but which interact with counter-

tendencies and thus may or may not be enacted into practice, and which in turn may or may not be observed by humans (Shipway, 2011). This makes it impossible for us to predict with certainty that certain causal mechanisms will always generate certain observable phenomena. Rather, they have the potential to produce certain outcomes, but the same causal mechanisms may produce different outcomes depending on the conditions under which they operate. Ultimately, actions arise from the interaction between social structures and human agency, tendencies and counter-tendencies, operating in a complex, multi-dimensional reality (McEvoy & Richards, 2006). This does not invalidate causal mechanisms, but recognizes the impossibility of isolating individual causal variables or making law-like predictions about human action. All we can do is identify potential causal mechanisms with the power to produce certain tendencies, and to hypothesise a relationship between these causal powers and observed empirical behaviour – though these cannot be treated as reliable predictions of future behaviour (Scott, 2010).

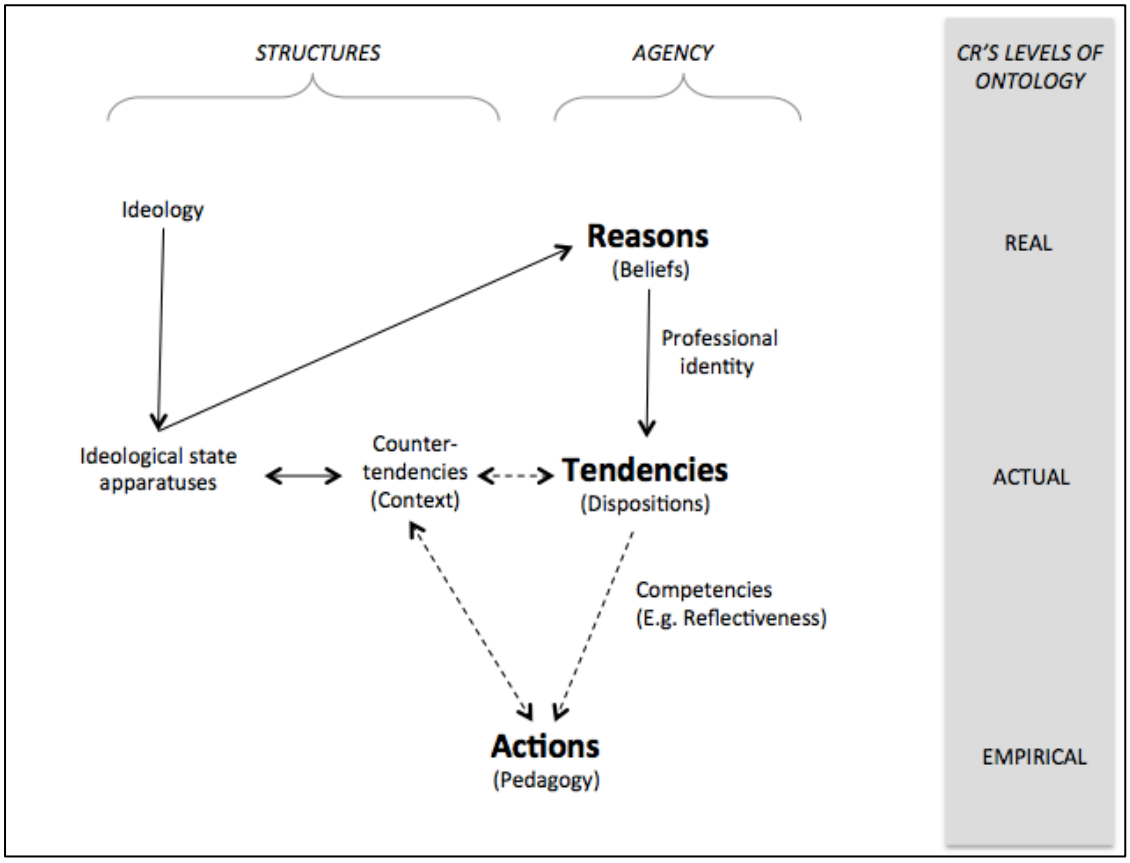
From a critical realist lens, research to understand Indian teachers' practice must begin with the reasons underlying their practice – their beliefs and the ideologies that shape them. But though we begin with reasons, it is at the intersection of wider structures and teachers' agency that lies the explanation behind teachers' practice (Scott, 2010). It is tempting to assign the responsibility for ineffective pedagogy to either one or the other: seeing teachers either as products of cultural structures, or as simply unmotivated or opportunistic. But this overlooks the causal powers possessed by both social structures, and individuals' agential ability to reflect and choose their actions – both are implicated in motivating practice. The possibility of individuals exercising agency accounts for why people do not respond in a uniform manner when faced with the same structures or constraints (Tao, 2013). This helps explain why teachers do not all fit into the same pattern in the nature of their belief-practice relationship, or why even within the same school and cultural context teachers display differences in their beliefs and pedagogy. Though cultural worldviews and ideologies may shape their thinking and action, teachers are not determined to accept these dominant structures. Indeed, in all three states, there are teachers who have chosen different beliefs than the dominant worldview. For critical realists, research can generate more plausible explanatory accounts when it engages with both these different layers of social reality:

> Complete explanations of social events and processes cannot be reduced to the intentions and beliefs of agents without reference to structural forms, or to structural properties without reference to the intentions and beliefs of agents. Both agents and structures then have real causal powers. (Scott, 2010, p.79)

In light of CR's theory of causality applied to the present research, it would be simplistic then to expect a mono-causal explanation for how teachers' beliefs influence their practice. Teachers' beliefs are influenced by larger social structures such as ideology (e.g. Brahmanism, Socialism, Christianity, LCE). These beliefs in turn produce certain tendencies, i.e. they dispose teachers towards a certain pedagogy. However these tendencies interact with counter-tendencies, such as their context (both personal and educational), which either

enables LCE-oriented tendencies (as in Kerala) or constrains them (as in Bihar and Maharashtra), resulting in more or less learner-centred practice. Thus teachers' beliefs alone cannot be isolated as 'causing' teachers' practice. Similarly, we cannot say that either teachers' beliefs or dominant ideologies completely determine or predict their practice – since, in an open system, teachers' practice hinges on multiple factors. Both structure (cultural ideologies, contextual constraints) and agency (teachers' beliefs, reflective choice) are at play in shaping teachers' actions. A critical realist explanatory account of teachers' pedagogy sees it as an interplay between teachers' ideologically-shaped beliefs (reasons) and dispositions (tendencies), their context (counter-tendencies), and their own competencies including reflectiveness. This is depicted in Figure 7.3.

Figure 7.3: A critical realist view of the relationship between teachers' beliefs and practice



Conclusions

This chapter demonstrates how critical realism offers a useful lens through which to analyse causal mechanisms that potentially explain Indian teachers' beliefs and practice, as well as the relationship between the two. In understanding Indian teachers' current pedagogy, their ideologically-shaped beliefs are an important causal mechanism that potentially accounts

for the extent to which teachers have implemented learner-centred pedagogy. But beliefs do not operate in isolation; they generate certain dispositions which interact dynamically with teachers' competencies and context, to determine teachers' practice. Thus beliefs are an important but not the only predictor of teachers' implementation of learner-centred pedagogy. The findings of this study take us beyond polarised debates in Indian education that attempt to identify one culprit or one solution for India's pedagogical dilemmas. The above discussion deepens our understanding of the distinct but interrelated roles played by the system, culture, beliefs, context, and practice.

In terms of implications for policy, we can see that initiating change in teachers' beliefs is a necessary but insufficient condition for bringing change in teachers' practice. Alongside efforts to address teacher beliefs (e.g. through teacher education programmes), efforts must also be directed at making teachers' context more conducive to LCE practice, and towards improving teachers' competencies including their reflectiveness. These will be discussed in more detail in Chapter 8, which proposes a framework for teacher education programmes which aim to change teachers' beliefs and practice. Nothing will guarantee transformation in teachers' practice, but such programmes can at least remove constraints and make it easier for teachers to act in more learner-centred ways.

Chapter 8 – Engaging with Teachers' Beliefs through Teacher Education: Why and How

> Worldviews are crucial in [affecting the shift in pedagogy], but it's not impossible to change. It's just that nobody has addressed it. Nobody has addressed this basic shift in mindset, but it can be done.
>
> – (Interview with educationist, 16/10/10)

In the critical paradigm, research is aimed at disclosing power imbalances operating within social practices, in order to challenge them. In the words of Marx,

> Philosophers have hitherto only interpreted the world in various ways. The point, however, is to change it. (Marx, 1938, Thesis 11)

Critical educational research seeks to help 'liberate human beings from the circumstances that enslave them' (Horkheimer, 1982, p.244). Thus, understanding social phenomena is only one step; the next is to identify pathways for action to address the issues identified, which was a primary motivation for undertaking this research, and which is what this chapter now attempts. The previous 3 chapters have established the centrality of teachers' beliefs in India's attempts at pedagogical reform, and examined causal mechanisms that influence and constrain teachers' practice. This chapter now revists theory in light of the study's findings, in order to discuss implications of these findings for India's efforts to implement learner-centred education more effectively, particularly through teacher education.

I begin by discussing whether we are justified in attempting to change teachers' beliefs as a goal of TE, and some ethical issues involved in this endeavour. Next comes a discussion regarding the possibility of changing teachers' cultural beliefs, especially through TE programmes, and some key levers to target for our change efforts, in light of larger theoretical debates on structure and agency. Drawing from my findings, from teacher beliefs literature and from critical realist theory, I argue that we must target three levels in our efforts at LCE implementation – teachers' beliefs, competencies, and contexts – in order to empower teachers as reflective agents of change. LCE reforms in India have hitherto not attempted to address all three levels. Further, I propose a framework for TE programmes attempting to engage with these three levels, which can be adapted to in-service and pre-service TE. The framework brings together key insights from two theoretical approaches explicitly aimed at transforming adult learners' beliefs and practice, but rarely applied to Indian TE: Transformative Learning and Freirean problem-posing. The final section offers some suggestions of additional systemic action that may be needed alongside TE programmes to address contextual factors that also influence teachers' ability to implement LCE.

8.1 The case for engaging with teachers' beliefs in Teacher Education

This study's findings indicate certain beliefs held by teachers that contradict the assumptions of LCE policy frameworks. However, this raises ethical questions regarding whether we are justified in trying to change these beliefs simply because they may hinder policy implementation – particularly those grounded in ancient cultural traditions. If so, who should determine which beliefs need to change, and which 'desirable' beliefs TE programmes should promote? To what extent should a democratic society encourage 'freedom of belief' among teachers, and does advocating a certain set of beliefs amount to indoctrination?

Kagan (1992) argues that the issue of how one should evaluate teachers' beliefs is largely ignored in the literature, which is mostly descriptive. Studies range from one extreme of asserting teachers' beliefs as individual preferences that cannot be judged on any grounds, to arguing that teachers' beliefs should conform to some recognizable education philosophy or external professional standards – with little theoretical grounds advanced for either position. A decade later, Tatto & Coupland's (2003) review of teacher beliefs literature similarly critiques most studies for failing to offer adequate justification for making beliefs change a focus of TE; in none of the studies reviewed was there serious questioning of the ethics of belief change. They find this problematic in light of the lack of general agreement regarding which beliefs are desirable, and the lack of conclusive evidence connecting beliefs change with improved teaching practice and student learning. This gap persists in recent teacher beliefs literature.

Responding to that gap, the following section presents four reasons why teachers' beliefs should become an important focus of Indian teacher education. I have classified these as the emancipatory argument, the educational argument, the empowerment argument, and the effectiveness argument.

Emancipatory argument

The first and perhaps strongest argument is rooted in a critical realist paradigm. For critical realists, the goal of knowledge production is the transformation of human society, through human emancipation (Bhaskar, 1993). Drawing from its critical theory roots, CR's overall goals centre around 'a commitment to emancipation, a focus on issues of equality and inequality, a questioning of the status quo, and a challenging of ideology' (Wilson & Greenhill, 2004, p.667). CR strives towards an ideal society where all are free to flourish, where the free flourishing of each individual is 'a condition for the free flourishing of all' (Bhaskar, 1993, p.171).

Critical realism further argues that a critique of oppressive structures including 'false beliefs' or ideologies necessitates transformative action to change them. CR's explanatory critique entails a refutation of Hume's Law that one cannot derive value conclusions from factual statements. Bhaskar argues that one can indeed move from an 'is' to an 'ought', so

long as beliefs about a phenomenon being criticised constitute false consciousness or ideology (Shipway, 2011). After identifying the causal mechanisms and structures contributing to false beliefs serving to perpetuate inequality and thwart human emancipation, the logical next step is a critique of these structures, and consequent actions to transform them become both positive and necessary (Archer et al, 1998; Scott, 2010). For Bhaskar, to explain is, by necessity, to criticize:

> Inasmuch as we can explain, i.e. show the (perhaps contingent) necessity for some determinate false consciousness…then the inferences to a negative evaluation of its sources and a positive evaluation of action oriented towards their dissolution are, *ceteris paribus*, mandatory. (Bhaskar, 1998a, p.416)

Once an explanatory critique has been undertaken, 'we have then done as much as science alone can do for society and people. And the point becomes to transform them' (Bhaskar, 1998b, p.65).

CR thus provides a basis for making claims about certain beliefs being more or less 'desirable' than others. This is owing to its core philosophical tenets of ontological realism, epistemological relativism, and judgmental rationality. In other words, although knowledge is socially mediated, we can strive to get an increasingly more accurate understanding of the true nature of reality, and can have stronger or weaker grounds for a particular belief about reality (Bhaskar, 2013a). In particular, CR aims to replace 'depotentialising (disempowering, oppressive) with potentialising (empowering, enhancing) structures' (Bhaskar, 1986, p.142). To liberate entails working to constrain societal ills – i.e. any factor or condition which constrains emancipation, including false beliefs or ideologies – and promoting structures that enhance 'rights, democracies, equities…and potentialities for development' (Bhaskar, 1993, p.278). Thus it becomes the moral obligation of educators to stand against 'false' beliefs perpetuating oppression in Indian society, and promote beliefs supporting greater emancipation of teachers and students.

Teachers' cultural beliefs can thus be analysed in terms of whether they restrict or enhance emancipation and equity in Indian society. As discussed in Chapter 7, many beliefs found in this study are rooted in larger hegemonic ideologies which for centuries have benefited certain (dominant caste) groups while oppressing others. This relates especially to teachers' core beliefs: their ontological view of themselves and others as fundamentally unequal, their epistemological view of learning as knowledge transmission, and their teleological view of the purpose of education as reinforcing rather than transforming social hierarchies. In deciding between LCE vs. non-LCE beliefs, Freire (1970) offers a comprehensive and convincing analysis of how particular pedagogies serve to perpetuate oppression of certain groups. He demonstrates how 'banking' education – which exemplifies much of what LCE is trying to counter – serves to dehumanize students, rob them of the capacity to think and act for themselves, and to indoctrinate citizens to passively accept and adapt to oppressive social conditions. Thus teachers' ideological beliefs end up shaping the

kind of society we create: firstly, by influencing their choice of teaching methods and serving to perpetuate dehumanizing oppressive pedagogies. Secondly, these are also the beliefs that inevitably, even if unintentionally, get transmitted to students – i.e. the hidden curriculum, which determines the oppressive culture that gets reproduced by our schooling system.

Educational argument

A second line of argument for targeting teachers' beliefs relates to central aims and principles of education, and seeking to reflect these in educational practice including TE. Firstly, some argue that the very purpose of education involves the modification and formation of belief systems: challenging students' personal beliefs based on parochial experience, and encouraging them to transform subjective beliefs into more universally-held assumptions grounded on evidence and reason (Fenstermacher, 1979; Green, 1971). Brookfield (2006) views the examination of assumptions as the very essence of 'critical thinking' – increasingly held to be a central goal of education. A critical realist perspective would similarly see the purpose of education as 'facilitating the emergent rationality of students towards emancipation' (Shipway, 2011, p.210). This involves developing open-minded students who engage with diverse opinions, examine their own and others' assumptions, and seek to arrive at the most accurate understanding of reality. Shipway argues that CR's goal of student emancipation would first necessitate the emancipation of teachers and in fact of all those working in the educational structure, including administrators and policymakers. Thus educators must also be empowered through an emancipatory process of reflecting on their own unquestioned beliefs and assumptions, before they can facilitate this process for students.

Moreover, It is inconsistent for TE programmes endorsing learner-centred or constructivist pedagogy to fail to engage with teachers' prior beliefs. A constructivist view of learning holds that creating an effective learning environment requires first engaging with and building upon the knowledge and preconceptions about the world that learners bring with them into the classroom. If TE fails to do this, teachers may fail to fully grasp new concepts, or may revert to their previous positions once they leave the training (Richardson, 1996, 2003; Sanger & Osguthorpe, 2011).

Empowerment argument

A third argument relates to empowering teachers as professionals who can support longer-term sustainability of pedagogical reforms. Most learner-centred reforms in India have thus far targeted teachers' practice without necessarily addressing their beliefs. The Activity-Based Learning (ABL) programme, implemented in Karnataka, Tamil Nadu, and various other states, is an example of a programme that trains teachers to merely comply with a set of external practices though using pre-packaged materials. Teachers fail to engage with and embrace the deeper theoretical foundations and beliefs in which these practices are rooted,

making such programmes less sustainable in the long run. Indeed, many state educational authorities cite teachers' 'mindsets' or 'attitudes' as a key barrier to the successful implementation of ABL (UNICEF, 2012). In states like Tamil Nadu where the programme witnessed a relatively greater degree of success, a large part of this was driven by committed leadership. Following political and leadership changes, a great deal of the programme's momentum was lost, since teachers themselves had not fully internalized the spirit behind ABL (Ibid.). Simply training teachers to comply with external practices treats them as technicians expected to merely follow orders from the top, rather than as professionals who can think and innovate their own context-specific strategies. No training course, however extensive, can ever provide teachers with sufficient techniques to respond to every unforeseen circumstance. Teachers first need to engage with the theoretical and value foundations of approaches like LCE, and develop their own understanding and commitment to these beliefs. This foundation is what then enables them to exercise agency and creativity in devising context-specific solutions which still adhere to LCE principles.

The data in this study showed that four teachers ('external-adopters') were able to implement LCE pedagogy despite having mid-LCE beliefs – driven primarily by their positive disposition towards teaching. However since individuals have free will, one's dispositions are nearly impossible to change from the outside – the will to change must emerge from within. Teacher education programmes will find it difficult to externally create in teachers the needed dispositions and desire to change, but what they can target with some degree of confidence is teachers' beliefs, in which their dispositions are rooted. Building deeper commitment to LCE beliefs can provide the needed motivation for the considerable effort required to upgrade their pedagogical knowledge and skills for successful LCE implementation, turning the change process into one internally driven rather than externally imposed. Ultimately it is this internal conviction that can generate teachers' *will* to adopt training messages – a key ingredient that Dyer et al (2004) found missing in Indian LCE reforms.

Moreover, Doddington & Hilton (2007) point out an important distinction between personal and professional values. Inasmuch as we see teachers as professionals performing a public duty, 'their values that influence practice should not be seen as simply idiosyncratic personal ones, but should be publicly explicit, justified and agreed' (p.xii). To the extent that teachers' beliefs influence their actions, then beliefs held by teachers as professionals should be dictated not by personal preferences or prejudices, but by a wider set of professional norms, based on empirical evidence and wide-scale consensus (Tatto & Coupland, 2003).

Effectiveness argument

A final argument relates to the effectiveness of targeting teachers' beliefs as a strategy towards improving teachers' practice and ultimately student learning. As this study suggests, as well as numerous studies reviewed in Chapter 3, there does appear to be a positive association between teachers' beliefs and practice. Changing teachers' beliefs could

presumably be one step towards changing their practice and ultimately improving student learning – although this link would benefit from further empirical evidence. Stuart & Thurlow (2000) argue that teachers' beliefs cannot remain unexamined when some of them may contribute to the perpetuation of a pedagogical status quo that has proven counterproductive to student learning and development. As mentioned earlier, a few studies have indeed found a correlation between teacher beliefs and students' learning outcomes (e.g. Dubberke et al, 2008 and Staub & Stern, 2002, both cited in Hachfeld et al, 2011). Raths (2001) suggests that certain beliefs such as attributing students' academic failure to external factors like the child's family background may end up limiting the ways in which these students' learning problems are addressed – turning them into 'victims, one might say, of teacher belief systems' (p.2). Sure enough, in their study of 5028 rural Indian primary schools, Kingdon & Rawal (2010) found that General Caste and male teachers have significantly more negative beliefs than SC/ST or female teachers regarding the learning ability and interest of SC/ST and female children. These negative attitudes in turn correlated with significantly lower learning levels for children taught by such teachers. One of their key policy recommendations is the need for training programmes to address such discriminatory attitudes and practices, towards the goal of improving student learning.

The four arguments outlined above should present sufficient grounds for us to agree with the conclusion of Sanger & Osguthorpe (2011):

> …even if we assume that the content of educators' beliefs are far from sufficient for predicting practice, we claim that the explicit discussion of what educators believe, why they hold those beliefs, and the practical implications of the beliefs held, must serve as the primary currency of teacher education. (p.572)

8.2 The possibility of change: Should we target beliefs, practice or structures?

Having established change in teachers' beliefs as an important if not key focus of teacher education, this section explores the question of whether it is even possible to alter beliefs through teacher education, and specifically beliefs shaped by cultural ideologies, which are deeply-rooted and strongly resistant to change. This section considers the first question by examining teacher beliefs literature, and the second by turning to critical realist theory. It explores the implications of these regarding the key leverage points that should be targeted by our change efforts: whether teachers' beliefs, practices, or larger structures.

Targeting beliefs or practice?

The teacher beliefs literature shows a mixed picture regarding whether teachers' beliefs can indeed be changed through TE programmes. As reviewed in Chapter 3, many emphasize that beliefs (particularly those formed in childhood) are strongly resistant to

change, and that belief change during adulthood is rare, often necessitating conversion or a *gestalt* shift (Nespor, 1987; Pajares, 1992). Indeed, some researchers found that many student-teachers' beliefs did not change during TE programmes, leading them to question the very possibility of changing beliefs in one class or even one programme (reviewed in Richardson, 2003). Others argue that change in beliefs follows rather than precedes change in practice: only when teachers try new practices and observe positive impacts on student learning do they begin to change their beliefs (Guskey, 1986; Tillema, 2000). These scholars argue that focusing on influencing teachers' practices rather than on changing their beliefs may be a more fruitful focus for TE.

Conversely, some studies do show evidence of beliefs changing as a result of TE, including several studies reviewed by Cheng et al (2008), Richardson (1996, 2003), and Tatto & Coupland (2003). Such studies identified a variety of factors within TE programmes that tend to contribute to conceptual changes in teachers' beliefs, which are synthesized below under six categories (summarized from Ashton & Gregoire-Gill, 2003; Gardner 2006; Gregoire 2003; Jackson, 2008; Lundeberd & Levin 2003; Richardson, 2003; Tatto & Coupland, 2003; Vacc and Bright, 1999):

1. Linking theory to practice (e.g. observing actual classrooms/videos demonstrating the new approach, opportunities for classroom experimentation)
2. Opportunities for self and group reflection in an emotionally secure environment (e.g. exploring self, encountering alternative views and having to articulate/justify one's own beliefs)
3. Role of emotions (e.g. feelings of need, motivation, dissatisfaction with current situation, inspiration from heroes/role models or stories, perceiving the reform as a challenge rather than threat)
4. How the reform is presented (must be clear, plausible, rhetorically compelling, based on strong theory and research evidence of improved student learning, and adaptable to fit local needs/contexts)
5. Teachers' ability to implement the reform (time, theoretical understanding, skills, confidence/efficacy)
6. Supportive context (e.g. resources, whole-school buy-in, supportive leadership)

Perhaps the question is not *whether* TE can lead to change in teacher beliefs, but what *kinds* of TE processes are more likely to contribute to change in teacher beliefs. Even if many TE programmes do not succeed in changing beliefs, one must examine the ones that do, and glean lessons to inform our efforts. Section 8.1 presented various arguments for why changing teachers' beliefs should be an important focus of TE. At the same time, the research above suggests that focusing on beliefs alone may not be sufficient – it may be equally important to also focus on equipping teachers with the skills and abilities to change their practice, and that both these processes can and should mutually reinforce each other.

Focusing only on beliefs without equipping teachers with practical skills and tools to implement them may lead to frustration, or superficial changes in beliefs which, when confronted with practical challenges, may revert to former beliefs. Beliefs do not exist in a vacuum; it is when teachers are able to implement alternative beliefs in practice that they begin to truly internalize them. Alternatively, simply imparting teaching techniques without an underlying theoretical/beliefs foundation may result in teachers' practice getting filtered through their opposing beliefs and implemented either ineffectually, unsustainably, or not at all. Thus enabling authentic, sustainable change requires targeting both teachers' beliefs and practice.

Targeting beliefs or structures?

The question of the possibility of changing deeply-rooted ideological beliefs leads us to a central sociological debate regarding the relationship between structure and agency, where once again critical realism offers a way forward. Traditional sociological theory has generally been divided between two camps: the Weberian view which sees society as the product of individual agency, and the Durkheimian view which sees structure as determining human agency (Bhaskar, 2013a). In these two views, beliefs are determined almost entirely either by individual teachers' choice, or by larger cultural ideologies. In contrast, Bhaskar's 'transformational model of social activity' (TMSA) offers an alternative to these two extremes, by proposing a dialectical interplay between structure and agency. TMSA views both individual actions and societal structures as irreducible to one another, and mutually dependent on one another (Shipway, 2011).

Within TMSA, society is 'both the condition and outcome of human praxis, while praxis is the (conscious) production and (unconscious) reproduction of society' (Bhaskar, 1989, p.92). Individuals never create structures – the social world is always pre-structured, i.e. humans constantly act in a world of structural constraints and possibilities that they did not produce (Archer et al, 1998). But in the course of acting, individuals are always either reproducing or transforming structures. Herein lies the possibility of change: structures (including cultural ideologies or educational systems) are not static or deterministic. Rather, they are always in a constant process of change or reproduction, and individuals can choose which they wish to contribute to. For the most part change is produced as a result of unconscious action; what Bhaskar advocates is conscious action. We must take responsibility for our actions: social structures will not reproduce themselves without our activity (Bhaskar, 2013b). Thus although teachers' beliefs and practice are shaped by existing cultural ideologies and educational systems, they can also exercise agency in choosing to change their beliefs and practice, and thereby influence these larger structures.

In light of the above, does the locus of change and thus the focus of our change efforts lie at the level of individuals or society? In contrast to Marxism's primary focus on political revolution as necessary for transformation, CR's emancipation is primarily aimed at the individual:

> if we take the goal of human freedom to be human autonomy then what is to be liberated is the concrete *self* so that a genuine self-determination is obtained. (Bhaskar, 1993, p.278)

CR does seek societal change, but through individuals who progressively and cumulatively achieve emancipation and thereby gradually transform structures (Brinkmann, 2014).

In Bhaskar's TMSA, the key for emancipation lies in *conscious awareness*, leading to *rational agency*, i.e. the ability for an agent to act in a rational manner towards emancipation. Human consciousness is what can set individuals on an emancipatory path to freedom (Roberts, 2002): by becoming conscious of one's reasons or causal mechanisms for acting one way or another, one is 'free[d] to act otherwise' (Bhaskar, 1998b, p.114). Thus the starting point for empowering individuals for transformation is to generate conscious awareness of false beliefs that constrain their actions, and to replace 'false' consciousness with individuals' intentional choices. For an individual to act purposefully toward emancipation, one must possess autonomy or self-determination, which involves moving 'from an unwanted and unneeded to a wanted and needed source of determination' (Bhaskar, 1986, p.171).

Bhaskar's TMSA offers a useful model to apply to efforts aimed at tackling teachers' cultural beliefs hindering LCE reforms. Ultimately one cannot force teachers to adopt specific beliefs; the choice to stand against oppressive beliefs must come from within:

> Any attempt to force emancipation from outside is false, it is heteronomous and it will not work. Only individuals themselves can free themselves, emancipation cannot be imposed from without. (Bhaskar, 2012, p.302)

Promoting change in teachers' beliefs can be especially difficult given that deeply-held beliefs are formed early in life. But what TE can do is create an environment where teachers become conscious of 'false' beliefs they may have imbibed, of the kind of practice and society these beliefs are perpetuating, and of the fact that their beliefs and practices are either reproducing or transforming dominant oppressive structures. Teachers can be exposed to other alternatives, begin questioning their own beliefs, and intentionally choose the kind of beliefs they wish to promote through their practice – whether they wish to reproduce or transform oppressive structures. TE can make teachers aware that they have a responsibility to act:

> Whether you like it or not you will be engaged in a process of social change. Either repetition and reproduction or transformation and change. Because everything that happens in society happens only in virtue of intentional agency….You cannot not act. You must act. If you abstain from acting, that too is an action…that is a choice. (Bhaskar, 2012, p.307)

By outlining how individual emancipation can contribute to societal emancipation through the vehicle of rational agency, CR provides a useful framework for targeting teachers' beliefs as a means of ultimately targeting oppressive ideologies in Indian society, and promoting transformation not only in classrooms but ultimately in larger educational and cultural structures as well.

8.3 A model for transformation: Enabling teacher agency by targeting beliefs, practice, *and* structures

Bhaskar's focus on 'rational agency' as key to enabling transformative action, ties back to a key barrier to LCE implementation highlighted by the literature on Indian teachers discussed in Chapter 2 – that of low teacher agency (Batra, 2005; Dyer et al, 2004; Ramachrandran et al, 2008). However most educationists do not clearly define the components of teacher agency, or how this can be concretely achieved. For example, Dyer et al (2004) describe how teachers fail to see themselves as change agents – they do not believe in the possibility of change or their own capacity to effect change. Yet their main recommendation is that 'teacher development programmes need to be able to convince teachers' of this (p.51) – without clearly outlining how. Similarly, GoI's (2010) Bordia Committee report highlights the importance of promoting teacher agency – 'through proper training, setting norms of teacher behaviour, strict monitoring and supervision, and taking exemplary action where norms of behaviour are flouted' (p.29). However these measures seem to be designed more to curtail rather than enhance teacher agency – exemplifying how this notion may be co-opted in government discourse in a manner that thwarts its very objective, if the concept is not properly understood.

Batra has perhaps written the most extensively about teacher agency (2004, 2005, 2006, 2011, 2013), which she identifies as the most serious unaddressed issue in Indian education reform (2006). While she does not offer a single definition of what teacher agency entails, she highlights issues such as the system viewing teachers as passive recipients expected to mindlessly implement predefined content designed elsewhere, and its failure to engage with teachers' socio-political context or imbibed socio-cultural beliefs. In Batra's view, teacher agency involves empowering teachers as 'public transformative intellectuals' guided by critical social perspectives and research-based learning theories, who can think and act independently, resist state ideological pressures, actively engage with social change, and adapt their teaching to local needs to ensure all children learn (2005). Her chief recommendation for enhancing teacher agency is to restructure teacher education to make it a longer-duration, interdisciplinary programme grounded in wider critical academic discourses, citing the B.El.Ed. programme[50] as an example of what this could look like. Key processes she recommends include (2005, 2013):

- dialogical theory-practice interplay (e.g. extended school internship grounded in reflection; generating knowledge based on experience alongside theoretical engagement)
- 'learning spaces' to discuss and reflect on deeper beliefs and social perspectives (on questions of knowledge, education, equity, children's real-life contexts)

[50] The Bachelor of Elementary Education (B.El.Ed.) is an innovative, interdisciplinary, four-year integrated elementary TE programme launched by Delhi University in 1994 under Prof. Batra's leadership.

- Exploring self, human relations and collaborative learning (through drama, poetry, group projects)

While Batra's suggestions offer a useful starting point, they do not explicate a clear, theoretically-grounded process for facilitating belief change. Moreover, she does not provide a comprehensive, usable framework to address other factors needed to enable teacher agency like practical skills and a conducive context.

The findings of this research, and their analysis grounded in teacher beliefs research and critical realist theory, help to build on and extend the above literature by offering a more comprehensive framework for achieving change in teachers' beliefs and practice. CR points to conscious awareness of false beliefs as the foundation for enabling rational agency. But beyond this, Bhaskar goes on to list three criteria necessary to enable individuals to exercise rational agency – to realise their beliefs into action (1993, p.196). One must:

> (α) possess the knowledge[51] to act in one's own real interests (the cognitive requirement);
> (β) be able to access the skill, resources and opportunities to do so (the empowered component); and
> (γ) be disposed to so act (the dispositional or motivational condition).

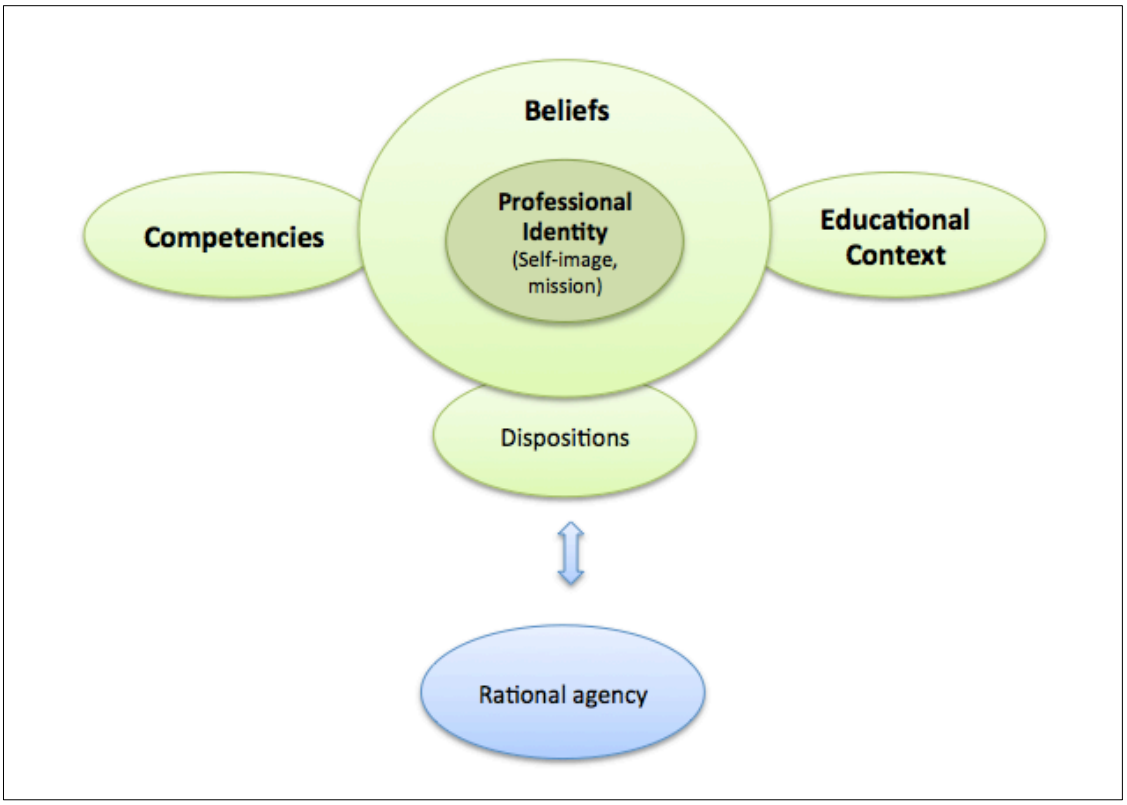
These three criteria match the key factors presented in Chapter 7 as influencing teachers' practice through their interaction with each other: teachers' competencies, context, and their beliefs and dispositions. Just changing teachers' beliefs is not sufficient if the goal is transformed practice – teachers must also possess the professional competencies (knowledge and skills) to be able to implement their new beliefs. Moreover, beliefs and competencies are simply means to an end – what matters is how these are expressed in interaction with teachers' context – how much agency teachers can exercise in influencing their context and acting for change. To enable transformative action, teachers must have imbibed the beliefs which dispose them to new and wanted tendencies (dispositional component), must have the competencies to implement LCE practice (cognitive component), and a conducive context that empowers them with the needed LCE-oriented resources and relationships to be able to exercise agency (empowered component). In Bhaskar's words, 'one will be free just to the extent that one possesses the power, knowledge and disposition to act in one's real interests.' (1993, p.281)

Thus I propose three dimensions which must be addressed to enable teachers' rational agency towards successfully implementing LCE, and to enable them to influence the educational context and ultimately the wider cultural context – shown in Figure 8.1. The concept of 'rational agency', drawn from critical realism, can be seen as parallel to Freire's concept of *praxis*: 'reflection and action upon the world in order to transform it' (1970, p.51). I would expand the concept of teachers' rational agency to include reflection and action both on themselves (their beliefs and practices) and on the world. In the context of LCE

[51] As Shipway (2011) explains, by 'knowledge' Bhaskar means competence or prctical knowledge – knowledge *how* rather than knowledge *that*.

implementation, this implies empowering teachers with the freedom to think and innovate their own strategies for change (based on their transformed, emancipatory beliefs), rather than mindlessly implementing ideas designed by others. To use Lalita's metaphor, this view sees training as a process of liberation – of enabling teachers to think and act for themselves, in order to empower them to work towards students' liberation.

Figure 8.1: Focus areas for teacher education: Enabling teachers' rational agency



Orienting teachers' beliefs, competencies and context towards LCE, can incline teachers' dispositions and ultimately practice towards LCE, by empowering them as rational agents. Hitherto, most LCE reforms in India have targeted, at best, one of these dimensions. They have generally imparted training on LCE principles and techniques, but often without adequately building practical skills, without targeting teachers' beliefs, and without addressing the context in which teachers operate. Unless all three levels are addressed, even teachers with transformed beliefs will be unable to enact these into practice.

The next two sections present a framework for teacher education seeking to address these three dimensions. The final section offers suggestions for some of the contextual factors that need to be addressed alongside TE programmes to empower teachers for LCE implementation. Table 8.1 summarises how my proposed TE framework seeks to address each of the three levels, corresponding to Bhaskar's three conditions for rational agency described earlier. It also shows how the framework simultaneously targets the five key barriers to LCE highlighted in the literature discussed in Chapter 2.

Table 8.1. Levels targeted by proposed teacher education framework

Levels to address	Bhaskar's conditions for rational agency	Transformative Problem-posing TE Framework	LCE Barriers being addressed
1. Beliefs (and thereby dispositions)	Dispositional (motivational)	1. Build democratic relationships 2. Experience the problem: cognitive dissonance & empathy 3. Analyse the roots: critical reflection & dialogue	• Inadequate training • Cultural beliefs
2. Competencies	Cognitive (practical knowledge and skills)	4. Enable creative action: a. Brainstorm and practice doable strategies	• Low teacher agency
3. Educational Context • Resources • Relationships	Empowered (access to required skills, resources and opportunities)	b. Ensure enabling conditions for action	• School environment constraints • Lack of systemic alignment • Low teacher agency

8.4 A framework for transformation: Transformative, Problem-Posing Teacher Education

Although there are a few alternative TE programmes in India attempting to engage with teachers' beliefs (though the majority thus far have not), even these have not generally offered a comprehensive, conceptually-sound framework for bringing change in teachers' beliefs and practice. The same was the case with the educationists interviewed in this study: although some of them hinted at elements that could work or have worked in their own interactions with teachers, they generally did not have a unified framework to offer. We currently do not have available any theoretically-grounded yet pragmatic framework applicable to the context of Indian TE to address the kinds of beliefs highlighted in this study. Towards this end, this section presents a practical, process-oriented model for addressing teachers' beliefs within Indian TE programmes towards a learner-centred paradigm, while also seeking to address teachers' competencies and contexts. This model is based on weaving together two key theoretical approaches that explicitly aim at bringing transformation in adult learners' beliefs and practices: Transformative Learning theory, and Freirean Problem-Posing. These two paradigms, described briefly below, have rarely been interwoven together towards the aim

of addressing teachers' beliefs within TE,[52] and both have rarely been applied systematically to the context of Indian TE.

Transformative Learning

Transformative Learning (TL) has developed in the past three decades in the field of adult education based on the writings of Jack Mezirow (1990, 1991; Mezirow & Associates, 2000), and has been further elaborated by Cranton (2002, 2006), Dirkx (1998), King (2005), Taylor (2006, 2009) and others. TL offers a well fleshed-out, theoretically-grounded paradigm that aims explicitly at enabling adult learners to challenge previously unquestioned beliefs, leading to transformed self-perceptions and action. The process is triggered by people or experiences that challenge one's fundamental worldview assumptions: e.g. resulting from a life crisis, a challenging interaction, an unexpected question, or a carefully-designed classroom experience (Brown, 2004). TL occurs when individuals reflect self-critically on these experiences, become aware of problematic/distorted beliefs, examine their validity through rational discourse, and opt for more open, better justified ways of seeing themselves and the world (Dyson, 2010; Mezirow & Associates, 2000; Taylor, 2009). TL aims at triggering a 'worldview shift' in the paradigms one uses to make sense of the world (Taylor, 1998), aimed at personal transformation towards a more democratic vision of society.

Some central themes of TL are individual experience, critical reflection, dialogue, holistic orientation, awareness of context, and authentic relationships (Brown, 2004; Taylor, 2009). Mezirow presented TL as a 10-stage process, which can be summarized as experiencing a disorienting dilemma, analysing assumptions through critical self-examination and discourse, and preparing for a new course of action. Thereafter various scholars have proposed varied models for facilitating transformative learning, but most follow a trajectory similar to Cranton's (2002):

1. An activating event exposing a discrepancy
2. Articulating underlying assumptions
3. Critical self-reflection of assumptions
4. Openness to alternative viewpoints
5. Engaging in discourse
6. Revising assumptions
7. Acting on revisions

A comparison of various TL models and their common elements are summarised in Appendix-8.1.

[52] I found very few examples of frameworks that explicitly blend Transformative Learning with Freirean Problem-Posing (e.g. Brookfield, 2001; Brown, 2004; Curry-Stevens, 2007), and even fewer applied specifically to TE.

Freirean Problem-posing approach

Freire expounded his theory of transformative education two decades before Mezirow, from his adult literacy work among rural peasants in Brazil. While Mezirow himself was influenced by Freire, Freire's focus was more on societal transformation, in contrast to Mezirow's emphasis on personal transformation. Like Mezirow, Freire also sees critical reflection and dialogue as central to transformative education, but for Freire the focus is enabling *conscientization* – a process whereby learners become critically aware of oppressive social, political or economic forces shaping their society, and the ethical necessity of taking action against them (Freire, 1970). For Freire, the goal of education is creating a more just and equitable society, and reflection only becomes truly critical when it leads to transformative social action against oppressive social practices, ideologies or structures.

To facilitate this process, Freire proposed a problem-posing dialogical approach. Problem-posing[53] challenges the traditional teacher-student hierarchy, transforming students into critical co-investigators in dialogue with the teacher. While Freirean problem-posing is useful in that it targets adult learners' beliefs and also embodies learner-centred principles, thereby presenting a helpful model for the implementation of LCE, it also goes beyond LCE. It is based on a larger vision for social and political transformation aimed at a democratic egalitarian society – perhaps not fully captured by Indian LCE policy, but closer to the vision advocated in India's Constitution. The problem-posing process involves three broad phases (Freire, 1970; Nixon-Ponder, 1995; Shor, 1987; Smith-Maddox & Solórzano, 2002):

(i) *Identify the social problem:* The educator listens to students' informal conversations, identifying issues of deep significance to them. S/he then selects an issue, presents it to students in a codified form (e.g. a dialogue, story, picture), and uses this to initiate a critical dialogue about the problem it represents.

(ii) *Analyse root causes of the problem:* The educator poses inductive questions to abstract the discussion from the concrete to the analytical, encouraging students to define the problem, personalize it, generalize to others, analyse root causes, and understand its underlying socioeconomic, political, cultural and historical roots.

(iii) *Find solutions to the problem:* Students strategize changes they envision based on their reflections, and collectively identify and implement solutions to the problem.

[53] The term used by Freire was 'problematization' (or *problematização* in the original Portuguese). This goes beyond mere problem-solving of barriers to progress in an economicstic way; it involves defamiarizing unjust, taken-for-granted social relationships and posing these as problems to be actively transformed.

Problem-posing thus validates students' own experiences, culture and ideas as legitimate, and empowers them to analyse and act upon their reality, learning to view issues not as givens but as problems that they can work to resolve.

Freire's methodology was originally intended to help oppressed peasants understand how they are victims of oppression and how they can develop action to liberate themselves. In the present model, the goal would be to help teachers understand how their own pedagogy perpetuates ideologies that oppress their students. This complicates what a problem-posing approach may look like for teachers occupying the liminal position of oppressed and oppressors. Teachers may not naturally be motivated to challenge or change their beliefs. Problem-posing teacher education would require more targeted efforts to build the motivation for teachers to act against oppressive cultural beliefs. This may involve showing teachers how they themselves are victims of the same oppressive culture as it plays out in the government educational hierarchy, cultivating empathy among teachers to put themselves in their students' shoes, and helping them reflect how relinquishing their oppressive role can be liberating for them as well.

Distinctive features of a Transformative Problem-Posing approach to Teacher Education

In the quest for a framework for Indian TE seeking to bring changes in teachers' beliefs and practices towards LCE, TL and Problem-posing both offer useful avenues for exploration. Both approaches emphasize similar themes which complement each other well, yet they are able to add to each other. TL offers a coherent, research-based theory and methodology (applied extensively to TE) for facilitating adults in changing beliefs towards personal transformation. In turn, problem-posing broadens this scope from personal to social transformation, seeing the two as interlinked. It offers a stronger power analysis of how individual beliefs are shaped by wider cultural hegemonies, equipping learners with a sense of agency to engage in collective social action towards cultural transformation. This is a focus which TL can benefit from, and which seems better suited to address the ideological beliefs identified in this study.

Moreover, both TL and problem-posing embody many principles of a learner-centred approach, but applied specifically to adult education. This makes them particularly relevant for TE attempting to shift teachers to an LCE paradigm, since teachers must first themselves experience that paradigm before they can successfully implement it. A Transformative Problem-posing approach could illustrate what LCE looks like when applied to TE: an approach that draws upon teachers' prior experiences and beliefs, getting them to reflect critically and arrive at their own answers, within a safe and democratic environment. At the same time, both Mezirow and Freire do not merely prescribe decontextualized teaching techniques – their emphasis is more on an underlying theoretical stance to the world and to

education. Their pedagogical views are based on a certain set of ontological, epistemological, teleological and political beliefs about the teacher-student relationship, the nature of learning, and the purpose of education. In his summary of key elements of TL, Taylor remarks:

> To engage in the application of these core elements without some awareness of a larger theoretical orientation and its underlying purpose is not transformative learning. It is rudderless teaching, with no clear goal or purpose. (2009, p.5)

Similarly, Freire's pedagogy is not aimed merely at facilitating effective learning, but rooted in a firm belief in the ethical necessity of acting against unjust societal relations. This emphasis more on an underlying worldview or theoretical orientation than on specific practices, could also point to a way forward for the implementation of LCE in India – which will be discussed in Chapter 9.

Table 8.2 summarizes some key ways in which a Transformative Problem-Posing Teacher Education (TPTE) approach would differ from current TE approaches predominant in India (as described in Batra, 2013; Dyer, 2004; Singh, 2006), further explained below.

Table 8.2: Current TE vs. Transformative Problem-Posing TE

Current TE	Transformative Problem-Posing TE
The goal is adoption of certain practices	The goal is personal and social transformation
Focuses on imparting knowledge and techniques	Focuses also on examining deeper beliefs and ideologies
Learning content is pre-defined by the textbook/educator, and passed down to learners	Learning is derived from learners reflecting on experience and arriving at own answers
Targets mostly the rational/cognitive domain	Targets the 'whole' person, particularly emotional and spiritual dimensions

1. The goal is personal and social transformation:

As described by Anderson & Anderson (2001),

> Transformation is the radical shift from one state of being to another, so significant it requires a shift of culture, behaviour and mindset…a shift in human awareness that completely alters the way the organization and its people see the world (p.39).

If beliefs change requires a conversion or 'gestalt shift' (Nespor, 1987; Pajares,1992), this inevitably also affects other areas of one's life, often irreversibly, implying tremendous risk and possibly some fear. Going one step further, Freire sees the purpose of education and indeed of being human as social transformation: 'to speak a true word is to transform the world.…To exist humanly is to *name* the world, to change it.*'* (Freire, 1970, p.87). Freire sees liberation not as a purely psychological shift in consciousness, but involving the transformative action of humans on their world, to recreate a more democratic society (Roberts, 2000).

2. Targeting deeper beliefs and ideologies

Transformative Problem-Posing TE targets not only teachers' practice, but also the deeper beliefs in which practices are grounded, as well as the deeper ideologies in which these beliefs are grounded. Ideology critique, rooted in critical theory, involves understanding how power operates in society and works to generate inequality, how certain educational ideas, policies and practices serve the interests of a dominant minority while silencing or dehumanizing the majority, and how one's own beliefs or actions are shaped by ideology and may be perpetuating such inequalities. It seeks to empower individuals to understand oppression in terms of structural/systemic inequalities, and to realize their own power to challenge the status quo and recreate a more just world. The goal is to help educators realize their role and responsibility for creating a more inclusive, democratic society, to identify and reject taken-for-granted beliefs rooted in ideological manipulation, and to consciously choose beliefs and practices based on a commitment to the common good (Brookfield, 2001; Brown, 2004; Curry-Stevens, 2007; Freire, 1970)

3. Centrality of praxis: learners' reflection on experience

Learners' experience serves as the 'starting point and subject matter for transformative learning' (Taylor, 1998, p. 8). This involves grounding learning in learners' prior experiences in both their personal and professional lives. The goal is not to pass down new knowledge or theories like LCE from the 'expert' to the learners, but to enable learners to first experience LCE for themselves, and then reflect on these experiences in order to discover these principles for themselves. This requires faith in learners' own capacity to reason and arrive at answers for themselves. It also involves designing intense experiential activities within the training which can act as triggers for provoking critical reflection.

4. Targeting the 'whole' person, particularly emotional and spiritual dimensions

A TPTE approach involves a holistic orientation that engages all dimensions of a person's being (affective, intuitive, thinking, imaginative, physical, spiritual), by using diverse methodologies such as music, art, poetry, story, film, movement, and so forth. While both TL and beliefs change literature initially focused more on cognitive processes, recent scholars have highlighted the equal importance of emotional and spiritual dimensions in motivating beliefs change (Ashton & Gregoire-Gill, 2003; Cranton, 2006; Dirkx, 1998). Research has found that learners rarely change through a rational 'analyse-think-change' process, and are more likely to change through a 'see-feel-change' sequence (Taylor, 2009). Similarly, Curry-Stevens (2007) found that facilitating an ideological shift from inequality to inclusion encompassed a spiritual change: from relations of domination to pursuing right relationships, from self-centredness to a concern for the common good, from disengagement to an enacted commitment to social justice:

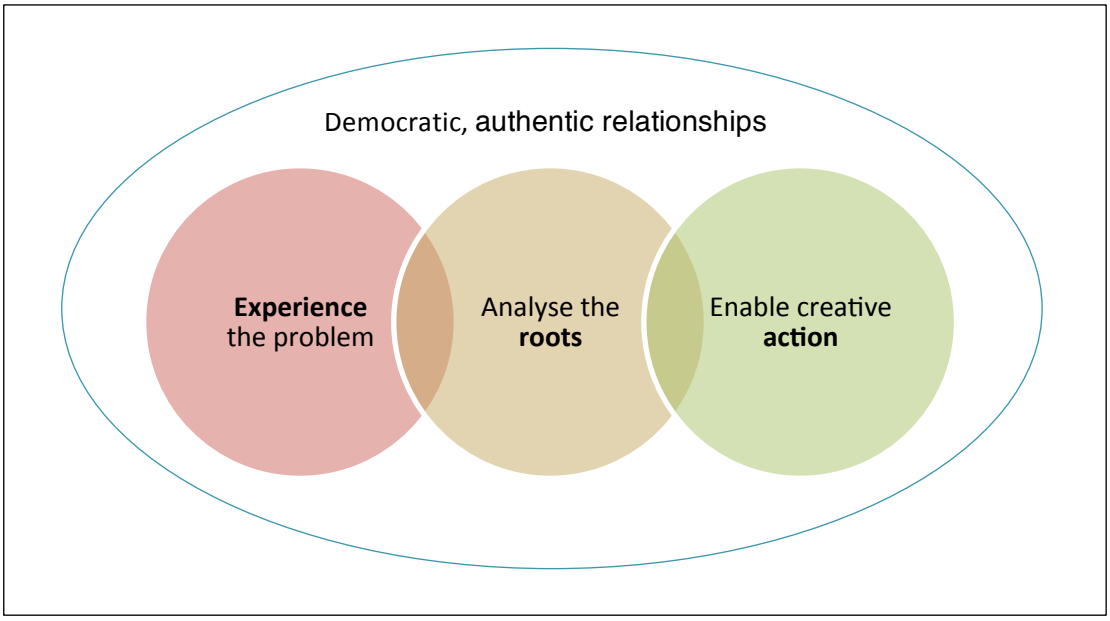
> Deciding to work against relations of domination was understood as a spiritual conversion from an individual orientation to an interdependent connection with concerns for all of humanity…a spiritual awakening that allows learners to expand their circle of compassion while at the same time feeling profoundly interconnected with others. (p.40)

Korthagen (2004) similarly describes a spiritual level of 'mission' or 'interconnectedness' at the core of what drives teachers' identity, beliefs and practice, relating to questions of purpose, calling, personal inspiration or meaning – 'the question of what it is deep inside us that moves us to do what we do' (p.85). The answer to this question could be shaped by religion (as in the case of Priya), or by a mentor (as in Lalita's case), or commitment to ideals such as democracy, peace, or social justice – which may need to be built if not already there. TE that focuses on emotional and spiritual dimensions can foster a sense of empathy and mission, which is ultimately what can trigger and sustain teachers' commitment to marginalized learners.

8.5 Process: Four stages of facilitating Transformative Problem-Posing Teacher Education

Having outlined the theoretical foundations of a framework for Transformative Problem-Posing TE, this section presents a suggestive model of how such a journey could be facilitated (see Figure 8.2), with examples of specific processes and strategies.

Figure 8.2: Model for Transformative, Problem-Posing Teacher Education



These stages are not necessarily discrete and linear, but interwoven with one another throughout the TE process. The four stages reflect my own synthesis of various models of belief change arising from TL, Freirean, and beliefs change literature, as demonstrated in

Appendix-8.1. At the same time, one must remember that no particular teaching method can guarantee that transformation will take place. One must decide for oneself to undergo this shift in consciousness – it cannot be done to another (Cranton, 2002; Dyson, 2010). Change is a personal choice and individuals may choose to adhere to anti-democratic values. But ultimately the value lies not only in the outcomes but in the process itself: even if teachers do not change exactly in the ways in which we expect them to, there is still value in teachers engaging meaningfully in this process of reflection. Moreover, it is not likely that a single TE workshop or programme will result in complete transformation. But what a transformative educator can do is set the stage and provide the environment and conditions that are likely to initiate a transformative learning journey.

1. Build democratic relationships: Nurture an authentic, learner-centred environment

Paliwal & Subramanian, after years of working with Indian teachers, found that 'it is the democratisation of the training process that holds the key to change in beliefs and attitudes' (cited in Batra, 2005, p.4352). Most teachers would have experienced the same hierarchical relationships in their training programmes that characterize most Indian classrooms. Allowing them to experience radically different democratic relationships where their contexts, expectations, experiences and insights are both invited and valued, can itself be a transformative experience. Such experiences can powerfully impact teachers' ontological beliefs of valuing themselves and others as equal, valuing democratic relationships, and learning to value their own and others' uniqueness. Freire's approach is premised on a democratic, dialogical relationship between educator and learners, founded on shared power, mutual trust, respect, humility and love. He disrupts the traditional teacher-student hierarchy:

> The teacher is no longer merely the-one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach. They become jointly responsible for a process in which all grow. (Freire, 1970, p.80)

A democratic classroom is one where opinions or decisions are not merely asserted as fact but constantly negotiated through dialogue and consensus, where learners' different agendas and interests are respected, and their curiosity encouraged (Freire, 1998).

TL literature also highlights the necessity of nurturing authentic, meaningful relationships for fostering TL (Cranton, 2006). It is through building trusting relationships that one develops the confidence to cope with the threatening and emotionally-charged experience of questioning one's foundational beliefs. Such trust is needed to engage in the honest, open, questioning dialogue necessary for in-depth reflection. The transformative educator must thus take time for well-crafted team-bonding activities in order to develop these support networks within the group. This is also an important part of empowering motivation, confidence and self-esteem – all necessary conditions for embarking on a transformative journey (King & Wright, 2003). For TL to occur, the group must be small enough and the emotional environment must

feel inclusive and safe enough for all learners to feel comfortable to open up, share honestly and question their beliefs. An authentic educator must have strong self-awareness, awareness of the learners' needs and interests, and a genuine concern for the learners' betterment (Cranton, 2002). They require willingness to be open and genuine about their own experiences and feelings, and courage to invite learners to question or even disagree with what they say – rarely done in Indian classrooms.

2. Experience the problem: Design experiences to raise cognitive dissonance and empathy

A transformative journey often begins with a trigger – some kind of engaging experience or 'disorienting dilemma' that raises awareness of a problem and of one's problematic beliefs (Mezirow & Associates, 2000). This experience must usually target both cognitive and affective domains, to create a feeling of dissatisfaction with the current reality, and initiate the motivation for seeking change. It must enable one's current beliefs to be revealed, as well as one's emotional attachment to these beliefs (Tillema, 1997) – which then becomes the basis for further discussion.

Cognitive dissonance occurs through some activating event that challenges one's existing assumptions or violates one's expectations, by confronting someone with a different perspective which cannot be assimilated into their existing worldview. This raises awareness of one's previously sub-subconscious assumptions, which may now prove unsatisfactory in making sense of this new experience or information, and this can trigger a process of belief change in order to restore equilibrium (Gregoire, 2003; Pajares, 1992). Below are examples of strategies that can help trigger cognitive dissonance and help unearth teachers' assumptions (Cranton 2002, 2006; Lauriala, 1997; Nixon-Ponder, 1995; Raths, 2001; Richardson, 1996):

- Analysing problem-posing 'codes' taken from teachers'/children's lives (dialogues, skits, newspaper/magazine clippings, pictures, cartoons), to identify an existing problem (e.g. low learning, discrimination in schools)
- Encountering new information: research evidence, case studies, documentaries (e.g. about children's experiences or capabilities)
- Encountering a different viewpoint: critical debates, games, discussing controversial statements/readings, films, novels, stories
- Seeing familiar things from a different perspective: student autobiographies, reflecting on past schooling/teaching experiences, metaphor analysis
- Confronting own assumptions: presenting teachers with videos of their teaching, or transcriptions of their interviews with their assumptions highlighted
- Realizing children's capabilities: observing children, analysing children's work, experimenting activities with children

Activating events must also engage teachers' emotions, especially if confronting deep-rooted beliefs and prejudices shared across communities. Overcoming beliefs such as inequality, hierarchy, low work ethic, and instilling a sense of purpose and mission for social transformation, requires creating empathy – enabling teachers to put themselves in marginalized learners' shoes. This can help generate the deeper calling, love and commitment for marginalized children needed to motivate teachers for change and to deepen their professional commitment. Educators must help teachers personalize the problem, relate it to their own lives and experiences, and nurture an internal desire for change (Nixon-Ponder, 1995). Some strategies that can help facilitate this include:

- Inspiring a vision for change: showing examples of innovative classrooms, inspiring quotes, inspiring teachers or role models (through videos, stories, real-life examples, personal narratives)
- Creating empathy with victims of oppression: films, stories, novels, poems, songs, journaling, art, imagination, sharing own stories of discrimination
- Venturing into the world of marginalized learners: visiting children's communities; videos, interviews or writings where children speak of their experiences

3. Analyse the roots: Facilitate critical reflection and dialogue to examine assumptions and ideologies, leading to new commitments

TL, Problem-Posing, and beliefs change literature all emphasize critical reflection and dialogue as central to the process of transformation. The educator's role is crucial in debriefing with thought-provoking questions that help learners reflect on the above disorienting experience, their reactions and feelings toward it. This may raise awareness of some contradiction among one's thoughts, feelings, and actions. Critical reflection involves identifying and articulating one's previously taken-for-granted assumptions, evaluating their sources, consequences, accuracy and validity in light of new knowledge or experience, and considering alternative perspectives. (Brookfield, 2006; Cranton, 2006; Jackson, 2008). As discussed, this should also involve unpacking how one's assumptions have been shaped by dominant cultural ideologies, and how these may contribute to unjust power relations.

Dialogue provides opportunities for learners to exchange opinions and ideas, receive support and encouragement, seriously engage with diverse perspectives, and recognize the 'shared' nature of their experience (Cranton, 2006; Griswold, 2007). Among teachers of diverse backgrounds, dialogue can enable teachers to hear and empathize with personal stories of oppression from other teachers. Dialogue allows teachers to participate in a vibrant learning community similar to the one we hope they will recreate in their own learner-centred classrooms (Prawat, 1992). According to Lunderberd & Levin (2003, p.39), teachers' beliefs can be changed through pedagogy that offers opportunities for 'collaboration, choice, communication, community, constructivism, understanding multiple perspectives, and anchored instruction.' Mezirow (1991) and Cranton (2002) suggest certain optimal conditions

for constructive discourse, such as having accurate and complete information, ensuring equal opportunity for all to participate, freedom from coercion or self-deception, and accepting knowledge based on informed consensus rather than on authority.

Reflective dialogue is ultimately aimed towards reframing one's assumptions which had hitherto been uncritically accepted as common-sense wisdom, into a logically-consistent, coherent worldview that one intentionally chooses to adopt (Jackson, 2008). This involves making a conscious choice about what beliefs and values one wishes to stand for, and voicing new or renewed commitments towards certain values and to practices consistent with these values. For example, in the case of the beliefs outlined in this study, it would necessitate committing to working for the cause of marginalized children, based on values of equality, democratic relationships, and professional commitment. Voicing public commitments and tentative new beliefs before peers can help solidify and prepare them for action (Tillema, 1997).

Below are examples of strategies to facilitate the above (Ashton & Gregoire-Gill, 2003; Brookfield, 1995; Cranton, 2002; Lundeberd & Levin 2003; Raths 2001):

- Root cause analysis: Encourage learners to dig deeper to root causes of problems identified, including dominant ideologies, socio-economic factors, and so on.
- Reflective writing: journaling, life histories, writing educational autobiographies
- Reflecting on practice: reviewing values and significant experiences; examining inconsistencies between vision/values and practice; analysing teaching strengths; critical incidents (share about a best/worst past experience, and others help analyse underlying assumptions); examining teaching scenarios through different theoretical lenses
- Research: examining research evidence, conducting own research/ action research
- Dialogue: critical questioning, debates, having to convince others of one's position, guided discussions, group brainstorming, case studies, problem-based learning, dialogue journals (which get passed around, with each adding an idea in response to others)
- 'Trying on' alternative viewpoints: visualization exercises, role-play, writing/ speaking/debating from a perspective opposite to one's own
- Creating an environment where critical reflection is a group norm: Educator models critical reflection, questions own statements, and encourages learners to do the same

4. Enable creative action: Brainstorm and practice doable strategies, and ensure enabling conditions for action

Real beliefs change once new ideas are translated into action. Thus the final stage is to help learners set goals for action, and to build the needed competencies, confidence, collaborative networks and conducive conditions to enable them to implement incremental changes. The educator encourages learners to search for solutions themselves to the problems identified, through group brainstorming and consensus on new paths of action which

are achievable and within their power. This could include practical strategies to implement their new beliefs and address real-life issues in their classrooms, schools, personal lives, or communities. The goal is to empower teachers as agents of change, to help them realize they have the answers to their own problems (Nixon-Ponder, 1995). This can simultaneously help tackle teachers' view of themselves as consumers of knowledge transmitted by others, and help them learn to value a process of constructing knowledge – which they are then able to replicate in their classrooms.

To enable transformed action, training must equip teachers with the competencies (knowledge and skills) and confidence they require to implement new practices. This can be facilitated by providing ample opportunities for practical demonstrations and for learners to practice new skills during the training itself with adequate support and feedback from the educator and peers. Examples include videos or visits to innovative classrooms, simulations, microteaching with peer feedback, or real-world experiential learning projects (Cranton, 2002). According to Guskey (1986), training is most effective in changing teachers' beliefs and practice when it offers concrete, practical teaching ideas, directly linked to teachers' contexts and curriculum, presented in a clear and explicit way, and leading to direct improvement in students' learning outcomes. Moreover one should not expect teachers to implement major changes all at once, but incremental small steps that do not involve too much disruption or extra work (Fullan, 1985). It is important that the training spend large amounts of time reflecting on existing environments and work cultures, and listing doable steps that teachers can begin implementing immediately within existing structures – otherwise the training is likely to result in apathy (Ramachandran, 1998). Teachers' confidence is built and their new beliefs reinforced once they experience a small taste of success, or once they see evidence of positive impact on students' learning. This can be facilitated by encouraging teachers to undertake action research, collecting students' feedback, or establishing mechanisms for teachers to receive regular feedback on learning improvements.

Finally, as discussed, teachers' ability to implement transformed beliefs is closely dependent on the existence of supportive conditions for learner-centred practice – thus these should be addressed to the extent possible by the training (though this may be limited). One step can be to create learning communities or peer support networks of training participants who will meet regularly post-training to offer support, discuss successes and challenges, and brainstorm solutions together. Where possible trainers themselves (or school leaders or more experienced teachers) should provide ongoing follow-up and on-site coaching to teachers in their schools, especially during the initial experimentation period. Another crucial requirement is a conducive school environment and school culture. This appears to be one gap in some of the TL literature (e.g. Mezirow, 1990), which tends to assume that critical reflection itself will result in changed beliefs which will in turn lead to changed practice. These authors do not sufficiently account for the enabling conditions needed for teachers to be able to implement progressive beliefs and thereby change their beliefs *and* practice. Ideally the school leader(s)

should also attend the training programme and together brainstorm with teachers what institutional changes will be needed (e.g. in school culture, structures, timetables, resources, etc.) to support transformed practice within a learner-centred paradigm. This in itself would be a way of breaking down existing hierarchies and promote more democratic relationships between the school leader and teachers, which is needed for LCE.

Since not all the necessary conditions may be possible to address within the TE programme, the next section briefly discusses what systemic interventions outside of TE may be required as part of LCE reforms, in order to support successful LCE implementation.

8.6 Addressing educational context

This research does not assume naively that teacher education by itself will be able to transform the pedagogy of Indian teachers. As identified in Chapter 7, there are various factors related to teachers' education context that shape teachers' beliefs, and constrain teachers' beliefs from being enacted into practice. Much has been written in this thesis and elsewhere about the systemic and school-level issues that hamper government teachers' practice, so not much time will be spent discussing these here, since this is not the focus of the present research. Many of the physical conditions needed to support LCE are already covered in the Right to Education Act. Working towards healthy implementation of the Act will go a long way to putting into place some minimum structural requirements needed to support LCE practice.

Two areas that repeatedly came up in the research as impinging on teachers' practice relate to resources and relationships, both at a school level and systemic level. In terms of resources, many of the teachers in Bihar and some in Maharashtra found it difficult to work in the existing conditions, particularly given the large class sizes, inadequate classroom space or materials, insufficient number of teachers or even of classrooms in some cases. Several schools in Bihar and some in Maharashtra were in quite poor physical condition. LCE works well with small class sizes, adequate space and learning materials, and curricula and textbooks supportive of LCE. Many of the teachers in this study also mentioned being overburdened by non-teaching duties or administrative work that hampered them from being able to focus on students.

Perhaps even more important than resources is that the professional relationships surrounding teachers need to be aligned to LCE and should reinforce rather than contradict the training messages. Administrators, teacher educators and school inspectors must themselves have internalised and practise principles of LCE in their relationships with teachers. Many of the teacher trainers interviewed and surveyed in this study had beliefs that were not that different from teachers' beliefs, and were still far from being aligned with LCE. Trainers' mean survey scores, presented in Appendix-8.2, were not significantly higher than teachers' for most survey scales, except for Scales 5-Purpose and 6-Responsibility for

Outcomes. Facilitating the kind of transformative processes described above would perhaps be as important for trainers and administrators as for teachers. SSA has already set up many of the structures to enable teachers to grow professionally in the implementation of LCE, including monthly opportunities to meet and collaborate with other teachers, and regular on-site support from trainers who observe and give constructive feedback and suggestions to teachers. These systems seemed to be working as intended in Kerala, but seemed rather ineffective in Bihar and Maharashtra. Perhaps a key reason why these systems have not been successfully utilised thus far in most parts of the country relate more to belief and relational dimensions which have not been addressed alongside setting the structures and systems in place.

Conclusions

This research draws on several new frameworks which have rarely before been applied to Indian TE: teacher beliefs literature, critical realism, transformative learning, and Freirean Problem-posing. By applying these lenses to an analysis of Indian pedagogical reform, this chapter began by offering four arguments why teachers' beliefs should become a central focus of TE programmes. It also pointed to other factors in addition to beliefs that must be targeted to enable teachers to enact LCE beliefs. It offered a model for three levels that must be targeted – teachers' personal beliefs, professional competencies, and educational context – in order to empower teachers as reflective agents who can bring about ongoing changes in their own beliefs, practices, and contexts. The chapter offered a practical process-driven framework for TE programmes attempting to target these three levels, while also suggesting some additional measures outside TE needed to address contextual factors.

Through the above analysis, this chapter responds to the literature reviewed in Chapter 2 on key barriers to LCE implementation in India, and particularly low teacher agency as a key unaddressed barrier impeding Indian educational reform, offering a concrete model for enhancing teacher agency. It also speaks to the larger global literature on international LCE reforms. Schweisfurth (2013) points out that successful LCE implementation requires a model of 'extended' teacher professionalism that nurtures teachers' own commitment, motivation and professional autonomy rather than being enforced top-down by external accountability systems. In this regard, she aptly argues that the emancipatory narrative of LCE has focused on learner emancipation without an adequate discussion of teacher emancipation. By utilising a critical realist lens, this chapter has addressed this critique and expanded the discussion on LCE, showing how targeting teachers' beliefs within TE programmes can be a starting point for promoting teacher professional agency, teacher emancipation and ultimately wider cultural transformation.

Ch 9 – Implications: A Way Forward for Indian and International Education

> You won't get very far if you try to go from A to L; but at least we can try to go from A to C.
>
> – (Interview with educationist, 12/03/10)

To revist the Parker Palmer quote from the opening of this thesis, 'good teaching cannot be reduced to technique; good teaching comes from the identity and integrity of the teacher' (1998, p.10). In other words, as this thesis has argued, pedagogy is rooted in the beliefs and dispositions of a teacher, and any attempt at pedagogical reform must engage with this inner world of the teacher. The study began with the question of whether certain beliefs held by Indian teachers conflict with the learner-centred assumptions of policy frameworks. Findings showed several such beliefs: particularly, beliefs in humans as unequal, learning as knowledge transmission, and the purpose of education as material progress, which contribute to valuing hierarchical relationships, uniformity, tradition, low responsibility for outcomes, and low professional commitment. Next, the study explored how these beliefs relate to teachers' practice, and what factors shape teachers' beliefs. It found a strong correlation between teachers' beliefs and practice even when controlling for other factors: teachers who have more LCE-oriented beliefs also tend to be more LCE-oriented in their practice. However, the relationship between teachers' beliefs and practice is a complex one. Teachers' beliefs are strongly shaped by dominant ideology, and whether or not teachers enact their beliefs into practice depends on their professional competencies and educational context. Shifting teachers' pedagogy towards an LCE paradigm thus requires targeting teachers' beliefs, as well as their professional competencies and educational context – in order to empower teachers as rational agents who can bring ongoing changes in their own beliefs, practices, and contexts. Finally, drawing on Transformative Learning theory and Freirean problem-posing methodology, the thesis offers a practical framework for teacher educators seeking to bring changes in teachers' beliefs and practice.

The study's findings have confirmed the hypothesis laid out in Chapter 1 based on Alexander (2001) and Schweisfurth (2013): pedagogy (and, specifically, learner-centred education) cannot be reduced merely to a set of practices, but is inextricably embedded in an accompanying bedrock of beliefs. Attempts at pedagogical change must orient teachers' beliefs and dispositions towards learner-centred principles. This concluding chapter turns to the implications of this argument: for conceptualizing LCE in an Indian context, for pedagogical reform efforts in India, for LCE reform efforts around the globe, and for teacher education research and practice in India and abroad. It ends by pointing to some limitations of this study and some areas for further research.

9.1 Way forward for LCE in India

This study confirms that there are cultural and systemic constraints hindering LCE's wider adoption in India. According to the data, only a minority of teachers surveyed have adopted LCE in their beliefs and practice. At the same time, the presence of transformational teachers in this study – including one in Bihar, and many in Kerala – offers hope that LCE can indeed happen in an Indian government school context, and in fact is already happening. Moreover, transitional teachers, motivated-traditionals and external-adopters force us to look beyond discrete categories of learner-centred vs. teacher-centred teachers – there are in fact many teachers who have begun to adopt elements of LCE beliefs and practice, even if these are mixed with some non-LCE elements. In various parts of India – including Kerala, Bihar and Maharashtra – there are individual teachers who incorporate elements of LCE in both their beliefs and practice.

Chapter 1 asked a central question raised by global critiques of LCE: whether LCE is a Western ideal that is being hegemonically imposed on non-Western cultures. Chapter 7 has argued that in India, aspects of 'traditional Indian culture' that may conflict with LCE, are themselves hegemonic ideological imposition by a powerful upper-caste minority on India's oppressed majority population. Indigenous culture beliefs cannot be blindly condoned – they must themselves be critically examined for the function they perform in that society, and whether they privilege certain groups while oppressing others.

We are left with the question of whether there is still a basis for promoting LCE in India. This question becomes easier to answer if one separates learner-centred beliefs from learner-centred practice. If we look at the eight learner-centred beliefs identified in this study, we find them quite closely aligned to the worldview advocated by the Indian Constitution in its Preamble, which summarizes the core values upheld by the nation of India. India's Constitution enshrines an emancipatory worldview that sees all humans as equal, that values people's freedom to think and speak for themselves, that aims to work for a more just and egalitarian society, and that values working together to serve the collective good and promote individuals' dignity. Table 9.1 depicts how these values align with learner-centred beliefs. In contrast, India's realities starkly contradict the ideals and values posited in its Constitution. Education presents one key channel to take India from 'what is' to 'what should be'.

Table 9.1: Alignment of 8 LCE beliefs with Indian Constitutional values

Indian Constitutional Values	Worldview dimension	Learner-centred beliefs
Equality of status and opportunity	Ontology	1-Equality 3-Diversity
Liberty of thought, expression, belief, faith and worship	Epistemology	4-Learning through knowledge construction, critical thinking

Justice, social, economic and political	Teleology	8-Valuing change; 5-Purpose of education as societal transformation – towards a more just, egalitarian society
Fraternity assuring the dignity of the individual and the unity and integrity of the Nation	Axiology	2-Democratic relationships; 6-Duty as ensuring learning – i.e. serving students' needs 7-High professional commitment

Further, many of the practices identified in this study go against children's Constitutionally-guaranteed rights. RTE 2009 guarantees every Indian child the right to learn in a child-friendly learning environment that reflects Constitutional values of equality and justice; an environment free from fear, discrimination, corporal punishment or mental harassment. If certain beliefs impede teachers in providing this kind of learning environment, it becomes of fundamental importance that such beliefs be successfully identified and challenged – indeed this should become a central goal of teacher education.

Alternative ideologies have historically arisen from within India, in critical resistance to dominant Brahmanical ideologies, that do promote more egalitarian values. As Mani reminds us:

> Egalitarianism is neither alien to India nor the gift of the West. Common people everywhere have a tradition of aspiring to build an egalitarian world. (2015, p.56)

Mani identifies various critical, non-hierarchical strands that arose within India to challenge the Brahmanic version of caste and culture – including Buddhism, the movement of subaltern *sant*-poets[54], Sufism, and Sikhism. This legacy was carried forward in modern India by social reformers like Phule, Ambedkar, Periyar, and many groups fighting today for an egalitarian India. Of these, Phule presents perhaps the clearest vision of education founded on these egalitarian ideals – a vision that bears much resonance with LCE. For Phule, the first step to creating a more just Indian society was to break the strongold of Brahmanical ideology. And the key to this lay in a form of learner-centred education that fostered what he termed *tritya ratna* or the 'third eye' – the critical competence to see through hegemonic ideology, in order to be able to dismantle it (Mani, 2005). He saw critical education as precisely the tool by which to change some of these Brahmanical cultural beliefs: Phule 'wanted to use knowledge as a weapon to bring about an attitudinal change leading to a kind of cultural revolution' (Ibid., p.271). Phule saw education as 'the key to a fundamental change in social attitudes' (O'Hanlon, 1985, p.119). From this lens, there exists a reciprocal relationship between culture and pedagogy: non-democratic cultural beliefs shape dominant pedagogy, but a change in pedagogy can itself prompt a change in these prevailing social attitudes – in fact this can be

[54] The *Sant Mat* movement arose in India around the 13th century, focused on an inward, loving devotion to a divine principle, and social egalitarianism opposed to divisions based on caste or religion (Woodhead, 2001).

seen as a central purpose of education. Shifting to a deeper notion of LCE, that focuses not only on promoting external practices but also underlying learner-centred beliefs, may be one way of tackling the discrimination still rampant in Indian schools, and of promoting a more inclusive education system and society.

While LCE beliefs in themselves may find resonance with many Indian sources, that does not necessarily mean that LCE practice would look exactly the same in India as in other countries. Research suggests that culture shapes not only how teachers teach, but also how students learn (Alexander, 2001). Centuries-old traditions may mean that in an Indian classroom context, a combination of teacher-directed and student-directed learning strategies may be more effective. Thus it is not merely an issue of Indian teachers' beliefs presenting barriers to effective teaching and learning; pedagogical strategies themselves must be appropriate to the cultural context, which perhaps has also been missing in India's current LCE reforms. The learner-centred movements that have arisen within India itself, discussed in Chapter 2, perhaps present the continuing thread around which future LCE and TE efforts in India can be woven.

Moreover, the practical constraints described in Chapter 2 and seen in some of the classrooms in this study may make it difficult to implement a 'Western' model of LCE in classrooms with high pupil-teacher ratios, limited classroom space or resources, or lack of systemic alignment around LCE. This raises the question of whether there can be a version of LCE that could work even in the present-day context, rather than waiting until all these problems are addressed before LCE can work. The ideals of NCF 2005, though admirable, are perhaps unrealistic to achieve in the current classroom scenario, which is one possible reason contributing to its meagre implementation on the ground, as pointed out by one of the educationists I interviewed:

> We shouldn't assume that everything that's there [in NCF 2005] is relatable today in that form to a teacher in a state…If there's only a handful of people in the country who can give a convincing exposition of this idea with examples, then maybe we're chasing a model for which we're not ready yet. (Interview with educationist, 28/12/12)

It may be helpful to present some interim steps that teachers can begin implementing even within their current classrooms. Chapter 6 pointed to a few key LCE practices that were most seen among teachers with more learner-centred beliefs, and which may be a starting point for introducing LCE in an Indian context: for teachers to create an inclusive atmosphere where every student feels valued, getting students cognitively engaged by building on what they are naturally interested in, and getting students to participate actively by sharing what they already know and asking lots of questions. These practices do not necessarily require great amounts of teaching resources and could potentially be pursued even in large classes. Perhaps these are a few starting points that teachers can begin incorporating even in present conditions.

Ultimately, instead of imposing a fixed, predefined (often 'Western') model of LCE practice, perhaps LCE needs to be reinvented in each new context. Instead of SSA trainings

focusing on changing Indian teachers' practice along pre-identified indicators of what LCE is 'supposed' to look like (designed by someone far removed from their actual context), training could focus on instilling key beliefs that are conducive to LCE, and allow teachers themselves to experiment what LCE should like within their context. This research has identified certain key learner-centred beliefs that are central to LCE efforts, presenting a possible focus for LCE-oriented TE programmes. These include beliefs about equality, purpose, and knowledge: teachers must learn to value each child and their potential equally (especially poor/low-caste children), develop a sense of mission or calling towards their work as teachers, and begin to see learning as a process of constructing knowledge.

One cannot force teachers to adopt these beliefs, but one can through teacher education create an environment where teachers become aware of their existing (and potentially oppressive) beliefs, can begin to question these beliefs, and choose what kind of beliefs they wish to stand for. Arriving at a model of LCE appropriate for India may involve Indian teachers themselves working from their transformed beliefs, and experimenting to see what practices best promote successful learning and emancipation of marginalised learners within their context – which may look different in different contexts. Such a process would certainly take much longer than getting teachers to adopt external practices without a deeper belief foundation. But it is what is needed if the goal is to build reflective practitioners who can exercise professional agency in reflectively adjusting their practice according to their context; and if pedagogical reforms are to be sustainable.

9.2 Recommendations for LCE reforms in India

This research has thrown light on a hitherto relatively unexplored barrier to pedagogical reform in India: that of cultural beliefs. However, it has also highlighted several other important dimensions besides teachers' beliefs that must be addressed by pedagogical reform efforts, to enable learner-centred beliefs to be enacted into learner-centred practice. First, teachers must be equipped with the competencies needed to implement LCE – particularly in terms of conceptual understanding, skills, and reflectiveness. Many of the teachers in this study had a very narrow conception of LCE, which seemed to involve more 'active teaching' than 'active learning'. Teachers' understanding of LCE was similar to what Dyer observed in DPEP training programmes:

> Much training time is devoted to learning songs or poems or making teaching aids, often as ends in themselves rather than as a means to improving children's learning (Dyer et al, 2004, p.206).

Equipping teachers with the theoretical belief foundation on which these practices are founded, may go a long way towards helping them understand the purpose behind using these techniques, and how to use them effectively as a means of improving children's learning.

Similarly, teachers' disposition towards teaching was another key factor identified as affecting teachers' practice – their attitudes and motivation towards their work and students. Many have pointed to teachers' low motivation levels as a key problem besetting the government education system in India. Ramchandran goes so far as to state that 'teacher motivation is, indeed, a national issue' (Ramachandran, 2009, p.144), which she discusses in depth elsewhere (Ramachandran et al, 2005). Yet there are few concrete suggestions offered for how this central issue can be addressed. If, as this research suggests, teachers' dispositions are indeed rooted in their beliefs, then perhaps addressing teachers' beliefs through the processes described in Chapter 8 could be one way of indirectly addressing the issue of teacher motivation (while not ignoring the necessity of simultaneously addressing systemic factors that have been pointed out as hampering teachers' motivation). Teachers who value the opportunity to teach marginalised children and see it as a calling to contribute to societal transformation, are much more likely to be motivated in their work and to be positively disposed to it. Additionally, teachers who are highly motivated are much more likely to put in the extra effort required for LCE – for lesson preparations, for upgrading their knowledge and skills, and for meeting the other demands of this new paradigm.

Findings also showed that teachers' educational context must be conducive to LCE. LCE requires a basic amount of resources in terms of sufficient teachers, classrooms, materials, as well as curricula, textbooks and examination systems to be aligned to LCE. But perhaps even more importantly, it requires that relationships reflect LCE beliefs at every level of the system. Teachers will not internalize LCE beliefs unless they themselves have experienced these kind of relationships. Infusing LCE beliefs in the way teachers themselves are treated, would mean treating them as equals with respect and dignity, valuing teachers' individuality and diversity, giving them freedom to think for themselves and contribute their own ideas – something rarely seen in how the government educational bureaucracy relates to teachers. As stated in NCF 2005 itself, 'as much as the learner requires space, freedom, flexibility, and respect, the teacher also requires the same.' (p.98)

Moreover, findings showed that one of the most powerful factors that helped transform teachers' beliefs was the role played by mentors and role models – whether teacher educators or school principals. The metaphors evoked by Lalita's story described in Chapter 7, could serve as powerful metaphors for teacher education in India: of the teacher educator as a coach, and training as a process of liberation. As a coach, a teacher educator would believe in the potential of each teacher, affirm them until they began to believe in themselves, expose them to new ideas and model the new approach with them, engage them in dialogue to help them think for themselves, and challenge them to try new things. Training would be seen as a process of liberation, of scaffolding teachers until they feel free to think and act for themselves. However, it is not likely that either teacher educators or principals will be able to facilitate the kind of transformative, problem-posing processes described in the previous chapter, unless they themselves have experienced such a process. Much educational investment in India has

focused on improving infrastructure and other physical aspects of education. Yet if the goal is improving learning processes and learning outcomes, then equal if not greater investment should be made towards facilitating such transformative processes for teacher educators and school principals, in order to enable them to carry this to teachers.

Finally, this study has found that most teachers do not fall into discrete categories of either 'learner-centred' or 'teacher-centred'. Many teachers in this study had a mix of LCE and non-LCE elements in their beliefs and/or practice. This provides us a starting point on which to build. Rather than rejecting all of teachers' existing practice and beliefs as needing to be replaced by 'modern' pedagogies, we can seek to identify elements in teachers' existing practice and beliefs which are already learner-centred, and build on those. This resonates with Schweisfurth's call for a more 'hopeful and holistic' version of LCE, that builds on existing pedagogical traditions and deeply-held cultural beliefs, rather than attempting in vain to replace them (2013, p.154). Similarly, we can identify elements in teachers' existing beliefs which can be used constructively in building towards a clearer articulation of learner-centred beliefs. For example, teachers' strong emphasis on completing their duty can be affirmed, yet their view of duty shifted from completing the syllabus to helping each child flourish. The high value placed on knowledge can be affirmed, yet the view of knowledge shifted from transmission to construction. One can affirm the high respect accorded to teachers in Indian society, yet shift teachers' understanding of respect as something to be mutually accorded to both teachers and students, moving closer to Freire's notion of authority rather than authoritarianism. Teachers' valuing of tradition can be built on by looking back to the various thinkers in Indian history who have argued for a more egalitarian society, democratic student-teacher relationships and learner-centred pedagogies.

In a similar vein, Chapter 8 pointed out that learner-centred programmes such as the Activity-Based Learning (ABL) programme have mostly targeted teachers' practice without explicitly engaging with their beliefs, which has compromised its long-term sustainability. Yet that does not mean such programmes should be entirely replaced. ABL embodies many of the learner-centred practices described in NCF 2005 and summarized in this study, involving a variety of learning materials, students' active participation, students' cognitive engagement, a fear-free and democratic environment, and continuous formative assessment. What may be useful is to see how ABL can be built upon to further strengthen areas that may have been less of an explicit focus: for example, ways to strengthen teachers' autonomy, professional identity, creativity, and self-efficacy, or ways to equip teachers with a stronger cognitive foundation of learner-centred beliefs. Similarly, certain dimensions of learner-centred practice could be focused on more explicitly, such as holistic learning outcomes (including skills and attitudes), community linkages, drawing out students' prior knowledge and experiences, or encouraging critical questioning by students. This points to a useful area for further research: the extent to which ABL programmes have thus far had impact in changing teachers' beliefs

(thereby supporting the hypothesis that changing practice may be one way of changing beliefs), and to explore ways to strengthen the dimensions highlighted above.

9.3 LCE in the global context

The findings of this research have important implications for the international literature on global LCE efforts discussed in Chapter 1. Firstly, they remind us how embedded pedagogical practices are in deeper cultural beliefs, and caution us against simply attempting to 'borrow' educational best practices from one context, expecting them to work as is in a vastly different context. In proposing new pedagogical models like LCE in non-Western contexts, we must first examine how these models will interact with existing cultural beliefs, and identify dominant cultural beliefs that may conflict with the assumptions of LCE. At the same time, prevailing cultural beliefs cannot be embraced uncritically, but must also be examined – ideally by subaltern scholars from within that culture – in terms of whose interests they are serving, and which beliefs may prove oppressive to certain groups within that society. This research suggests that in India, dominant cultural beliefs that contradict with LCE are in fact rooted in oppressive dominant ideologies, while LCE beliefs are indeed aligned with India's Constitutional values as well as critical narratives emerging from sub-altern, oppressed groups within India. Thus neither indigenous cultural beliefs nor LCE should be uncritically embraced or rejected – as LCE critics like Tabulawa (2003) seem to tend towards.

The question remains of whether and how LCE should be promoted in non-Western contexts. As mentioned, we still lack a strong body of rigorous evaluations to demonstrate whether learner-centred approaches directly correlate with improved learning outcomes. Existing studies show a conflicting picture, and some countries with high levels of academic achievement do rely on non-LCE pedagogies. Thus if the only goal is high learning outcomes, then there is not yet a conclusive case for adopting learner-centred approaches. However what this study points to is the question of human rights and wider aims of education. Perhaps the question of learning outcomes is not the only question worth asking. If one believes that the purpose of education is to promote a more just society where every person has equal status and opportunities, freedom to think for themselves and to express themselves, then LCE approaches are indeed more oriented to these beliefs. The case for promoting LCE may lie beyond a narrow view of learning outcomes, and relate to the values held by a nation. It may come down to a question of what is being learnt, and whether investment in such learning is the highest good. Moreover, teachers themselves generally say that students learn better with LCE approaches, and that both they and their students enjoy learning more with LCE. No teacher in this study expressed a desire to return to traditional methods – every teacher spoke of LCE as better than earlier approaches. Some presumably may have said this because they felt this was the 'correct' answer, but others clearly spoke from a deep conviction – like Lalita

who considers it her 'life mission' to convince teachers and society about critical, learner-centred education.

As argued above, perhaps a more appropriate focus for international LCE interventions would be to focus on LCE beliefs above LCE practices. This would involve first identifying the assumptions of LCE and how these relate to international human rights and national goals; to identify what cultural beliefs may conflict with these LCE assumptions and whether these cultural beliefs themselves are oppressive and should be challenged. From there, LCE programmes could focus first on facilitating teachers through a process of questioning their current beliefs and choosing whether they wish to adopt more learner-centred beliefs, and only then helping them with the theoretical understanding and pedagogical skills needed to evolve their own strategies to support their learner-centred beliefs. If teachers themselves are committed to values of equality, to ensuring that every child learns, and see learning as knowledge consruction through critical dialogue, then they themselves are best equipped to determine what specific strategies would best support democratic learning in their context and with their students.

O'Sullivan (2004) makes a useful suggestion in this regard of moving beyond binaries of 'learner-centred' versus 'teacher-centred' education, to '*learning*-centred' education. Rather than training teachers to comply with a set of external 'learner-centred' practices, it is more important that teachers themselves develop a commitment to a core set of learner-centred beliefs, based on which they can then bring changes in their practice in alignment with these beliefs. Rather than promoting a fixed, 'Western' model of LCE, LCE must be re-invented in each new context, constructed from within rather than imposed from without. Alexander (2001) critiques India's DPEP training programmes for imposing child-centred techniques devised by external 'experts', treating 'good practice' as an absolute. He argues that 'good practice is nearly always a compromise', involving a dynamic process of 'diagnosing the strengths and weaknesses of practice in relation to learning processes and outcomes' (2001, p.49). This harks back to the transformative problem-posing model of teacher education propsed in Chapter 8 – both Mezirow and Freire emphasise certain ontological, teleological and epistemological beliefs, rather than decontextualized techniques. Roberts' comments on Freirean critical pedagogy aptly express this idea:

> If it is an approach or an orientation toward human beings and the world with which we are dealing, then specific 'how to' questions can only be addressed in context. That is to say, the best methods in one situation may not be the best methods in another. Teachers not only must take into account the social and political context within which learning occurs but also the experiences and existing forms of knowledge among participants. (Roberts, 2000, p.68, 70)

Thus learner-centred beliefs can provide a framework of parameters within which teachers can make contextual decisions about what *learning*-centred education looks like in their context – based on learner-centred principles and a theoretical understanding of how children learn. Schweisfurth (2013) insightfully warns of the dangers of too loose a

conceptualisation of LCE which can allow for anything to be called LCE. She proposes some basic principles of learning as minimum standards to provide a broad frame within which LCE can be adapted to local contexts. These parameters are similar to the LCE practices defined in this study, relating to cognitive engagement, respectful relationships, building on students' prior knowledge, dialogue, relevance to students' lives, holistic outcomes, and individualised, holistic assessment. While Schweisfurth provides a useful starting framework, this research extends her work by providing a more elaborated picture of the foundational beliefs on which these practices rest, and arguing for LCE efforts to focus as much on these foundational beliefs as on their associated learning principles.

9.4 Contributions to teacher education research

A final domain for which this study has important implications is that of teacher education research and practice. Firstly, this research corroborates the teacher beliefs literature in terms of the importance of engaging with teachers' beliefs in any effort to influence teachers' practice. It extends the teacher beliefs discourse by throwing further light onto the still ambiguous relationship between teachers' beliefs and practice. While this study finds a strong relationship between teachers' beliefs and practice, it identifies several other factors that influence this relationship – particularly, teachers' professional identity, dispositions, competencies, and educational context – and proposes a conceptual model to depict the relationship between these constructs. In this way it opens up and defines more clearly new areas of focus for teacher education programmes attempting to influence teachers' practice. Moreover, this study is unique in exploring how teachers' wider worldview beliefs influence their practice, examining broader cultural patterns in these beliefs, as well as ideological forces that preserve their prevalence – which few other studies have done. Finally, few studies looked at teacher beliefs in non-Western contexts, particularly in India, so this study opens up new areas warranting further research.

The study also makes several conceptual and methodological contributions to research on teacher beliefs and teacher education. It offers a new analytical framework through which to understand Indian teachers' pedagogy and the limited success of attempts to change it. A critical realist lens has rarely, if ever, been used either in research on Indian education, or on teacher beliefs globally. As this study demonstrates, critical realism provides a useful lens through which to analyse the role of teachers' beliefs as a causal mechanism underlying teachers' pedagogy. Moreover, this study proposes a mixed methods paradigm as a useful methodological frame to study teachers' beliefs and practice, affording in-depth insights into teachers' worldviews, while still enabling us to make larger comparisons across different contexts, and come to conclusions with wider applicability. The strength of this study lies in its depth of analysis despite a smaller sample, affording preliminary insights into the

relationship between these two constructs. Besides eliciting empirical evidence on this question, the study also sets up a theoretical framework, drawing from several theoretical fields, which is then tested both quantitatively and qualitatively. The study thus provides a possible framework for future research in this area, particularly in the Indian context. This study also proposes new, fairly reliable tools that can be further trialled, developed and used for studying teachers' beliefs and pedagogy in an Indian context, and specifically, for assessing the extent of teachers' learner-centred beliefs and learner-centred practice.

In terms of teacher education in India, it is hoped that providing a more complex, theoretically-grounded, culturally-rooted account of Indian teachers' pedagogy, can contribute towards more nuanced, creative strategies aimed at improving it. The study offers several empirically and theoretically grounded arguments for why teachers' beliefs should become a central focus of Indian teacher education. In fact, a focus on building this deeper cognitive foundation for teachers' practice may necessitate a shift in thinking among educational policymakers from 'teacher training' to 'teacher education', as per the distinction made by Peters (1967) highlighted in Chapter 1. The focus would need to be particularly on teachers' beliefs about children's equal value and potential, learning as knowledge construction, and purpose of education as social transformation, as well as strengthening teachers' professional identity – including beliefs about themselves (self-worth, self-efficacy), and about their life purpose (instilling a sense of mission). It is assumed that changing the above beliefs would also contribute to changes in teachers' dispositions, which are rooted in beliefs, but this assumption would benefit from further research. The goal of this process is to empower teachers as rational agents, able to continually reflect and bring changes to their own practice, with the goal of working towards greater emancipation of themselves and their students.

This research draws on several new frameworks which have rarely before been applied to Indian teacher education: teacher beliefs literature, critical realism, transformative learning, and Freirean problem-posing. By combining these approaches, it offers a new framework for Indian teacher educators seeking to engage with teachers' beliefs. The study also offers a more concrete picture of what is included in the concept of teacher agency, and what practical steps can be taken to strengthen teachers' rational agency, which addresses an important gap in the literature on Indian teachers. Moreover, it highlights another important dimension of teachers' rational agency that has been little addressed in the literature: that of teachers' professional identity. This study identifies two important dimensions of teachers' professional identity: their self image (i.e. their self-worth and self-efficacy beliefs), and a sense of mission (a larger sense of calling associated with their role as a teacher).

The focus areas proposed for Indian teacher education described in chapter 8 (teachers' beliefs rooted in identity, their competencies, and context) are broadly in alignment with the areas of focus recommended by Korthagen (2004) in his 'onion model' shown in Chapter 3. Korthagen proposes a framework for holistic teacher education focusing on the

following levels of change all of which influence teachers' behaviour: mission, identity, beliefs, competencies, and environment. However the categories used by Korthagen are somewhat nebulous, which this study attempts to bring into sharper focus. For example, Korthagen views 'competencies' as including knowledge, skills and attitudes – whereas this study separates attitudes (or dispositions) as closer to beliefs and separate from competencies. While Korthagen sees mission and identity as separate from teachers' beliefs, this study sees them as a part of beliefs. Moreover, Korthagen presents a rather general notion of beliefs that influence teachers' practice, such as beliefs about teaching and learning. This research extends Korthagen's work by providing a more nuanced and complex view of what is included in teachers' beliefs, specifically identifying key worldview beliefs that strongly shape the rest of teachers' beliefs and ultimately their practice.

The next question is how the recommendations emerging from this research can be taken forward in Indian teacher education, specifically for government teachers. One challenge lies in this study's finding that teachers' beliefs are often reflective of wider dominant ideologies that also shape the beliefs of teacher trainers and likely others in the system. Perhaps one possibility could be to identify teacher educators within the system whose beliefs *have* been transformed, for which this study offers potential tools, and involving them in facilitating transformative experiences for other teacher trainers and ultimately for teachers. Another possible avenue could be to identify teacher training programmes across the country, either in the NGO or government sector, that have sought to engage with teachers' beliefs in some way, and to build upon these experiences. Two such programmes specifically in the government sector that emerged in the course of this research are *Rupantar,* which sought to challenge teachers' attitudes towards tribal children in the state of Orissa (OPEPA, 1997), and *Mahila Samakhya,* which sought to empower women and combat discriminatory gender attitudes in several Indian states (Ramachandran, 1998). It would be worthwhile to analyse such programmes to build further upon their lessons, and to gain further insight into how the theoretical approaches highlighted in this study can be adapted within an Indian context. The transformative, problem-posing framework proposed in Chapter 8 may help provide a theoretically-grounded frame through which to analyse and build upon such experiences. The scarcity of examples of TE programmes in India that have successfully challenged teachers' beliefs makes it difficult to ascertain what kinds of TE processes will prove most efficacious for promoting change in teachers' beliefs. But successful examples from other contexts suggest that such changes are indeed possible, and the present research has argued that teachers' beliefs is too important an issue *not* to address.

9.5 Limitations, validity and future directions

Limitations and validity of the present study

Notwithstanding its contributions, this study has several limitations which impact upon its validity. Some of the methodological challenges have already been discussed in Chapters 3 and 4, including the challenge of obtaining 'true' responses, the possibility that participants' classroom behaviour and responses were influenced by perceived expectations from the researcher, and issues of language and translation. The research rests on the assumption that the survey and interview tools are valid instruments to measure the specified beliefs, and would yield consistent responses over time, though there may be a range of beliefs and nuances that were not adequately captured by these tools. A similar challenge lies in attempts to objectively assess the extent of teachers' learner-centred practice, since LCE is equally about the nature of values and classroom relationships which may be difficult to assess by an outsider unfamiliar with the context (Schweisfurth, 2013).

If this study were to be repeated, controlling for additional teacher background variables would generate useful insights for policy, in terms of the impact on teachers' beliefs and practices of the type of trainings attended, subjects taught, employment status (contract vs. permanent teachers), length of teaching career, and so on. Finally, the sample in this study is insufficiently large or heterogeneous to be considered representative, and the findings cannot be generalized to the entire population of teachers in the three states. However, small samples can still help us generate theory and learnings that can prove useful in other contexts, despite the uniqueness of each context. This study offers a plausible explanation of how teachers' beliefs and pedagogy relate to one another, even if not definitely conclusive given the small sample size of this exploratory study.

Notwithstanding the above limitations, attempts were made to maximise the credibility of findings and interpretations. Given the debates between quantitative and qualitative researchers regarding notions of validity and reliability, mixed-methods researchers have proposed using instead the 'bilingual nomenclature' of *legitimation* instead of validity (Onwuegbuzie & Johnson, 2006). Legitimation refers to 'obtaining findings and/or making inferences that are credible, trustworthy, dependable, transferable, and/or confirmable' (p.52). Various measures described above have been taken to maximize legitimation of this study: a carefully-considered research and instrument design, logical sampling rationale, honesty in recording data, and faithfulness to participants' own representations which was enhanced by audio-recordings. Moreover, the mixed methods employed at various research stages enabled richness and depth of data, while the cyclical critical realist analysis strengthened triangulation, verification and credibility of analytical conclusions.

Suggestions for further research

This research suggests several fruitful areas for further investigation. Teachers' beliefs and their role in Indian education have been relatively unexplored and would be useful to examine with larger samples and in other contexts within India, for which this study's methodology and tools may offer a starting point. Since the study utilises several frameworks that are relatively new to the Indian education discourse, each of them would warrant further exploration in an Indian context: critical realism, transformative learning, and Freirean problem-posing. It would be interesting to look also at other beliefs that teachers hold that may influence their practice that were beyond the scope of this study, such as beliefs relating to self-efficacy, or to specific subjects of study. In terms of learner-centred education, it would be interesting to explore the extent to which learner-centred programmes in India such as Activity-Based Learning have impacted teachers' beliefs, and the consequences thereof. Another useful avenue for research would be to explore links between specific teacher beliefs, learner-centred pedagogy, and desirable student outcomes – not only cognitive learning outcomes but also broader skills and attitudes. Such research would be especially useful in order to help persuade educational stakeholders of the need to focus on teacher beliefs within TE.

In the interviews with educators there were a few small-scale teacher training workshops mentioned that had attempted to engage with teachers' beliefs to varying extents, although there has been little research on these. It would be useful to document and evaluate these programmes to better understand the nature and success of these interventions. Longitudinal research would likely be better suited to helping us understand what processes are effective in bringing about change in beliefs, and what impact beliefs change might have on teaching practice and on student learning. One useful avenue stemming from this research would be to design TE modules based on the Transformative, Problem-posing TE approach, and run these programmes alongside longitudinal research to track their effectiveness in changing teachers' beliefs and practice. The proposed TE framework is tentative and based more on theory than on empirical evidence of its effectiveness; testing its recommendations and evaluating its effectiveness would generate useful insights for TE in India.

Finally, another area that warrants further research is around constructs highlighted in this study as related to beliefs, namely teachers' professional identity, dispositions, reflectiveness, and rational agency. Further research could help refine our understanding of these constructs, their components, how they can be measured, and what leads them to change. It would be useful to understand more deeply how each of these constructs relates to beliefs, and to what extent changes in beliefs contribute to changes in these dimensions.

Final Conclusions

This critical realist analysis of Indian teachers' pedagogy and the limited success faced by learner-centred reforms in India, has helped throw light on a key missing piece in this discussion: the role played by teachers' beliefs. Teachers' beliefs, particularly worldview beliefs that are ideologically-shaped and thus continually reinforced by the surrounding culture, are a key causal mechanism contributing to teachers' pedagogical practice. As discussed in the opening chapter, learner-centred education is not just about a set of external techniques, but involves a set of practices along with its underlying beliefs about the world, humans, and learners. Any attempt at pedagogical change must engage both the level of practices and the level of beliefs.

Ultimately, the goal is not simply to get teachers to comply with some external standards of 'best pratice' determined by educationists, government agencies or international donors. For educational reform that is sustainable and emancipatory for both teachers and learners in India, the goal is to empower teachers as rational agents, who themselves see their primary purpose as teachers to contribute to their students' learning and liberation, and who understand the purpose behind using different pedagogical strategies at different times in ways that best support this goal. What will truly prove to be 'learner-centred' in each specific Indian context can best be determined by teachers who are committed to learner-centred beliefs, who have the needed understanding and skills to apply a variety of pedagogical strategies as needed, and who work in a supportive context that empowers them as rational agents to make their own decisions. In the words of Paulo Freire:

> The progressive educator must always be moving out on his or her own, continually reinventing me and reinventing what it means to be democratic in his or her own specific cultural and historical context. (Freire, 1997, p. 308)

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Appendices

1.1 Caste and Inequality in India

Caste has been seen as defining the core of social identity and social organization in India (Sahu, 2009). It refers to a system of social stratification based on two central constructs: *varna* and *jati*. *Varna* refers to the division of society, rationalized by Hindu Scriptures, into four castes – Brahmins, Kshatriyas, Vaishyas, and Shudras. Dalits and tribal groups were excluded from the *varna* system altogether, considered outcastes. These broad *varnas* are further subdivided into thousands of *jatis* or sub-communities, considered hereditary, endogamous, and related to certain occupations. The construct of *varna* and its subsequent evolution into numerous *jatis* became part not only of Brahmanical society where it originated, but was eventually informally practised even among other religious communities like Muslims, Christians, Buddhists, Jains and Sikhs.

The origins of the caste system can be traced back to ancient Hindu Vedic scriptures. The *Rig Veda* (around 1500 BC) presents a creation story in which humans emerged from *Purusa* (the Divine Being), with the Brahmins born from his mouth (keepers of sacred knowledge and rituals), the Kshatriyas from his arms (warriors and protectors), the Vaishyas from his thighs (traders and cattle-rearers), and the Shudras from his feet (menial labour). Dalits had no place in this religio-social scheme, and were relegated to performing polluted or polluting tasks such as sewage disposal, tanning of hides, removal of refuse or carrion (Prasant & Kapoor, 2010; Sahu, 2009). Other Hindu Scriptures such as the *Upanishads*, the *Ramayana*, the *Mahabharat* and the *Puranas* refer to Dalits as dogs, swine, monkeys or demons, describing how Brahmins were divinely entitled to insult, beat, and enslave Shudras (Mani, 2015). The *Manusmriti* (c. 200 AD) further elaborates various hierarchies premised on *varna,* gender and age, providing a theological basis for caste and untouchability based on pollution-purity divides, for example to justify restrictions regarding sharing wells, sharing eating utensils, freedom of movement/access, or caste inter-marriage (Gupta, 2000). The rules outlined in *Manusmriti* were seen as both descriptive and prescriptive, commanding into being an elaborately stratified social order which has since become entrenched in Indian society.

Following its ideological roots, the caste system further developed in Indian society based on various historical, economic and political factors. Brahmins had gained hegemonic status by the end of the first millennium AD, owing to their monopoly of Sanskrit knowledge and religious texts, their role as the legitimizers of

political authority, and their control of rural resources through land grants (Mani, 2015). Caste divisions were preserved if not deepened by medieval Muslim rulers and the British colonial regime in the 18-20th centuries. British rulers made caste groupings the basis for classification in census surveys, and a central mechanism of administration, granting senior appointments only to upper castes. (Dirks, 2001). After social unrest during the 1920s, the colonial regime changed this policy and initiated affirmative action through reservation of a percentage of government jobs for the lower castes. After Indian Independence, discrimination against lower castes was formally outlawed in the Indian Constitution. Many laws and programs have been enacted to improve the socio-economic conditions of lower castes, including reservation of seats in government institutions particularly for Dalits (termed 'Scheduled Castes' – SCs), Adivasis or indigenous tribal groups ('Scheduled Tribes' or STs), and Shudras (termed 'Other Backward Classes' or OBCs). Together these three social group (termed 'Backward Classes') – SCs, STs and OBCs – constitute 71 percent of India's population (UNDP, 2011).

However despite these measures, caste-based exclusion and discrimination remains rampant in Indian society. The National Human Rights Commission 2004-05 report noted that more than half a century after India's Constitution came into effect, SCs and STs continue to face social injustice, exploitation, atrocities and humiliation. However, attempts by certain Dalit organizations to combat such caste-based practices on global platforms as human rights violations have been met with the following controversial response from the Indian government: "there is no need to apply external human rights mechanisms to what is essentially seen to be within the realm of cultural practice" (UN Committee on the Elimination of Racial Discrimination, in Prasant & Kapoor, 2010, p.195).

3.1 Major categories of teacher beliefs studied in recent decades

Belief domains	Beliefs about:	Examples of studies
1.Pedagogical beliefs	• the nature of learning & curriculum • purpose of teaching, which student outcomes are most important • teacher's role, effective instructional strategies, classroom management • factors contributing to student and teacher success	Chan & Elliott, 2004; Cronin-Jones 1991 (in Ogan-Bekiroglu & Akkoc, 2009); Hachfeld et al, 2011; Mahmood, 2007; Ogan-Bekiroglu and Akkoc, 2009; Prawat, 1992; Rennie 1989 (in Kagan 1992); Roehrig & Kruse, 2005
2.Epistemo-logical beliefs	• nature of knowledge and knowing • the source of knowledge (authority vs. individual reason/ experience; transmitted vs. constructed; children as blank slates) • certainty of knowledge (absolute vs. evolving) • structure and organisation of knowledge (compartmentalised vs. integrated) • nature of intelligence and learning ability (static/ fixed at birth vs. incremental/ influenced by environment & experience) • speed of learning (quick or not at all, vs. gradual process)	Buehl & Fives, 2009; Chan & Elliott, 2004; Kang, 2008; Mansour, 2013; Ozkal et al, 2009; Schraw & Olafson, 2008.
3.Democratic beliefs	• equality, justice, freedom • valuing uniformity over diversity; viewing difference as 'deficit' vs. 'opportunity' • seeing children from minority/ low-income backgrounds as less capable of learning, lower IQ, higher behavioural problems • student-teacher relationships: democratic vs. hierarchical; degree of personal commitment and care	Almog, 2005; Brousseau & Freeman, 1988; Delpit, 1995, Dweck, 2002 and Martin, 2004 (in Woolfolk Hoy, Davis & Pape, 2006); Olson, 1981 (in Munby, 1984); Rokeach, 1960; Selvi, 2006; Tatto, 1996.
4.Beliefs about self and work	• efficacy • self-efficacy • self-esteem or self-image • professional identity • motivation for entering the teaching profession	Ashton & Webb, 1986 (in Kagan, 1992); Bandura, 1986 (in Pajares, 1992); Deemer, 2004; Guskey, 1988; Korthagen, 2004; Smylie 1988; Tschannen-Moran et al, 1998 and Ross, 1998 (in Woolfolk Hoy et al, 2006)
5.Subject-specific beliefs	• the value, purpose and nature of that subject • knowledge of subject matter content • pedagogical content knowledge (how students learn that subject, what and how to teach and assess) • self-confidence, attitude and enjoyment towards the subject	*Language*: Basturkmen, 2012; Borg, 2006; Gu, 2010; Lorduy et al, 2009; Richardson et al, 1991. *Mathematics*: Ernest, 1989; Stipek et al, 2001; Wilkins, 2008. *Science*: Brickhouse, 1990; Bryan, 2003; Hashweh, 1996; Levitt, 2002; Mahmood, 2007. *Social Science*: Cantu, 2001

4.1 Research instruments

1. Survey Questionnaire

Age:_____Gender:_____ Qualifications:_____ Class Taught:_____

Home-town: _____Mother-tongue: _____ Religion_____
Caste:_____
Collective Family monthly income:
__Below Rs. 5000 __Rs. 5-15,000 __Rs. 15-30,000 __Above Rs. 30,000

Instructions: Please read the following statements carefully and **circle** the number that best describes your view:
1 = Strongly disagree. 2 = Disagree. 3 = Neutral. 4 = Agree. 5 = Strongly agree

		Strongly Disagree				**Strongly Agree**
1.	All students are capable of learning challenging content	1	2	3	4	5
2.	If a teacher tries to become 'friends' with the students, they will stop respecting him/her	1	2	3	4	5
3.	Memorizing information is the quickest and most effective way of learning	1	2	3	4	5
4.	Using threats is a good way to get children to pay attention and learn	1	2	3	4	5
5.	The most important reason to go to school is to do well so that you can get a good job	1	2	3	4	5
6.	To be a good teacher, I need to be in the classroom whenever my students are there	1	2	3	4	5
7.	Only children of the same age should study together in the same class	1	2	3	4	5
8.	Covering the syllabus is the teacher's most important duty	1	2	3	4	5
9.	Each person has several lives in which to try to succeed	1	2	3	4	5
10.	Our responsibility is to accept the way things are, not to try and change things	1	2	3	4	5
11.	The gender of the student can predict how well the student will fair	1	2	3	4	5
12.	A teacher should not befriend students and must keep his/her distance	1	2	3	4	5
13.	Children learn best by trying things out on their own	1	2	3	4	5
14.	A teacher's primary duty is to help students do well in the exams	1	2	3	4	5
15.	If I could get a higher paying job, I would stop being a teacher	1	2	3	4	5
16.	My duty towards my family is more important than my duty towards my students	1	2	3	4	5
17.	All children can be taught with the same method	1	2	3	4	5
18.	When a child is repeatedly getting low marks, it usually means the child is not working hard enough or that the child is a 'slow learner'	1	2	3	4	5
19.	One's lot in this life is a result of one's karma from previous births					
20.	We should follow the paths of our ancestors instead of trying to create new	1	2	3	4	5

		Strongly Disagree				Strongly Agree
	paths					
21.	Boys are able to do better in their studies than girls	1	2	3	4	5
22.	Activity-based learning makes the teacher lose her authority or control of the class	1	2	3	4	5
23.	Most questions only have one right answer	1	2	3	4	5
24.	The best way to tell how good a school is, is by looking at their examination results	1	2	3	4	5
25.	I often share my teaching materials or ideas with other teachers in the school	1	2	3	4	5
26.	If my students are not learning, I feel ashamed that I did not do my job well	1	2	3	4	5
27.	It's better when children learn at the same pace as the rest of the class	1	2	3	4	5
28.	If a teacher wants to complete the syllabus, s/he cannot spend too much time on activities	1	2	3	4	5
29.	Students should remain sitting quietly in the class even if the teacher doesn't show up that day	1	2	3	4	5
30.	It's no use trying to change the education system in our country, because it's too difficult to change	1	2	3	4	5
31.	Every child can learn regardless of his or her social background	1	2	3	4	5
32.	Parents do not need to be involved in deciding about what their children should learn	1	2	3	4	5
33.	Students learn best when they ask a lot of questions instead of mostly listening to the teacher	1	2	3	4	5
34.	The best path is the one that takes least time or least effort, and gets you most ahead	1	2	3	4	5
35.	Realistically, only a few students are capable of succeeding academically	1	2	3	4	5
36.	If I don't do my job as a teacher well, my students' future and their families' future will suffer	1	2	3	4	5
37.	I prefer a class where all the students come from a similar background (eg. language, culture, social status)	1	2	3	4	5
38.	Completing the syllabus in time is more important than whether students apply what they learn to their lives	1	2	3	4	5
39.	It is fine for a teacher to miss classes, as long as she can complete the syllabus during the rest of the working days	1	2	3	4	5
40.	Children should be encouraged to question established traditions	1	2	3	4	5
41.	A good teacher should focus on the 'brightest' students, those who are most likely to succeed academically	1	2	3	4	5
42.	If a student thinks there's something wrong with the class or with the textbook, they should speak up	1	2	3	4	5
43.	Students learn better in an atmosphere of quiet	1	2	3	4	5
44.	Exams results tell us which students are the smartest or the most likely to	1	2	3	4	5

		Strongly Disagree				Strongly Agree
	succeed					
45.	An atmosphere of strong competitiveness is a good way to motivate students to learn	1	2	3	4	5
46.	Schools should be allowed to fire those teachers who are not doing their job well	1	2	3	4	5
47.	I would like my own children to go into one of the more established professions (eg. medicine, engineering, IT, business)	1	2	3	4	5
48.	If a child is not paying attention, it is the teacher's responsibility to make the lesson more interesting	1	2	3	4	5
49.	When students complete their work before the end of the period, they should sit quietly and wait until the end of the period	1	2	3	4	5
50.	Today's children should learn in the same way as the previous generation	1	2	3	4	5
51.	The government's expectation to provide quality education to all students, including those from lower backgrounds, is not realistic	1	2	3	4	5
52.	Giving children lots of freedom to make decisions in the classroom is not good	1	2	3	4	5
53.	Children learn best by listening to an adult explain things	1	2	3	4	5
54.	Helping students do well in their exams is more important than encouraging their curiosity or love of learning	1	2	3	4	5
55.	One of the most important functions of schools is to teach children skills that can help them solve their community's problems	1	2	3	4	5
56.	It's no use trying to be a really good teacher, because we do not get any reward or appreciation for doing a good job	1	2	3	4	5
57.	Different children learn best through different teaching methods	1	2	3	4	5
58.	If my students are not learning, that means that I need to change my teaching methods	1	2	3	4	5
59.	Children with physical disabilities are able to learn the same things as other students, if given enough help	1	2	3	4	5
60.	Students should follow the teacher's instructions without raising any questions	1	2	3	4	5
61.	Giving children time to discuss what they already know about a topic is a necessary part of learning new things	1	2	3	4	5
62.	Students learn better when they are afraid of failing the exams	1	2	3	4	5
63.	A child's caste background affects how well they can learn	1	2	3	4	5
64.	Making lots of mistakes is a valuable way of learning	1	2	3	4	5
65.	The teacher should consult students' opinions when deciding about how to teach a topic	1	2	3	4	5
66.	A silent class is a hardworking class; a noisy class is an undisciplined class	1	2	3	4	5
67.	Letting children discuss with each other is a waste of the class time	1	2	3	4	5
68.	Children from poorer backgrounds are less capable of learning	1	2	3	4	5

		Strongly Disagree				Strongly Agree
69.	The role of the school is to pass on the knowledge that has been passed down through generations	1	2	3	4	5
70.	Children should discuss and put forth their point of view in the presence of adults	1	2	3	4	5
71.	In order to do well, students should give answers exactly as written in the textbook	1	2	3	4	5

2. Teacher interviews:

1. Can you think back to any teacher you've met that you really admire? (Someone who inspires you, or you want to become like them?) What is it that you like about them?

2. Why did you become a teacher? Was it your first choice of career?

3. Think back to when you were in school. Were there any things that you didn't like about your schooling? If you could change anything, what would you change?

4. What kind of relationship do you think a Teacher should have with his/her students?

5. a. Teachers have many duties, can you tell me some of the duties you perform as a teacher?
   b. Of all the duties that teachers perform, what do you think is the most important duty?

6. a. Do you think it's important to send children to school?
   b. Why is it important - what happens if children don't go to school?

7. a. Do you think there are things that children learn outside of school?
   b. What kind of things?
   c. Is there any difference between how they learn things in school, and how they learn outside the school?

8. a. Do you have children?
   b. What would you look for in choosing a school for your own child? Why?
   c. Do you (/would you) send your child to a government school? Why or why not?

9. What would you like your children to be when they grow up?

10. If one of your children came to you and asked what is the most important thing for living a good life, what would you say?

11. Is there any experience or any person that has been a source of inspiration to you?

12. Does religion play any sort of role in your daily life and decision-making? Could you please explain or give examples?

13. a. Why do you think some students do badly?
    b. Do you think there are some students who are just 'slow learners' and simply won't be able to learn?
    c. (If yes), what kind of students are these usually?
    d. What usually happens to these children?

14. a. What kind of backgrounds are most of your students from?
    b. Do you find that affects the way they learn?

15. a. How do you manage to control your class?
    b. What do you do when students start misbehaving? (probe – eg. 'what if that doesn't work'?
    c. What do you mean by 'misbehaving'?

16. a. Giving children freedom – is that good or bad?
    b. Why do you say so? Can you give any examples – of what kind of freedom you should give, and what you should not give?

17. a. Are the parents involved in your school? In what ways?
    b. Do you feel that parents should be more involved in the children's learning? If so, in what ways?
    c. Do you think they should be involved in decisions about what to teach or how to teach?

18. a. Do you think there are any things in our education system that should change, or do you feel it is OK as it is?
    b. Do you think there is any use trying to change it, or is it just too difficult or not possible to change?

19. a. Are you familiar with the new approach to teaching being promoted by SSA? What do you call it?
    b. How would you explain what this is?
    c. Do you feel these methods are more effective in helping students learn, or do they not make a difference? Why?

20. a. Have you tried to use any of these teaching approaches in the last year? Can you give any examples?
    b. Did you face any difficulties in trying to use these methods?

21. a. What are your qualifications? What kind of previous trainings have you attended? How were they?
    b. Was there anything specific in the trainings that you found most useful?

22. Do you have any suggestions for how in-service training programs can be improved or made more useful for you?

23. What is your daily schedule like? What time do you wake up, what do you do before you come to school, how long does it take you to travel, what do you do after you go back, etc?

24. What are the biggest difficulties or problems you face as a teacher? Are there any things that make it difficult for you to teach well?

25. Do you feel you receive enough support and appreciation from your authorities? (either school authorities or government authorities)

26. a. Are there any ways in which you feel you want to improve as a teacher?
    b. If yes, what kind of help or support do you think would help you improve (from the school or from trainers)?

3. Life Narratives:

These were conducted in a more casual, informal setting, if possible during a visit to the teachers' home. Questions were treated as more open-ended, and teachers encouraged to elaborate according to their interest.

Questions for researcher:

Please provide your overall comments and observations on the following:

1. Describe their home environment, socio-economic level, housing
2. Describe their family, family interactions if observed, attitude towards other family members
3. What is their daily commute like?
4. Did you notice any factors that might make it difficult for them in their job/ preparations as teachers?
5. How is their self-esteem? Their self-confidence? Do they seem bold or assertive in expressing their opinions?
6. To what extent do they appear self-aware or self-reflective?

Areas to explore	*Life narrative questions for teachers*
Childhood	1. What was your childhood like? What was the environment in which you grew up like? 2. When you were a child, what did you want to be when you grew up?
Family background/ Current Family	3. What did your parents do? 4. Is there any advice that your parents or teachers used to give you that you remember the most? 5. Did you grow up in a religious family?

	6. Does religion play a role now in your daily life and decision-making? If so, how?
	7. Did you ever question your parents or teachers? Do you feel children should be allowed to question their parents or teachers?
	8. How old were you when you got married? Were you involved in making the decision?
	9. What were you or your parents looking for when deciding on your spouse?
Self-image/ Identity	10. What do you think are your three best qualities?
	11. What about your three worst qualities?
	12. Do you have any hobbies or interests you like to do in your spare time?
	13. Do you have any talents that you're proud of?
What they value	14. What have been the happiest or proudest moments in your life?
	15. What have been some of the biggest frustrations in your life?
	16. If you could change one thing about your life, what would it be?
	17. What do you see as your role or purpose in life? Why do you believe that?
	18. Do you have any dreams or goals that you want to achieve in your life?
	19. If one of your children came to you and asked what is the most important thing for living a good life, what would you say?
Views on work or teaching	20. What are the qualities of a good teacher? Which of these do you think is the most important?
	21. Who or what has most shaped your views about what it means to be a good a teacher?
	22. Have there been any books or any other reading materials that have influenced you?
	23. What part do you like most about your job?
	24. Is there any part about your job you don't like?
Social issues	25. Have you come across any examples of certain teachers getting favours or special treatment from government authorities? How did they get this special treatment?
	26. Have you come across any examples of children being treated differently based on their caste?
	27. Have you personally faced any privileges or prejudices based on caste?
Views on school quality	28. Why do you think the quality in government schools is [sometimes] low?
	29. If you could change one thing about your school, what would it be?

4. Interviews with teacher trainers:

1. a. What kind of duties do you usually do in your job?

   b. Usually how much percent of your time roughly do you spend on each of these activities?

2. What parts do you enjoy the most about your job? Why?
3. What do you feel are the biggest difficulties that you face in your job?
4. What are some of the biggest strengths you see among the teachers you interact with? What are they usually good at?
5. How would you describe the ideal teacher?
6. What do you think are the biggest difficulties or problems government teachers generally face?
7. a. Do you find some teachers have low motivation?

   b. Why do you think usually they have low motivation?

8. In your experience, what motivates teachers to teach their students well?
9. a. How would you describe what is the new approach to teaching (or teaching methods) promoted under SSA?

   b. What do you call this new approach?

10. What has been the reaction of teachers to this new approach?
11. To what extent are teachers implementing the new approach? What percentage of teachers roughly would you say are implementing it?
12. What do you think are some of the main obstacles that may be preventing some teachers from shifting to the new approach?
13. a. Do you feel there are any common mindsets or beliefs that teachers or parents typically hold, that makes it more difficult for them to shift to [activity-based learning]? [*use the same terminology they used]*

    b. Can you give any examples?

14. What do you think are some of the roots of these mindsets that teachers or parents may have?
15. Do you think there are any mindsets that are shaped by social or cultural or religious factors?
16. Based on your experience, what do you think can most help to change teachers' mindsets or attitudes towards [activity-based learning]?
17. What do you feel helped YOU the most to become convinced about activity-based teaching, or to be able to implement more active teaching methods?
18. What kind of training methods have you found to be most effective in helping teachers change?
19. a. What was the best or most effective training workshop(s) that you have ever attended?

    b. What was most effective about these workshops?

20. Do you have any recommendations that you think can help make SSA teacher training programmes more effective in bringing a change in teachers?

5. Interviews with educationists:

The questions below were treated as open-ended questions, adapted according to the person's specific work focus and areas of interest.

1. Do you have any feedback on the research outline I shared with you before this meeting?
2. From your experience of working with teachers, what do you feel are the major factors that may be restricting a shift in teachers' practice towards learner-centred education?
3. To what extent do you think beliefs (or attitudes, cultural mindsets) are an important factor affecting the shift in pedagogy?
4. Can you think of any examples of specific beliefs or mindsets that may be restricting a shift towards more learner-centred education?
5. What do you think are some of the roots of these mindsets or beliefs that teachers hold?
6. Do you think there are any mindsets that are shaped by social or cultural or religious factors?
7. What factors do you think can help to change teachers' beliefs?
8. Have you encountered any progrems that try to address teacher beliefs, or tried to address this in any of the trainings you have been involved with? If so how? Can you give specific examples?
9. What kind of training approaches or methodologies have you found to be most effective in helping teachers change?
10. Can you think of any other innovative training programs that would be worthwhile for us to explore, that have been effective in bringing about a change in teachers' mindsets and/or practice?
11. Do you have any specific recommendations for how in-service teacher training programs under SSA can be improved, for making them more effective in bringing a change in teachers?
12. What are some of the biggest strengths you see among the teachers you interact with? What are they usually good at?
13. Could you please take a look at the attached chart listing some of the key beliefs found thus far in this study that potentially shape teachers' pedagogy. Do you agree or disagree with any of these? Can you think of any other examples we might have left out, of assumptions that may restrict a shift towards learner-centred education?

6. Teacher classroom observations:

Time Tracking Sheet (3 observations of 40 mins each to be completed per teacher)

CATEGORY	RATING	MINUTES								TOTAL	Please Explain (Note evidence, examples, doubts)
		5	10	15	20	25	30	35	40		
Group Interaction	1 Whole class 1 Individual students working alone 3 Student-led presentations (presenting their own material or ideas) 3 Students working in pairs 5 Students discussing & working together in small groups (3 or more)										Lesson context/topic: Overview of activity in each slot: 5- 10- 15- 20- 25- 30- 35- 40-
Teacher's Role	0 Off-task (not related to teaching) or passive 1 Behaviour management/ discipline/ transitioning to next subject 2 Teacher listening to student reciting and sometimes correcting them 2 Teacher writing things on the board to be copied, reading aloud, or preparing for next task/ lesson 3 Teacher-led instruction, lecturing, asking questions or explaining 3 Teacher walking around and helping students' individual work 4 Teacher demonstrating through TLMs or activity 5 Teacher facilitating students' interactive involvement in discussion or activities										
Students' Activity	**Majority** of students are: 1 Off-task (not related to learning) 2 Copying/ reciting/ rote learning/ passive listening or individual passive tasks 3 Listening, reading or writing with interest* 4 Individual active tasks (problem-solving, creating, exploring) 5 Activity/ Discussion with peers (eg. discussing, moving around, asking questions, doing activities)										
Questioning	1 No discussion or questioning 2 Teacher asks students single-answer questions 3 Teacher asks questions that require some critical thinking 3 Students asks questions relating to clarifying their understanding of a concept 4 Teacher asks students open-ended questions about their opinions 5 Teacher facilitates open-ended or student-led discussions 5 The class explores students' areas of interest or curiosity										

Cognitive activity	1 Off-task (**Majority** of students are waiting or doing nothing) 2 Passively receiving knowledge (eg. copying, repeating, listening, reading) 3 Students applying a skill or demonstrating understanding of concept 4 Students apply the concept to a situation 5 Students try out, explore and discover the answer for themselves 5 Students discuss & explore multiple solutions or perspectives to an issue										
Use of Materials	0 No materials used 1 Mostly Textbook 2 Mostly Blackboard or notebooks 3 TLM handled by teacher 4 TLM handled by one or few students 5 TLMs handled by majority of students										

Overall Classroom Environment: (Note details about class size, rough number of students, sitting arrangement, physical condition, lighting, displays on the walls, overall classroom atmosphere, noise level, etc.)

Key Observation Questions (1 sheet to be filled per teacher)

At the end of 3 lesson observations, please record answers to the following questions about the teachers' overall pedagogy, rating the answer on a Scale of 1 to 5, where: 1 = Rarely, 3 = A few times; 5 = Often (unless otherwise specified). If more than one option applies for a certain question, take the average of both numbers, and write a note to explain why you did this.

Category	Question/ Observable Indicator	Score (1-5)	Please Explain (Provide evidence or examples)
1. Holistic Learning	To what extent does the teacher encourage the children to develop their artistic and other non-scholastic talents during the lesson? (For example: through singing, art, drama, storytelling, physical movement, etc)		
	To what extent does the teacher focus on developing the child's character or values during the lesson? (For example: helping students to work cooperatively, promoting values such as democratic values, concern for others, care for their environment, abiding by classroom rules, etc)		
	Does the teacher make connections to other subjects while teaching one specific subject? (Eg. In a maths lesson, teacher asks a question that links to a topic that they're learning in		

	science or history)		
2. Community linkages	Does the teacher make connections between what they're learning, and the children's community or context?		
	Does the teacher encourage critical discussion about real-life social issues or current events (especially from the perspective of marginalized groups)?		
3. Variety of Learning Materials	Does the teacher use a variety of teaching-learning materials (TLMs) besides the textbook or blackboard during the lesson?		
	Does the teacher encourage students to seek out knowledge from sources besides the textbook (eg. Parents, friends, people in the community, internet, reference books, libraries, media, etc)		
4. Student exploration & active involvement	To what extent does the teacher give opportunities for students to explore things for themselves, interact with each other, manipulate objects, or move around to explore?		
	How often does learning take place through students participating in activities?		
	Does the teacher provide the correct answer or new knowledge to students straight away, or does she encourage 'trial and error' and give them a chance to first think and try to figure out the answer on their own? 1 = Teacher always gives the answer to students directly 3 = Teacher gives students a chance to try, then gives them the correct answer 5 = Teacher waits until students think and figure out answers on their own, giving hints if needed		
5. Building on existing knowledge	Does the teacher give opportunities for children to share what they already know about the topic being taught (eg. by asking questions, getting children to talk about or apply what they already know)?		
	Does the teacher build on what students have already learned earlier or know from their everyday experience, while teaching a new topic?		
6. Cognitive	Does the teacher try to generate students' interest in the topic, or motivate them to learn?		

engagement	Do the students seem passive/bored or engaged/enthusiastic? 1 = Passive/ bored; 5 = Engaged and enthusiastic		
	Does the teacher seem disengaged/bored or engaged/enthusiastic/dynamic? 1 = Passive/ bored; 5 = Engaged and enthusiastic		
	For the majority of lessons observed, does the teacher have a learning objective for the lesson, and make it clear to all the students? 1 = No clear learning objective 3 = Learning objective is clear to the observer but not to the students 4 = Learning objective is clear to all the students 5 = Learning objective is clearly explained, and is achieved by students		
	How does the teacher respond when students make mistakes or do not know the answer? 1= Mistakes are scolded or punished 2 = Mistakes are overlooked 3 = Mistakes are gently corrected by teacher (Teacher gives the right answer) 4 = Teacher encourages other students to provide the right answer 5 = Teachers encourages that same student to keep trying to find the right answer on their own (giving clues or encouragement if needed)		
	Does the teacher encourage the students to express their own thoughts or ideas in their own words, or use their imagination or creativity in writing, art or talking?		
	Out of the total 120 minutes observed, how much of students' time is spent off-task (not related to learning)? 1 = More than 40 minutes are off-task 2 = Between 25 to 40 minutes are off-task 4 = Between 15 to 25 minutes are off-task 5 = Less than 15 minutes total are off-task		
7. Critical questioning	Does the teacher give any opportunities for students to discuss multiple solutions to a problem, or multiple perspectives to an issue? (eg. teacher asks open-ended questions and encourages a variety of answers, or discusses the perspectives of different social groups when studying social science, or the perspective of different characters in a story) 1 = only one right answer accepted;		

	5 = teacher encourages students to give multiple answers		
8. Emotional Environment	To what extent is there an environment of fear in the classroom? 1 = Teacher is very harsh and strict with students 3 = Neutral – Teacher is neither very harsh nor very warm 5 = Teacher has a warm, approachable and friendly attitude towards students		
	What kind of methods does the teacher use to maintain discipline in the classroom? 1 = Hitting or verbally humiliating individual students (please explain under 'Comments') 2 = Shouting at or scolding the whole class 3 = Teacher does not try to control the class at all 5 = Using positive ways of gaining the students' attention, or correcting students gently		
9. Democratic & Inclusive environment for every child	Is there any evidence of discrimination against any specific students (eg. girls, disabled children, etc)? 1 = Some students are clearly discriminated against 3 = There is no evidence of discrimination; all students treated equally 5 = Teacher makes positive efforts to give greater attention/ support to marginalized students Please explain in 'comments' section.		
	How does the teacher responds to or interact with 'weaker' students? 1 = Teacher humiliates them or puts them down in some way 2 = Teacher ignores or overlooks them 3 = Teacher treats them the same as other students 5 = Teacher gives them special help according to their needs		
10. Child-friendly Assessment	Does the teacher stop to check whether students are able to demonstrate understanding?		
	Does the teacher identify individual students' difficulties (based on students' written work, oral answers, or tests) and help each student to overcome their difficulties?		

4.2 List of educationists interviewed for the study

(Listed alphabetically, along with institutional affiliation at the time of the interview)

1. Thomas Abraham, Ruth Cohn Institute for TCI, Kottayam
2. Poonam Batra, Delhi University, Delhi
3. Noila DeSouza, Avehi-Abacus, Mumbai
4. Deepali Dharmaraj, British Council Trainer, Pune
5. Simantini Dhuru, Avehi-Abacus, Mumbai
6. Neelam Dilal, B.El.Ed graduate and MPhil student, Delhi
7. Suparna Divarkar, Azim Premji Foundation, Delhi
8. Caroline Dyer, Leeds University, UK
9. Gowri, Prajayatna, Bangalore
10. Deepa Hari, Avehi-Abacus, Mumbai
11. Dhir Jhingran, National Commission for Protection of Child Rights, Delhi
12. Madhavi Kapur, Madhavi Kapur Foundation, Pune
13. Krishna Kumar, Delhi University, Delhi
14. Rajesh Kumar, Digantar, Jaipur
15. John Kurien, Centre for Learning Resources, Pune
16. Zakiya Kurien, Centre for Learning Resources, Pune
17. Rebecca Lewis, Educationist, Delhi
18. Angela Little, Institute of Education, UK
19. Amukta Mahapatra, Blue Mountain School, Ooty
20. Mary, Prajayatna, Bangalore
21. Alok Mathur, Azim Premji University, Bangalore
22. Geeta Mondol, Ashish Centre, Delhi
23. Paula Mowry, Education Consultant, Delhi
24. Amitabh Mukherjee, Delhi University, Delhi
25. Mahalaxmi Moorthy, Akanksha, Pune
26. Manisha Nai, Avehi-Abacus, Mumbai
27. Arun Naik, Azim Premji Foundation, Bangalore
28. Annie Namala, Centre for Social Equity and Inclusion, Delhi
29. Anjali Noronha, Eklavya, Bhopal
30. Claire Noronha, Collaborative Research and Dissemination (CORD), Delhi
31. R.S. Prasad, Azim Premji Foundation, Bangalore
32. Nandini Purandara, Avehi-Abacus, Mumbai
33. Janaki Rajan, Jamia Milia Islamia, Delhi
34. Meera Samson, Collaborative Research and Dissemination (CORD), Delhi
35. Padma Sarangapani, Tata Institute for Social Sciences, Mumbai
36. Sadhna Saxena, Delhi University, Delhi
37. Kiran Bir Sethi, Riverside School, Ahmedabad
38. Subir Shukla, Ignus-ERG, Delhi
39. Pramod Shet, Azim Premji Foundation, Bangalore
40. Renu Singh, Save the Children, Delhi
41. Mini Srinivasan, Education Consultant, Pune
42. Joy Townsend, Destiny Education, Mumbai
43. Thom Wolf, University Institute, Delhi

4.3 Key beliefs identified from the literature as potential barriers to pedagogical change in India

Belief about:	Common beliefs (and supporting authors)	Examples
1-Equality	Inequality in educational ability/ deservingness based on caste, gender, ethnicity, etc. (Bandyopadhyay, 2012; Batra, 2005; Batra, 2009; Burns, 2007; Deshkal, 2010; Dyer et al 2004; Jha & Jhingran, 2005; Namrata, 2011; Ramachandran et al, 2005; Rao, Cheng & Narain, 2003; Surya, 2008; Weiner, 1991)	"This idea that the lower castes are not deserving of education is deeply rooted among the Indian middle class" (Rao, Cheng & Narain, 2003, p.168) "There is plenty of evidence to say that India's present-day society lacks the desire to see every child at school…people still believe that only the so-called bright or smart children matter" (Krishna Kumar, in Surya, 2008)
2-Democratic relationships	Hierarchical social structures and teacher-student relationships (Batra, 2005; Bisht, 2008; Burns, 2007; Clarke, 2001; Deshkal, 2010; Dyer et al, 2004; Gupta, 2006; Kakar, 1978; Kumar, 2005b; Kumar, 2011; Sarangapani, 2003; Singh, 2006)	"The '*guru-shishya parampra'* is still fresh in the minds of the people and shared to a large extent…The teacher is a giver, the only source of knowledge…The hierarchy in relationship is not only warranted, but also invited by the pupil and community" (Singh, 2006, p.71)
3-Diversity	Learners assumed to be alike; difference regarded as deficit (Batra, 2009; Burns, 2007; Deshkal, 2010; Kumar, 2005a)	"All children are tucked into a common blanket identity" (Deshkal, 2010, p.29) "The bias against [diversity] is deep-rooted in policy and planning" (Kumar, 2005a, p.41)
4-Knowledge	Learning as transmission of knowledge (Batra, 2006; Bisht, 2008; Burns, 2007; Clarke, 2001; Deshkal, 2010; Gupta, 2006; Kumar & Subramaniam, 2012; Rao, Cheng & Narain, 2003; Sarangapani, 2003; Weiner, 1991)	"The common perception in teachers [is] that schooling largely involves transferring an accumulated body of knowledge (facts) to the learners" (Bisht, 2008, p.239)
5-Purpose	Purpose of education as getting good jobs (Clarke, 2001; PROBE team, 1999, 2006; Rao, Cheng & Narain, 2003)	"87% parents of boys wanted to educate them because it improves their employment opportunities…Education is only considered relevant if it will lead to jobs." (Rao, Cheng & Narain, 2003, p.166)
6-Responsibility for learning	Focus on teaching rather than learning; accountability to authorities rather than children (Clarke, 2001; Dyer et al, 2004; Kumar, 2011; Ramachandran et al, 2005, 2009)	"attitude among many teachers that learning outcomes are not their responsibility; and that if poor students do not learn, it is because of their own or their family's shortcomings." (Ramachandran et al, 2009,p.24)
7-Professional-ism	Low work ethic and accountability (PROBE team, 1999; Dyer et al, 2004; Kumar in Surya, 2008; Singh, 2006; Weiner, 1991)	"In an all-pervasive non-work climate, imagining an island of commitment and performance often turns out to be chasing a mirage." (Singh, 2006)

8-Teaching as vocation	Low motivation and commitment to teaching as a means to serve society/children (Batra, 2006; PROBE team, 1999; Ramachandran et al, 2005, 2009; Rao, Cheng & Narain, 2003)	"Most teachers convey a deep lack of commitment to the promotion of education in the local community… Few teachers see their work as a vocation" (PROBE team, 1999,p.57)
9-Time	Low concern for using time effectively (PROBE team, 1999; De et al, 2011)	"Liberal time-use patterns are…becoming accepted norms in the teaching profession….Inactive teachers were found engaged in a variety of pastimes such as sipping tea, reading comics…when they were not just sitting idle" (PROBE team, 1999,p.44,63).
10-Change	Acceptance of status quo; low sense of agency or responsibility for change (Dyer, 2004; Rao, Cheng & Narain, 2003)	"After 10 years of [in-service training], large numbers of teachers do not feel they are in a position to effect the changes policies envisage" (Dyer, 2004,p.48)

4.4 Profile of teacher characteristics

Name	Age	Gender	State	Location	Monthly family income	Gen Education	Teaching Qualifi-cations	Religion	Caste
Neena	44	F	Bihar	Rural	> Rs. 30,000	Bachelors	D.Ed.	Hindu	Dominant
Preeti	45	F	Bihar	Rural	> Rs. 30,000	Bachelors	No degree	Hindu	Dominant
Rohit	32	M	Bihar	Rural	Below Rs. 15,000	Bachelors	D.Ed.	Hindu	OBC/BC/ Muslim
Vishal	43	M	Bihar	Rural	Below Rs. 15,000	Bachelors	No degree	Hindu	Dominant
Ajay	40	M	Bihar	Rural	Rs. 15-30,000	Masters	No degree	Hindu	OBC/BC/ Muslim
Kiran	45	F	Bihar	Rural	> Rs. 30,000	Masters	B.Ed. or M.Ed.	Hindu	OBC/BC/ Muslim
Lata	46	F	Bihar	Rural	> Rs. 30,000	Bachelors	D.Ed.	Hindu	Dominant
Asha	41	F	Bihar	Rural	Rs. 15-30,000	Bachelors	D.Ed.	Hindu	Dominant
Rajini	26	F	Bihar	Rural	Rs. 15-30,000	Masters	No degree	Hindu	OBC/BC/ Muslim
Prakash	42	M	Bihar	Rural	Rs. 15-30,000	Masters	No degree	Hindu	OBC/BC/ Muslim
Meenal	42	F	Bihar	Urban		Class 10 or 12	D.Ed.	Hindu	SC/ST
Aisha	48	F	Bihar	Urban	< Rs. 15,000	Bachelors	No degree	Muslim	Dominant
Supriya	36	F	Bihar	Urban	Rs. 15-30,000	Class 10 or 12	D.Ed.	Hindu	Dominant
Radha	38	F	Bihar	Urban	Rs. 15-30,000	Masters	B.Ed. or M.Ed.	Hindu	SC/ST
Noora	58	F	Bihar	Urban	> Rs. 30,000	Bachelors	D.Ed.	Muslim	OBC/BC/ Muslim
Smita	32	F	Bihar	Urban		Bachelors	B.Ed. or M.Ed.	Hindu	OBC/BC/ Muslim
Manisha	40	F	Bihar	Urban	Below Rs. 15,000	Bachelors	No degree	Hindu	OBC/BC/ Muslim
Abdul	38	M	Bihar	Urban		Bachelors	No degree	Muslim	OBC/BC/ Muslim
Farida	59	F	Bihar	Urban	> Rs. 30,000	Bachelors	B.Ed. or M.Ed.	Muslim	OBC/BC/ Muslim
Sandeep	41	M	Bihar	Urban	> Rs. 30,000	Masters	D.Ed.	Hindu	Dominant
Anita	42	F	Mah	Rural	Rs. 15-30,000	Masters	D.Ed.	Hindu	Dominant
Leena	37	F	Mah	Rural	> Rs. 30,000	Bachelors	D.Ed.	Hindu	SC/ST
Deepa	36	F	Mah	Rural	> Rs. 30,000	Bachelors	D.Ed.	Hindu	OBC/BC/ Muslim
Sunita	48	F	Mah	Rural	> Rs. 30,000	Class 10 or 12	D.Ed.	Hindu	Dominant
Ram	55	M	Mah	Rural	Below Rs. 15,000	Class 10 or 12	D.Ed.	Hindu	OBC/BC/ Muslim
Priya	31	F	Mah	Rural	Rs. 15-30,000	Class 10 or 12	B.Ed. or M.Ed.	Hindu	OBC/BC/ Muslim
Usha	42	F	Mah	Rural	Below Rs. 15,000	Class 10 or 12	D.Ed.	Buddhi st	SC/ST
Sheila	33	F	Mah	Rural	Below Rs. 15,000	Class 10 or 12	D.Ed.	Hindu	Dominant

Name	Age	Gender	State	Location	Monthly family income	Gen Education	Teaching Qualifi-cations	Religion	Caste
Hema	52	F	Mah	Rural	Below Rs. 15,000	Class 10 or 12	D.Ed.	Hindu	Dominant
Vinod	31	M	Mah	Rural	Below Rs. 15,000	Bachelors	B.Ed. or M.Ed.	Hindu	OBC/BC/ Muslim
Suman	23	F	Mah	Urban	< Rs. 15,000	Class 10 or 12	D.Ed.	Hindu	OBC/BC/ Muslim
Amita	25	F	Mah	Urban		Class 10 or 12	D.Ed.	Hindu	OBC/BC/ Muslim
Shweta	28	F	Mah	Urban	> Rs. 30,000	Bachelors	D.Ed.	Hindu	SC/ST
Ameena	23	F	Mah	Urban	> Rs. 30,000	Bachelors	D.Ed.	Muslim	OBC/BC/ Muslim
Richa	29	F	Mah	Urban		Bachelors	D.Ed.	Hindu	Dominant
Fatema	26	F	Mah	Urban	Rs. 15-30,000	Class 10 or 12	D.Ed.	Muslim	OBC/BC/ Muslim
Kavita	35	F	Mah	Urban	< Rs. 15,000	Bachelors	D.Ed.	Hindu	SC/ST
Aditi	22	F	Mah	Urban	Rs. 15-30,000	Class 10 or 12	D.Ed.	Hindu	SC/ST
Anil	23	M	Mah	Urban	< Rs. 15,000	Class 10 or 12	D.Ed.	Hindu	SC/ST
Savita	22	F	Mah	Urban	Rs. 15-30,000	Class 10 or 12	D.Ed.	Hindu	SC/ST
Reshma	49	F	Ker	Rural	> Rs. 30,000	Class 10 or 12	D.Ed.	Hindu	
Jaya	47	F	Ker	Rural	Rs. 15-30,000	Class 10 or 12	D.Ed.	Hindu	SC/ST
Nafisa	51	F	Ker	Rural	> Rs. 30,000	Class 10 or 12	D.Ed.	Muslim	OBC/BC/ Muslim
Yasmeen	50	F	Ker	Rural	> Rs. 30,000	Class 10 or 12	D.Ed.	Muslim	OBC/BC/ Muslim
Sonu	52	M	Ker	Rural	> Rs. 30,000	Bachelors	D.Ed.	Hindu	SC/ST
Anu	30	F	Ker	Rural	Rs. 15-30,000	Bachelors	D.Ed.	Hindu	OBC/BC/ Muslim
Elizabeth	46	F	Ker	Rural		Class 10 or 12	D.Ed.	Christi an	Dominant
Shobha	46	F	Ker	Rural		Class 10 or 12	D.Ed.	Hindu	OBC/BC/ Muslim
Aruna	48	F	Ker	Rural		Class 10 or 12	D.Ed.	Hindu	OBC/BC/ Muslim
Siby	42	M	Ker	Rural	> Rs. 30,000	Bachelors	D.Ed.	Christi an	Dominant
John	39	M	Ker	Urban	> Rs. 30,000	Class 10 or 12	D.Ed.	Christi an	OBC/BC/ Muslim
Annie	25	F	Ker	Urban		Masters	D.Ed.	Christi an	OBC/BC/ Muslim
Meera	48	F	Ker	Urban	Rs. 15-30,000	Class 10 or 12	D.Ed.	Hindu	SC/ST
Madhuri	43	F	Ker	Urban	Rs. 15-30,000	Class 10 or 12	D.Ed.	Hindu	SC/ST
Swati	45	F	Ker	Urban	< Rs. 15,000	Class 10 or 12	D.Ed.	Hindu	Dominant
Sarah	36	F	Ker	Urban	Rs. 15-30,000	Bachelors	D.Ed.	Christi an	OBC/BC/ Muslim
Alka	34	F	Ker	Urban	Rs. 15-30,000	Bachelors	D.Ed.	Hindu	OBC/BC/ Muslim

Name	Age	Gender	State	Location	Monthly family income	Gen Education	Teaching Qualifi-cations	Religion	Caste
Ruth	39	F	Ker	Urban	Rs. 15-30,000	Bachelors	D.Ed.	Christian	OBC/BC/ Muslim
Mary	45	F	Ker	Urban	< Rs. 15,000	Class 10 or 12	D.Ed.	Christian	OBC/BC/ Muslim
Lalita	42	F	Ker	Urban	> Rs. 30,000	Masters	D.Ed.	Hindu	Dominant

Descriptive Statistics for Main Sample of Teachers – Overall, and by State

Characteristics	60 Teachers (%age)	Bihar Teachers (%age)	Maharashtra Teachers (%age)	Kerala Teachers (%age)
Sample Size:	*N=60 unless otherwise indicated*	*N=20 unless otherwise indicated*		
Age Index				
20s	11 (18.3)	1 (5.0)	9 (45.0)	1 (5.0)
30s	16 (26.7)	5 (25.0)	6 (30.0)	5 (25.0)
40s	26 (43.3)	12 (60.0)	3 (15.0)	11 (55.0)
50s	7 (11.7)	2 (10.0)	2 (10.0)	3 (15.0)
Gender				
Female	48 (80.0)	14 (70.0)	17 (85.0)	19 (95.0)
Male	12 (20.0)	6 (30.0)	3 (15.0)	1 (5.0)
General Education				
10/12th	26 (43.3)	2 (10.0)	12 (60.0)	12 (60.0)
Bachelors	25 (41.7)	12 (60.0)	7 (35.0)	6 (30.0)
Masters	9 (15.0)	6 (30.0)	1 (5.0)	2 (10.0)
Teaching Qualifications				
No degree	8 (13.3)	8 (40.0)	0	0
D.Ed.	46 (76.7)	8 (40.0)	18 (90.0)	20 (100.0)
B.Ed.	6 (10.0)	4 (20.0)	2 (10.0)	0
Family Income				
Below 15k	14 (27.5)	4 (20.0)	8 (40 .0)	2 (10.0)
15k – 30k	18 (35.3)	6 (30.0)	5 (25.0)	7 (35.0)
Above 30k	19 (37.3)	7 (35.0)	5 (25.0)	7 (35.0)
	N=51 (85.0)	N=17 (85.0)	N=18 (90.0)	N=16 (80.0)
Religion				
Hindu	45 (75.0)	16 (80.0)	18 (90.0)	11 (55.0)
Muslim	8 (13.3)	4 (20.0)	2 (10.0)	2 (10.0)
Christian	7 (11.7)	0	0	7 (35.0)
Buddhist				
Caste				
SC/ST	13 (22.0)	2 (10.0)	7 (35.0)	4 (20.0)
OBC/ BC / Muslim	29 (49.2)	10 (50.0)	8 (04.0)	11 (55.0)
Dominant	17 (28.8)	8 (40.0)	5 (25.0)	4 (20.0)
	N=59 (98.3)			N=19 (95.0)

Descriptive Statistics for Additional Survey Respondents

Characteristics	30 Trainers (%age)	Extra Teachers (%age)	Extra Trainers (%age)
Sample Size	*N=30 unless indicated*	*N=230 unless indicated*	*N=229 unless indicated*
Age Index			
20s	0	7 (3.0)	4 (1.7)
30s	11 (36.7)	29 (12.6)	104 (45.4)
40s	18 (60.0)	40 (17.4)	91 (39.7)
50s	1 (3.3)	12 (5.2)	21 (9.2)
		N=88 (38.3)	N=220 (96.1)
Gender			
Female	15 (50)	140 (60.9)	34 (14.8)
Male	15 (50)	39 (17.0)	187 (81.7)
		N=179 (77.8)	N=221 (96.5)
General Education			
10/12th	10 (33.3)	49 (21.3)	10 (4.4)
Bachelors	10 (33.3)	33 (14.3)	26 (11.4)
Masters	10 (33.3)	8 (3.5)	36 (15.7)
		N=90 (39.1)	N=72 (31.4)
Teaching Qualifications			
No degree	3 (10.0)	22 (9.6)	9 (3.9)
D.Ed.	11 (36.7)	61 (26.5)	19 (8.3)
B.Ed.	16 (53.3)	7 (3.0)	36 (15.7)
		N = 90 (39.1)	N=64 (27.9)
Family Income			
Below 15k	9 (30.0)	28 (12.2)	12 (5.2)
15k – 30k	2 (6.7)	27 (11.7)	103 (45.0)
Above 30k	9 (30.0)	16 (7.0)	76 (33.2)
	N=20	N=159 (69.1)	N=191 (83.4)
Religion			
Hindu	7 (23.3)	36 (15.7)	190 (83.0)
Muslim	9 (30.0)	7 (3.0)	20 (9.7)
Christian	9 (30.0)	47 (20.4)	1 (0.4)
Buddhist	N=25	N=90 (30.1)	N=211 (92.1)
Caste			
SC/ST	24 (80.0)	6 (2.6)	60 (26.2)
OBC/ BC / Muslim	1 (3.3)	53 (23.0)	59 (25.8)
Dominant	4 (13.3)	28 (12.2)	82 (35.8)
	N=29	N=87 (37.8)	N=201 (87.8)
State			
Bihar	10 (33.3)	26 (11.3)	9 (3.9)
Maharashtra	10 (33.3)	141 (61.3)	219 (95.6)
Kerala	10 (33.3)	63 (27.4)	1 (0.4)
		N=23 (100.0)	N=229 (100.0)

4.5 List of nodes identified for qualitative analysis

Overview of Nodes Organised by Belief Domains

Key Belief Domains	List of Nodes
1. Inequality vs. Equality	1. STUDENT - Background 2. STUDENTS - Ability 3. STUDENTS - Why fail 4. CASTE 5. EQUALITY - discrimination 6. GENDER
2. Hierarchical vs. Democratic Relationships	7. EDUC - Teach-stud Relap 8. DISCIPLINE – Freedom 9. DISCIPLINE – Value 10. DISCIPLINE – Strategies 11. Parents' Role 12. CHILDREN 13. HIERARCHY - Career choice 14. HIERARCHY - General 15. HIERARCHY - Learning in school
3. Valuing of Uniformity vs. Diversity	16. VALUE - Diversity
4. Beliefs about Learning/ Knowledge	17. EDUC – Learning 18. KNOWLEDGE - Fixed vs. dynamic 19. LCE (Understanding of, Obstacles to, Attitude to) 20. Language learning 21. Play
5. Purpose of Education/Life	22. EDUC - Good education 23. EDU- Good Teacher 24. Memory of Schooling 25. EDUC – Purpose 26. EDUC – Values/ All-round development 27. Marks_Exams 28. PURPOSE_ Human nature 29. VALUE - Achievement_Money_Studies 30. VALUE - Collective good 31. VALUE - Ethics 32. VALUE - Family 33. VALUE – Happiness 34. VALUE – Knowledge, Learning 35. VALUE - social-community
6. Sense of Responsibility for Results	36. Responsibility for results/ learning
7. Professional Identity	37. MOTIVATION - Why teacher 38. WORK - Attitude towards 39. DUTY (of Teacher) 40. TEACHER - Identity_Self-image 41. TEACHER – Goals / desire to grow 42. TEACHER – problems 43. Inspiring Mentor
8. Tradition vs. Change Orientation	44. VALUE – Change

9. Misc. views on Govt. school system and training received	45. Govt vs Private schools 46. SYSTEM - Appreciation_Support 47. SYSTEM - problems_need for change 48. SYSYEM - Patronage 49. TRAINING received 50. TRAINING - Effective 51. TRAINING - Needs_Areas to Improve 52. Transformation – factors leading to 53. MOTIVATION - general 54. MOTIVATION - Religion 55. TEACHER – Reflection/ Crit Thinking 56. TEACHER - Personal_Interests 57. TEACHER - Daily life

5.1 Sample excerpt from a teacher interview transcript

Teacher: Neena, Bihar rural school.

	Question	Response
1.	Can you think back to any teacher you've met that you really admire? (Someone who inspires you or you want to become like them?) What is it that you like about them?	When I was in class 7, my friend failed the class. Until then I was not so serious about my studies. In class 8 I met a friend that studied a lot and I met her and then got serious about my studied and felt that I should study./ One maths teacher was there, Sardha Sinha. She used to teach very nicely – her way of teaching was very good – she used to explain everything clearly and use the blackboard well. When I used to see her, i thought, I should also study well and teach like her.
2.	Why did you become a teacher? Was it your first choice of career?	At first I was not thinking of teaching. At first I wanted to become a Bihar Public Service Commission. But right after 12th, after i got admission to BA, I got married. Because I got married, I was not able to do my BA properly – I also had a child. So I stopped./ [but why did you choose teaching itself?] I was not able to get any other job, but I was able to get this job easily, that's why I went into teaching. I had not thought of anything else.
3.	Think back to when you were in school. Were there any things that you didn't like about your schooling? If you could change anything, what would you change?	In science, I was not able to understand properly – the science teaching was not good. I never understood what the teacher was teaching. I wanted to be able to give science tuitions, but because I didn't learn science properly, I was not able to do that.
4.	What kind of relationship do you think a teacher should have with his/her students?	Should be a good relationship. In Class 1 and 2, I used to teach like a mother. Till Class 5. In Class 1-5, since they're very small, I'm the one who needs to understand their problems, and be like a mother to them. I should be friendly to them. After class 5, teacher should be strict, because they become big and mature; their studies also become more difficult (for younger classes the studies are less). So need to focus on their studies, that are why we need to be strict regarding their studies. From the 6th there is more studies and you need to be strict.
5.	a. Teachers have many duties, can you tell me some of the duties you perform as a teacher? b. Of all the duties that teachers perform, what do you think is the most important duty?	a. Our duty is to come on time. Then start the prayer, then start the class. Make them sit properly in class. Take attendance of the students. I check the writing of my students first, and correct whoever's making mistakes. And I ask them to improve their handwriting as they are in younger class. After that I start teaching. / b. The most important duty is that whatever we are teaching, should go inside the mind of the student. The students should understand what I am teaching it should not happen that I am teaching and teaching and no one understands then there is no point to teaching. It should not be that I just taught them, and everybody listened, but I don't know who understood or not. Everyone should understand everything that I am teaching.
6.	a. Do you think it's	a. Yes. Because in coming to school, he learns to sit

		important to send children to school? b. Why is it important - what happens if children don't go to school?	properly. He learns to talk properly. He learns to come to school on time, the daily routine, to eat at the proper time, to do all these things at the proper time. / b. He will be educated if he comes to school. [Why is that important?] Because then nobody will be able to fool him, nobody can teach him to do wrong. In school, he learns what is the importance of studies./If one child gets educated, then the whole family will get educated./If he doesn't come to school, he becomes useless – then there won't be any difference between human and animals.
7.	a.	Do you think there are things that children learn outside of school? What kind of things? b. Is there any difference between how they learn things in school, and how they learn outside the school?	a. Yes, they learn games. In coming from home to school, they learn walking. They learn good things and bad things – sometimes they learn to fight or insult others. / b. There's a lot of difference. In school, he will be taught everything systematically. Outside, he will only be able to learn to play games, to walk here and there, and also a lot of bad things – fighting, to do crime, etc.
8.	a.	Do you have children? b. What would you look for in choosing a school for your own child? Why? c. Do you (/would you) send your child to a government school? Why or why not?	a. Yes. I have 1 son - doing B.Tech./ b. One where the studies are good. It should be close to the home. Students should get a good education./[How did you know that the school is good?] Once I went to the school, just to find out, and some of the students gave a good report. Students of that school used to make less spelling mistakes. And I saw the same thing in my son./ c. Yeah, I could have tried – to see how is the school. [Do you feel govt schools are good?] Not that good, compared to private schools. We teach in government schools but out heart is not in our teaching. There is something that is stuck in my head because..In govt schools, there is a big difference in salaries – some teachers are getting 30,000, and some only 5-6000. Sot that creates a barrier. They are teaching and do not want to waste the child's time our salary is not going to help the child. But the child's time should not get wasted./Sometimes, the govt had a scheme where they asked the teachers to teach some of the women in the village to read. So we had to give the children some work and keep them sitting while they went to teach the women. So the students were neglected. This is the kind of thing that happens in govt school. These schemes are a violation of the education system. The teachers are made to do other things.
9.		What would you like your children to be when they grow up?	I didn't have something fixed in my mind, but I wanted him to become something good – like IAS, engineering, something good like that. First a person has to get good education then he can think of becoming something. My son was very bright and thought he would be able to become an IAS. But he got sick and was not able to complete the IAS studies, so he went into engineering.

10.	If one of your children came to you and asked what is the most important thing for living a good life, what would you say?	Education. The first most important thing is education.

6.1 Explanation of statistical tests used

Cross-tabulation: Also known as crosstab or contingency table, is a type of table in a matrix format that displays the frequency distribution of two variables against each other. It allows us to compare the relationship between two variables.

Reliability: the ability of a measure or scale to produce consistent results when the same entities are measured under different conditions.

Correlation: The correlation coefficient is a measure of the strength of association or relationship between two variables. *Pearson's correlation coefficient* is a standardized measure of the strength of relationship between two variables. It can take any value from −1 (as one variable changes, the other changes in the opposite direction by the same amount), through 0 (as one variable changes the other doesn't change at all), to +1 (as one variable changes, the other changes in the same direction by the same amount). *Spearman's correlation coefficient* is a standardized measure of the strength of relationship between two variables that does not rely on the assumptions of a parametric test, and is performed on data that have been converted into ranked scores.

Cronbach's alpha (α) is the most common measure of scale reliability. It determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability. It is a function of the number of items in a test/scale, the average covariance between item-pairs, and the variance of the total score.

Factor analysis is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. It is a multivariate technique for identifying whether the correlations between a set of observed variables stem from their relationship to one or more latent variables or factors in the data. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset. Factor analysis is conducted when there is reason to expect a strong first factor based on a high Cronbach's Alpha, suggesting a uni-dimensional latent trait captured by each scale.

T-test: A statistical examination of two population means. A two-sample t-test examines whether two samples are different from each other, and is commonly used when the variances of two normal distributions are unknown and when an experiment uses a small sample size.

ANOVA, or 'Analysis of variance', is a collection of statistical models used in order to analyze the differences between group means and their associated procedures (such as "variation" among and between groups). It can be used to compare the difference between group means in cases where there are more than two groups.

Regression is a statistical technique which attempts to find the function which most closely approximates the data. The type of regressions used in this thesis is Ordinary Least Squares (OLS), which tries to find the line of "best fit", that is, the line that minimises the total distance between the actual data points and the predicted line (or residuals). The Least Squares method is used to fit a straight line through a set of data-points, so that the sum of the squared vertical distances (called *residuals*) from the actual data-points is minimised. In a multiple regression, an outcome is predicted by a linear combination of two or more predictor variables

6.2 Testing Reliability of Survey Scales

Final Survey Scales with Cronbach's Alpha

Scales	Items in each scale (number of items)	Cronbach's Alpha
1 – Equality	11R, 21R, 41R, 51R, 63R, 68R, 35R (7 items)	.829
2- Relationships	2R, 12R, 32R, 52R, 60R (5 items)	.701
3 –Diversity	7R, 27R, 37R, 47R, 57 (5 items)	.260
4 – Learning	3R, 61, 66R, 67R, 69R, 71R (6 items)	.725
5 – Purpose of Education	4R, 14R, 24R, 44R, 54R, 62R, 5R, 49R, 29R (9 items)	.751
6 – Responsibility for Outcomes	8R, 18R, 28R, 38R, 58 (5 items)	.512
7 – Professional Commitment	16R, 36, 56R 15R, 25, 39R (6 items)	.716
8 –Change	10R, 20R, 30R, 50R, 19R (5 items)	.850

Survey Inter-scale Correlations

	Surv 1	**Surv 2**	**Surv 3**	**Surv 4**	**Surv 5**	**Surv 6**	**Surv 7**	**Surv 8**
Surv 1	X							
Surv 2	.805***	X						
Surv 3	.117***	.064	X					
Surv 4	.763***	.713***	184***	X				
Surv 5	.681***	.597***	.293***	.701***	X			
Surv 6	.587***	.536***	.315***	.585***	.642***	X		
Surv 7	.849***	.789***	.070	.679***	.607***	556***	X	
Surv 8	.835***	.789***	.122***	.734***	.659***	.596***	.803***	X

***** Throughout the appendices, significance values are indicated at *p<0.1, **p<0.05, ***p<0.01.

6.3 Factor Analysis for 7 Survey Scales

Scale 1 – Equality

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.521	50.294	50.294	3.521	50.294	50.294
2	.976	13.943	64.237			
3	.731	10.441	74.678			
4	.576	8.223	82.901			
5	.507	7.249	90.150			
6	.396	5.662	95.812			
7	.293	4.188	100.000			

KMO = .876
Bartlett's test of sphericity χ^2 (21) = 1341.59, $p < .001$[1]

Component Matrix

		Component Matrix: Component1	Component Score Coefficient Matrix
Q11	Gender can predict how well the student will fare	.851	.242
Q21	Boys are able to do better in studies than girls	.761	.221
Q35	Realistically only a few students are capable of succeeding academically	.321	.088
Q41	A good Teacher should focus on the 'brightest' students, most likely to succeed	.750	.214
Q51	The government's expectation to provide quality education for all is not realistic	.571	.160
Q63	A child's caste background affects how well they can learn	.732	.208
Q68	Children from poor backgrounds are less capable of learning	.831	.238

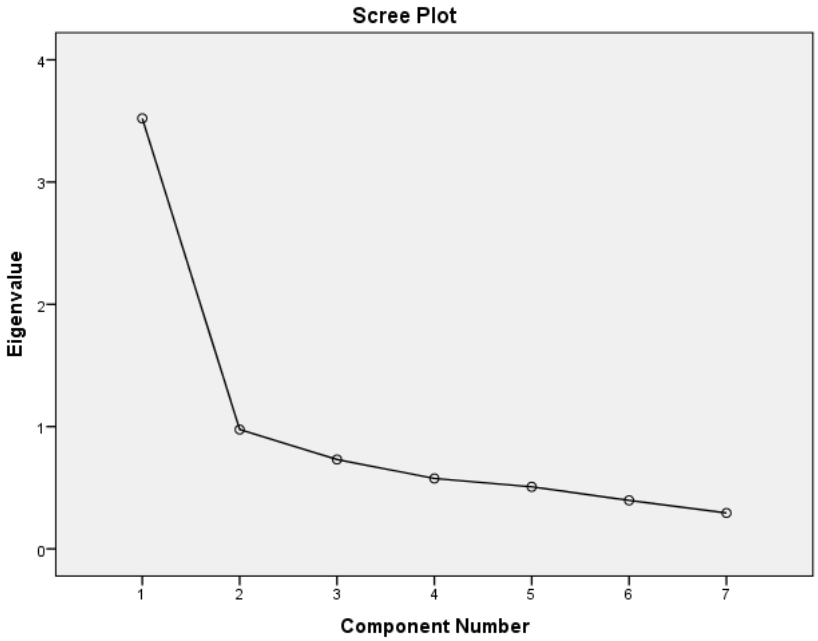
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
1 components extracted.

Correlation Matrix

	Q11	Q21	Q41	Q51	Q63	Q68	Q35
Q11	1.00						
Q21	.65***	1.00					
Q41	.56***	.47***	1.00				
Q51	.39***	.34***	.32***	1.00			
Q63	.52***	.43***	.49***	.32***	1.00		
Q68	.69***	.57***	.54***	.37***	.55***	1.0	`
Q35	.17***	.11***	.20***	.21***	.22***	.18***	1.00

Determinant = .085

[1] Note: The Kaiser–Meyer–Olkin measure verifies the sampling adequacy for the analysis, and should be greater than .5. Bartlett's test of sphericity indicates that correlations between items are sufficiently large for PCA, and should have a significance level of less than .05. (Field, 2009)



Scale 2 – Democratic Relationships

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.321	46.417	46.417	2.321	46.417	46.417
2	.922	18.434	64.851			
3	.762	15.238	80.089			
4	.574	11.472	91.561			
5	.422	8.439	100.000			

KMO = .748
Bartlett's test of sphericity χ^2 (10) = 507.466, $p < .001$

Component Matrix

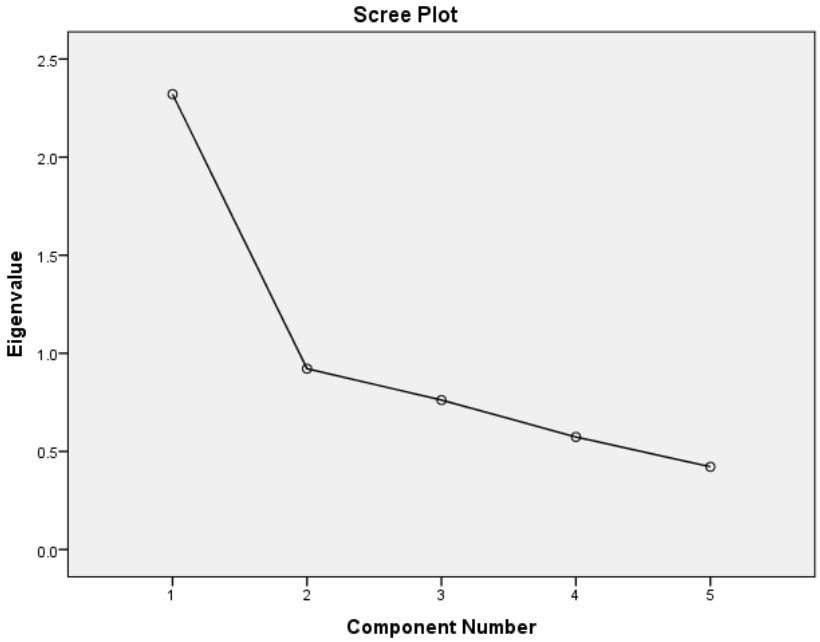
	Component Matrix: Component1	Component Score Coefficient Matrix
Q2 If a teacher tries to become 'friends' with the students, they will stop respecting him/her	.757	.326
Q12 A teacher should not befriend students and must keep his/her distance	.829	.357
Q32 Parents do not need to be involved in deciding about what their children should learn	.485	.209
Q52 Giving children lots of freedom to make decisions in the classroom is not good	.528	.227
Q60 Students should follow the teacher's instructions without raising any questions	.739	.318

Extraction Method: Principal Component Analysis.
1 components extracted.

Correlation Matrix

	Q2	Q12	Q32	Q52	Q60
Q2	1.000				
Q12	.554***	1.000			
Q32	.190***	.280***	1.000		
Q52	.270***	.339***	.099***	1.000	
Q60	.415***	.489***	.288***	.221***	1.000

Determinant = .394



Scale 4 – Knowledge

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.619	43.656	43.656	2.619	43.656	43.656
2	1.060	17.673	61.329	1.060	17.673	61.329
3	.854	14.239	75.568			
4	.642	10.704	86.272			
5	.448	7.461	93.733			
6	.376	6.267	100.000			

KMO = .737
Bartlett's test of sphericity χ^2 (15) = 741.708 $p < .001$

Component Matrix

	Component 1	Component 2
Q3 Memorizing information is the quickest and most effective way of learning	.640	
Q61 Giving children time to discuss what	.238	.894

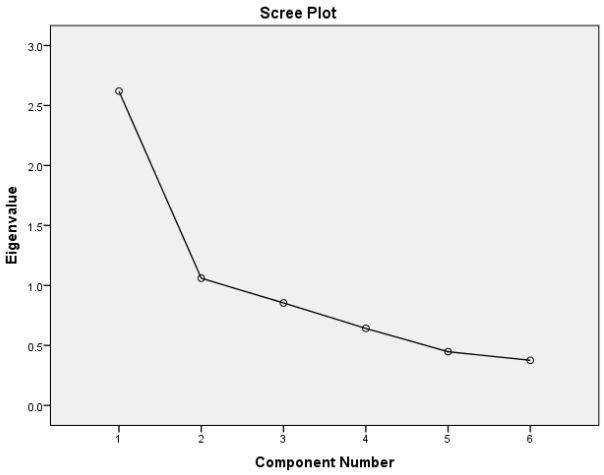
they already know about a topic is a necessary part of learning new things		
Q66 A silent class is a hardworking class; a noisy class is an undisciplined class	.767	-.273
Q67 Letting children discuss with each other is a waste of the class time	.815	.172
Q69 The role of the school is to pass on the knowledge that has been passed down through generations	.624	.196
Q71 In order to do well, students should give answers exactly as written in the textbook	.715	-.344

Extraction Method: Principal Component Analysis.
2 components extracted.

Correlation Matrix

	Q3	Q61	Q66	Q67	Q69	Q71
Q3	1.000					
Q61	.063*	1.000				
Q66	.338***	.036	1.000			
Q67	.393***	.277***	.494***	1.000		
Q69	.362***	.124**	.348***	.423***	1.000	
Q71	.303***	.018	.558***	.504***	.192***	1.000

Determinant = .257



Scale 5 – Purpose of education

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.051	33.904	33.904	3.051	33.904	33.904
2	.978	10.871	44.775			
3	.918	10.204	54.980			
4	.904	10.049	65.029			
5	.758	8.422	73.451			

6	.713	7.922	81.374
7	.617	6.857	88.231
8	.539	5.993	94.223
9	.520	5.777	100.000

KMO = .829
Bartlett's test of sphericity χ^2 (36) = 795.209, $p < .001$

Component Matrix

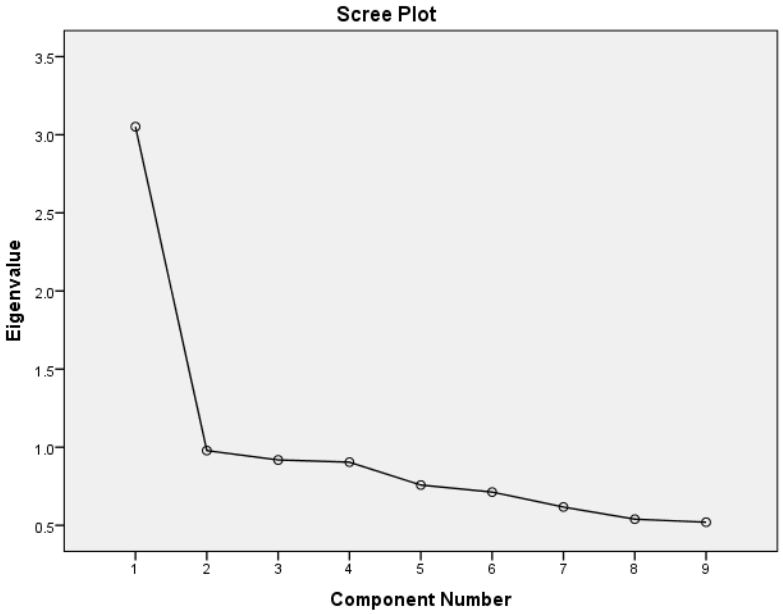
	Component Matrix: Component1	Component Score Coefficient Matrix
Q4 Using threats is a good way to get children to pay attention and learn	.534	.175
Q5 The most important reason to go to school is to do well so that you can get a good job	.480	.157
Q14 A teacher's primary duty is to help students do well in the exams	.578	.190
Q24 The best way to tell how good a school is, is by looking at their examination results	.689	.226
Q29 Students should remain sitting quietly in the class even if the teacher doesn't show up that day	.553	.181
Q44 Exams results tell us which students are the smartest or the most likely to succeed	.593	.194
Q49 When students complete their work before the end of the period, they should sit quietly and wait until the end of the period	.646	.212
Q54 Helping students do well in their exams is more important than encouraging their curiosity or love of learning	.679	.222
Q62 Students learn better when they are afraid of failing the exams	.437	.143

Extraction Method: Principal Component Analysis.
1 component extracted.

Correlation Matrix

	Q4	Q5	Q14	Q24	Q29	Q44	Q49	Q54	Q62
Q4	1.000	.154	.210	.279	.182	.149	.250	.417	.170
Q5	.154	1.000	.217	.288	.189	.236	.287	.178	.063
Q14	.210	.217	1.000	.404	.146	.310	.233	.304	.160
Q24	.279	.288	.404	1.000	.299	.297	.325	.336	.257
Q29	.182	.189	.146	.299	1.000	.243	.358	.288	.193
Q44	.149	.236	.310	.297	.243	1.000	.292	.329	.213
Q49	.250	.287	.233	.325	.358	.292	1.000	.354	.194
Q54	.417	.178	.304	.336	.288	.329	.354	1.000	.216
Q62	.170	.063	.160	.257	.193	.213	.194	.216	1.000

Determinant = .232
All correlations significant at p<.001, except or Q62-Q5 (p<.1)



Scale 6 – Responsibility for Outcomes

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.511	30.215	30.215	1.511	30.215	30.215
2	1.059	21.170	51.386	1.059	21.170	51.386
3	.963	19.257	70.643			
4	.806	16.115	86.758			
5	.662	13.242	100.000			

KMO = .568
Bartlett's test of sphericity χ^2 (10) = 107.286, $p < .001$

Component Matrix

	Component Matrix:		Component Score Coefficient Matrix	
	Component 1	Component 2	Component 1	Component 2
Q8 Covering the syllabus is the teacher's most important duty	.684	-.411	.762	-.236
Q18 When a child is repeatedly getting low marks, it usually means the child is not working hard enough or that the child is a 'slow learner'	.366	.548	.225	.619
Q28 If a teacher wants to complete the syllabus, s/he cannot spend too much time on activities	.633	.158	.577	.304
Q38 Completing the syllabus in time is more important than whether students apply what they learn to their lives	.712		.709	

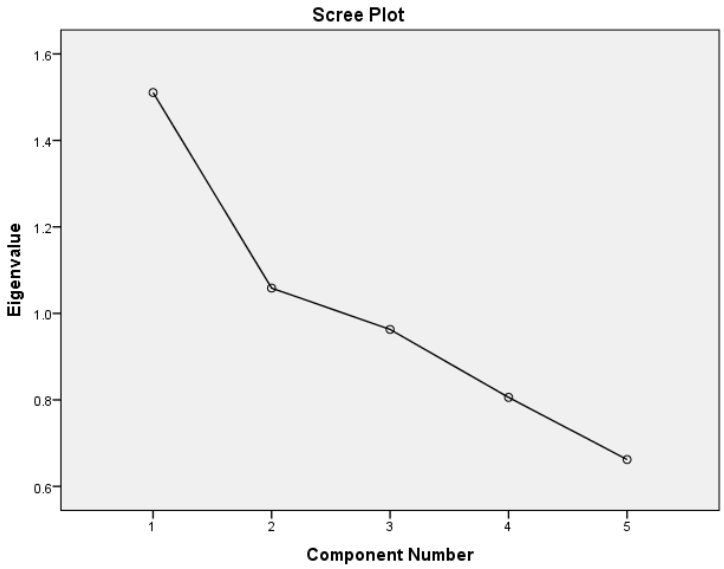
Q58 If my students are not learning, that means that I need to change my teaching methods	.748	-.137	.736

Extraction Method: Principal Component Analysis.
2 components extracted.
Rotation Method: Varimax with Kaiser Normalization

Correlation Matrix

	Q8	Q18	Q28	Q38	Q58
Q8 Covering the syllabus is the teacher's most important duty	1.000				
Q18 When a child is repeatedly getting low marks, it usually means the child is not working hard enough or that the child is a 'slow learner'	.023	1.000			
Q28 If a teacher wants to complete the syllabus, s/he cannot spend too much time on activities	.199***	.154***	1.000		
Q38 Completing the syllabus in time is more important than whether students apply what they learn to their lives	.306***	.101***	.182***	1.000	
Q58 If my students are not learning, that means that I need to change my teaching methods	-.062*	.033	.026	.049	1.000

Determinant = .821



Scale 7 – Professional Commitment

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.684	44.736	44.736	2.684	44.736	44.736
2	1.113	18.546	63.283	1.113	18.546	63.283
3	.898	14.974	78.256			

4	.523	8.720	86.976
5	.427	7.117	94.093
6	.354	5.907	100.000

KMO = .785
Bartlett's test of sphericity χ^2 (15) = 844.409, $p < .001$

Component Matrix

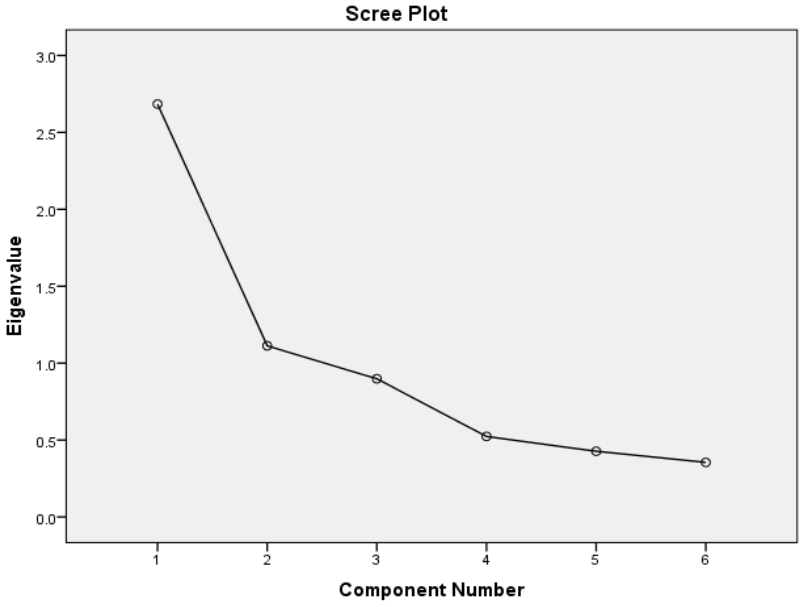
	Component Matrix:		Component Score Coefficient Matrix	
	Component 1	Component 2	Component 1	Component 2
Q15 If I could get a higher paying job, I would stop being a teacher	.825		.311	-.031
Q16 My duty towards my family is more important than my duty towards my students	.806		.294	.087
Q25 I often share my teaching materials or ideas with other teachers in the school		.714	-.026	.642
Q36 If I don't do my job as a teacher well, my students' future and their families' future will suffer	.102	.759	-.022	.683
Q39 It is fine for a teacher to miss classes, as long as she can complete the syllabus during the rest of the working days	.808	-.126	.310	-.087
Q56 It's no use trying to be a really good teacher, because we do not get any reward or appreciation for doing a good job	.827		.310	-.010

Extraction Method: Principal Component Analysis.
2 components extracted.
Rotation Method: Varimax with Kaiser Normalization

Correlation Matrix

	Q15	Q16	Q25	Q36	Q39	Q56
Q15 If I could get a higher paying job, I would stop being a teacher	1.000					
Q16 My duty towards my family is more important than my duty towards my students	.596***	1.000				
Q25 I often share my teaching materials or ideas with other teachers in the school	.019	.052	1.000			
Q36 If I don't do my job as a teacher well, my students' future and their families' future will suffer	.039	.126***	.111***	1.000		
Q39 It is fine for a teacher to miss classes, as long as she can complete the syllabus during the rest of the working days	.527***	.523***	.034	-.019	1.000	
Q56 It's no use trying to be a really good teacher, because we do not get any reward or appreciation for doing a good job	.578***	.514***	.049	.053	.609***	1.000

Determinant = .212



Scale 8 – Change

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.129	62.583	62.583	3.129	62.583	62.583
2	.616	12.323	74.906			
3	.515	10.299	85.204			
4	.396	7.929	93.134			
5	.343	6.866	100.000			

KMO = .849
Bartlett's test of sphericity χ^2 (10) = 1091.830, $p < .001$

Component Matrix

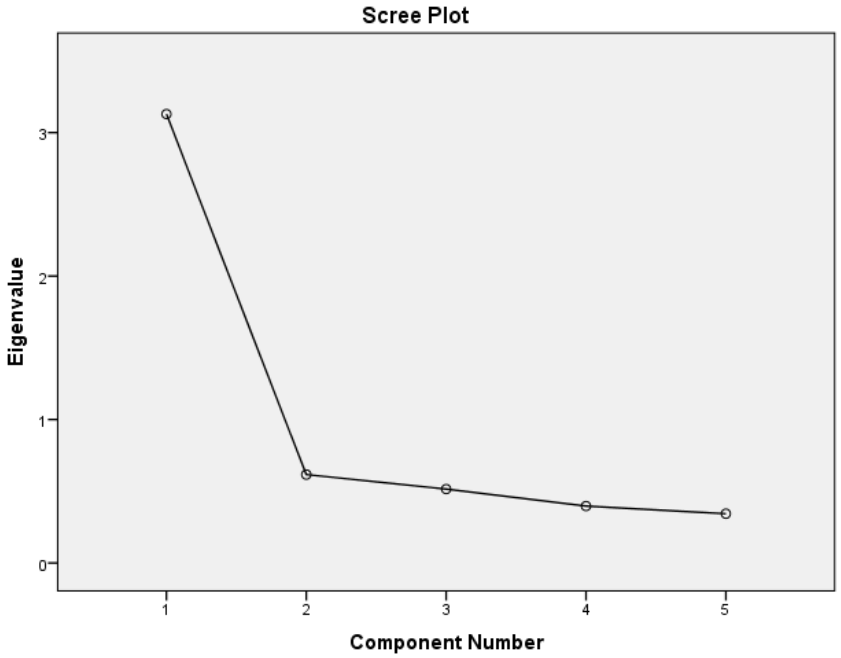
	Component Matrix	Component Score Coefficient Matrix
Q10 Our responsibility is to accept the way things are, not to try and change things	.707	.226
Q19 One's lot in this life is a result of one's karma from previous births	.826	.264
Q20 We should follow the paths of our ancestors instead of trying to create new paths	.809	.258
Q30 It's no use trying to change the education system in our country, because it's too difficult to change	.789	.252
Q50 Today's children should learn in the same way as the previous generation	.819	.262

Extraction Method: Principal Component Analysis.
1 component extracted.

Correlation Matrix

	Q10	Q19	Q20	Q30	Q50
Q10 Our responsibility is to accept the way things are, not to try and change things	1.000				
Q19 One's lot in this life is a result of one's karma from previous births	.443***	1.000			
Q20 We should follow the paths of our ancestors instead of trying to create new paths	.475***	.638***	1.000		
Q30 It's no use trying to change the education system in our country, because it's too difficult to change	.488***	.537***	.508***	1.000	
Q50 Today's children should learn in the same way as the previous generation	.451***	.619***	.560***	.585***	1.000

Determinant = .135



6.4 Correlations between Survey scales and Interview scales

Spearman's Correlation between Survey and Interview scales

	IV1	IV2	IV4	IV5	IV6	IV7	IV8	Interview-Total
Survey 1	.027	.309**	.284**	.306**	.271**	.166	.347***	.344***
Survey 2	.044	.341***	.199	.231*	.202	.154	.362***	.291**
Survey 4	.251*	.385***	.476***	.469***	.414***	.154	.457***	.502***
Survey 5	.260**	.387***	.377***	.483***	.453***	.296**	.375***	.506***
Survey 6	.130	.315**	.436***	.392***	.388***	.270**	.230*	.402***
Survey 7	-.032	.248*	.173	.207	.184	.265**	.171	.259**
Survey 8	-.061	.213	.126	.117	.068	.067	.255**	.147
Survey – total	.113	.372***	.354***	.356***	.341***	.243*	.364***	.414***

6.5 Testing Reliability of Pedagogy Scales

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
.774	.927	10

Pearson Correlation Matrix

	Ped 1	Ped 2	Ped 3	Ped 4	Ped 5	Ped 6	Ped 7	Ped 8	Ped 9	Ped 10
Ped1 Holistic outcomes	1									
Ped2 Community linkages	.608***	1								
Ped3 Variety of materials	.539***	.225*	1							
Ped4 Student participation	.753***	.609***	.701***	1						
Ped5 Prior knowledge	.566***	.746***	.351***	.691***	1					
Ped6 Cognitive engagement	.695***	.645***	.663***	.918***	.676***	1				
Ped7 Student questioning	.714***	.692***	.402***	.825***	.740***	.784***	1			
Ped8 Fear-free environment	.627***	.481***	.481***	.655***	.560***	.655***	.525***	1		
Ped9 Inclusive environment	.469***	.533***	.193	.423***	.490***	.362***	.420***	.455***	1	
Ped10 Continuous assessment	.593***	.525***	.326**	.446***	.445***	.411***	.453***	.535***	.551***	1

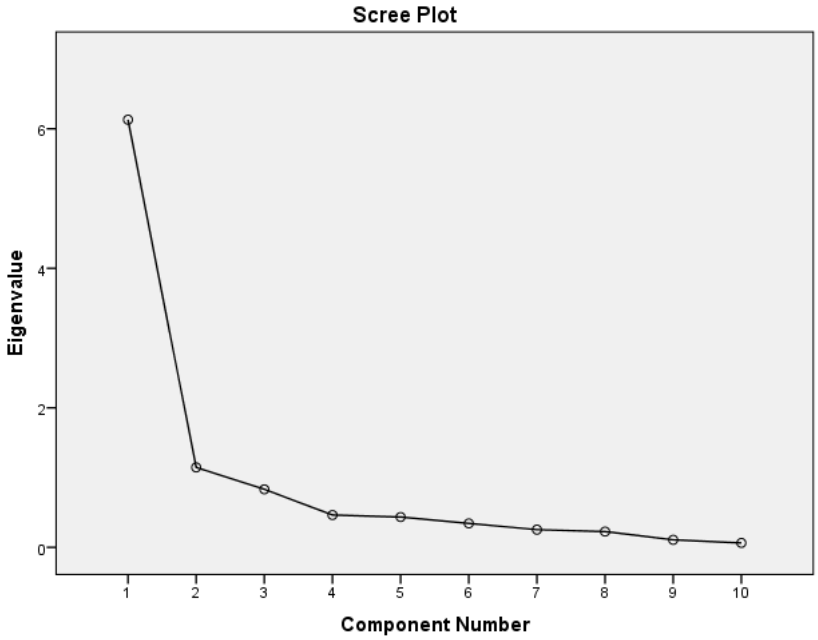
Factor Analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.130	61.304	61.304	6.130	61.304	61.304	3.832	38.324	38.324
2	1.146	11.462	72.765	1.146	11.462	72.765	3.444	34.441	72.765
3	.832	8.321	81.086						
4	.464	4.636	85.721						
5	.435	4.346	90.068						
6	.343	3.432	93.499						
7	.254	2.537	96.036						
8	.225	2.255	98.291						

9	.108	1.080	99.371
10	.063	.629	100.000

Extraction Method: Principal Component Analysis.



	Component Matrix		Rotated Component Matrix	
	1	**2**	**1**	**2**
Ped1 Holistic outcomes	.847	-.039	.648	.547
Ped2 Community linkages	.784	.346	.341	.787
Ped3 Variety of learning materials	.622	-.602	.865	-.019
Ped4 Student participation	.914	-.295	.871	.404
Ped5 Prior knowledge	.813	.160	.488	.669
Ped6 Cognitive engagement	.889	-.306	.860	.379
Ped7 Student questioning	.858	-.023	.646	.566
Ped8 Fear-free environment	.765	-.031	.582	.496
Ped9 Inclusive environment	.607	.555	.069	.820
Ped10 Continuous assessment	.659	.384	.223	.730

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization
2 components extracted

6.6 Summary of Teachers' Belief and Pedagogy Scores

Teachers' total survey and composite belief scores, and 8 individual belief scores

Name	Survey score - raw	Survey score - final	Belief Score	Belief Index	1-Equality	2-Democratic	3-Diversity	4-Learning	5-Purpose	6-Outcomes	7-Commitment	8-Change
Neena	155	-3.20	-1.2	1	-0.83	-1.04	-0.42	-1.32	-1.81	-1.25	-0.63	0.55
Preeti	124	-7.44	-1.34	1	-0.99	-1.06	-0.97	-1.06	-1.34	-1.05	-0.86	-1.00
Rohit	169	1.79	0.03	2	0.61	0.34	-0.34	-0.27	-0.78	0.16	-0.13	0.13
Vishal	179	1.68	-0.34	2	-0.30	-0.08	-0.59	-0.39	-0.45	-0.80	-0.38	0.87
Ajay	122	-6.52	-1.26	1	-1.50	-0.46	-1.40	-0.18	-1.74	-1.25	-0.96	-0.61
Kiran	151	-2.17	-0.52	1	-0.67	-0.58	-0.80	0.14	-0.38	-0.66	-0.58	-0.04
Lata	164	-.55	-1.04	1	-0.27	-0.98	-0.95	-1.20	-0.64	-0.88	-0.32	-1.17
Asha	146	-3.99	-0.31	2	0.31	-0.82	0.04	-1.22	-0.32	-0.74	0.83	-0.29
Rajini	149	-2.67	-0.13	2	-0.40	0.03	-0.84	-1.06	-0.44	-0.29	0.76	0.45
Prakash	172	.89	-0.19	2	-0.12	-0.71	-0.43	-0.39	0.43	-0.12	-0.46	0.47
Meenal	126	-6.32	-1.09	1	-0.06	-1.30	-1.02	-1.40	-0.79	-0.65	-0.90	-1.16
Aisha	135	-4.32	-0.78	1	-0.68	-0.92	-0.91	-0.89	-1.02	-1.20	-0.24	0.71
Supriya	144	-4.24	-0.55	1	-0.30	-0.50	-1.27	-0.97	-0.59	-1.35	0.19	0.14
Radha	154	-2.72	-0.94	1	-0.33	-0.80	-0.38	-0.28	-0.68	-1.39	-1.28	-0.27
Noora	149	-3.45	-0.71	1	-0.88	-0.05	-0.25	-0.75	-1.31	-0.90	0.48	-0.28
Smita	173	1.99	-0.61	1	-0.52	0.20	0.05	-0.64	-0.33	-0.94	-0.37	-0.26
Manisha	132	-4.89	-0.97	1	-0.60	0.27	-0.66	-0.84	-0.93	-0.66	-1.26	-1.25
Abdul	185	4.60	0.41	3	0.28	0.87	-0.87	1.37	-0.03	-0.09	-0.69	0.87
Farida	127	-5.84	-0.98	1	-1.04	-0.82	-0.28	-0.77	-0.49	-0.35	-0.78	-1.04
Sandeep	185	2.45	1.11	3	1.11	0.82	0.37	1.21	0.35	0.91	0.31	1.11
Anita	108	-10.96	-0.47	2	-0.28	-0.96	1.11	-0.11	-0.19	0.05	-0.50	-1.12
Leena	108	-10.95	-0.98	1	-0.94	-0.20	0.64	0.24	-0.19	-0.76	-1.83	-1.93
Deepa	112	-10.35	-0.85	1	-0.32	-0.58	0.64	-0.11	-1.04	-1.16	-0.83	-1.12
Sunita	101	-10.49	-0.43	2	-0.28	-0.96	0.25	0.24	-0.80	0.09	-0.83	-0.31
Ram	129	-5.02	-0.62	1	-0.80	-1.20	-0.17	-0.91	0.29	0.74	-0.84	-0.70
Priya	116	-8.18	-0.52	2	-1.01	-1.01	0.95	0.43	0.07	-0.48	-0.63	-0.71
Usha	128	-5.96	-0.99	1	-0.79	-1.37	-0.52	0.30	-0.56	-0.06	-1.40	-1.51
Sheila	114	-8.20	-1.11	1	-1.05	-0.44	-0.84	-0.88	-0.48	-0.54	-1.23	-1.59
Hema	114	-8.16	-0.38	2	0.00	-0.49	-0.58	-0.28	-0.65	0.15	-0.18	-1.19
Vinod	132	-6.24	-0.58	1	-0.46	-0.55	-0.57	-1.05	-0.51	-0.54	-0.08	-0.14
Suman	169	.84	-0.2	2	-0.40	-0.29	0.39	-0.08	-0.34	0.23	0.07	-0.03
Amita	191	4.68	-0.02	2	-0.18	0.10	0.38	-0.05	-0.58	0.80	-0.22	0.23
Shweta	198	5.47	0.27	2	-0.29	0.42	0.53	0.55	0.35	-0.65	0.93	0.38
Ameena	179	3.76	-0.02	2	-0.40	0.47	-0.62	-0.26	0.31	-0.35	0.47	-0.34
Richa	219	8.49	0.38	2	0.20	0.72	0.05	0.29	-0.01	0.30	0.79	0.15
Fatema	191	4.05	0.08	2	-0.19	-0.12	-0.39	-0.18	-0.19	0.50	0.35	0.31
Kavita	175	1.43	0.07	2	0.38	0.44	-0.29	-0.89	-0.67	0.10	1.11	-0.11

Aditi	203	7.03	0.4	2	-0.04	-0.26	0.42	0.09	0.40	0.80	0.74	0.79
Anil	157	-2.37	-0.91	1	-0.06	-0.89	-0.16	-1.43	-1.16	-0.95	0.19	-0.85
Savita	200	6.86	0.39	2	-0.19	0.16	-0.27	-0.24	0.35	1.23	1.02	0.06
Reshma	201	6.46	1.37	3	1.08	0.84	0.57	1.39	0.81	1.23	1.11	0.87
Jaya	199	5.68	0.94	3	0.81	0.14	1.02	1.15	0.62	0.99	0.84	0.62
Nafisa	199	6.21	1.42	3	1.13	1.02	0.70	1.30	0.92	1.11	1.12	1.03
Yasmeen	200	6.58	1.09	3	1.16	0.26	0.70	1.10	1.35	1.11	1.13	-0.18
Sonu	210	7.42	1.53	3	0.97	1.53	1.26	1.08	1.08	1.39	0.91	1.28
Anu	189	4.50	0.4	3	-0.20	0.62	0.70	0.66	1.06	-0.01	0.37	-0.02
Elizabeth	184	3.71	0.41	3	0.38	0.54	0.11	1.44	0.46	-0.15	-0.70	0.63
Shobha	178	2.75	0.48	3	1.29	1.06	-0.46	-0.05	-0.12	0.26	-0.37	0.63
Aruna	186	4.57	-0.1	2	0.05	-0.01	-0.37	0.20	0.20	-0.55	-0.18	0.23
Siby	226	10.18	1.4	3	0.71	1.62	-0.07	1.46	1.76	0.89	0.14	1.36
John	222	8.80	1.21	3	0.85	1.26	0.80	1.08	0.74	1.69	0.44	0.55
Annie	193	3.75	0.78	3	0.93	-0.31	0.92	0.82	1.33	0.76	0.53	0.06
Meera	182	3.37	0.82	3	0.33	0.69	0.36	0.16	1.25	1.06	0.53	0.37
Madhuri	177	2.32	0.66	3	0.91	0.92	0.71	-0.20	0.41	0.38	0.40	0.70
Swati	206	6.34	0.92	3	1.12	1.53	0.11	0.75	0.69	0.56	-0.17	0.78
Sarah	202	5.86	1.1	3	0.72	1.42	1.14	0.55	1.40	0.85	0.92	0.14
Alka	212	6.51	0.5	3	0.38	-0.22	0.65	0.99	1.07	0.28	0.11	0.46
Ruth	182	2.72	0.84	3	0.57	-0.30	0.60	1.02	1.25	0.34	0.83	0.63
Mary	172	1.23	0.27	2	-0.15	0.54	-0.49	-1.19	0.79	-0.02	1.11	0.46
Lalita	232	10.41	1.85	3	1.22	1.43	2.05	1.53	1.82	1.84	1.11	1.20

Teachers' total pedagogy scores, and 10 individual pedagogy scores

Name	Pedagogy Score	Pedagogy Index	1-Holistic	2-Community linkages	3-Materials	4-Student exploration	5-Prior knowledge	6-Cognitive engagement	7-Questioning	8-Emotional environment	9-Inclusive environment	10-Assessment
Neena	281	1	4	3	38	126	4	63	36	6	6	4
Preeti	286	2	5	3	38	119	4	63	38	6	5	5
Rohit	332	2	3	2	42	140	4	77	47	6	6	6
Vishal	326	2	3	5	28	140	8	72	50	8	6	6
Ajay	272	1	3	2	37	114	2	68	33	6	4	4
Kiran	284	2	3	2	39	116	4	63	43	5	5	4
Lata	276	1	4	2	30	124	3	68	34	4	4	3
Asha	276	1	3	2	38	114	2	67	37	5	5	4
Rajini	296	2	4	2	32	124	6	70	40	8	5	5
Prakash	240	1	3	2	28	104	2	58	28	6	5	5
Meenal	214	1	3	3	29	92	2	42	27	5	6	4
Aisha	220	1	3	2	32	88	2	50	27	6	5	4
Supriya	242	1	3	2	27	108	2	54	30	7	6	2
Radha	250	1	3	2	35	108	2	55	29	8	4	4
Noora	258	1	4	3	26	111	2	62	34	6	5	4
Smita	224	1	4	2	26	101	2	48	27	6	5	2

Manisha	282	2	3	3	33	119	4	66	36	8	6	6
Abdul	300	2	4	4	38	130	4	67	40	6	5	3
Farida	226	1	3	2	27	101	2	50	30	3	4	4
Sandeep	376	3	6	4	50	150	7	84	56	10	6	3
Anita	342	3	4	6	43	144	6	80	42	7	6	2
Leena	338	2	4	4	54	136	5	79	34	9	6	8
Deepa	326	2	3	4	53	134	8	66	42	5	6	6
Sunita	292	2	3	4	30	132	7	64	36	8	6	4
Ram	224	1	3	2	24	102	3	44	36	3	4	2
Priya	362	3	5	5	52	149	5	79	40	10	8	10
Usha	263	1	3	2	30	121	3	56	32	3	8	5
Sheila	330	2	5	4	52	142	5	73	33	6	6	4
Hema	303	2	3	3	34	134	6	65	43	6	6	4
Vinod	316	2	5	4	51	134	6	68	30	8	6	5
Suman	225	1	4	2	27	102	2	44	31	4	5	4
Amita	212	1	3	2	21	102	2	40	25	5	6	6
Shweta	240	1	4	2	33	105	3	50	26	6	6	5
Ameena	289	2	5	2	42	126	3	62	33	5	6	5
Richa	249	1	3	2	33	110	4	48	33	5	6	5
Fatema	314	2	3	4	45	132	6	70	38	4	7	4
Kavita	306	2	3	2	46	138	5	66	29	5	7	5
Aditi	350	3	5	4	41	154	4	80	41	8	7	5
Anil	256	1	3	2	27	117	4	56	33	6	5	2
Savita	272	1	3	2	42	118	3	61	28	6	6	3
Reshma	394	3	7	5	65	163	8	82	40	8	8	8
Jaya	366	3	4	6	31	166	7	84	46	9	6	6
Nafisa	392	3	4	2	60	178	6	87	37	10	7	2
Yasmeen	432	3	5	4	46	197	10	104	45	10	6	4
Sonu	449	3	5	3	63	196	6	107	53	8	6	2
Anu	368	3	6	4	52	162	4	84	36	8	6	6
Elizabeth	308	2	3	2	49	140	4	65	34	6	2	3
Shobha	404	3	5	3	72	174	3	88	37	10	5	8
Aruna	389	3	4	2	65	182	2	89	37	4	2	2
Siby	454	3	7	10	37	188	10	112	65	8	8	9
John	476	3	8	4	64	214	8	84	68	10	8	7
Annie	322	2	5	2	38	150	2	66	35	10	8	7
Meera	422	3	9	4	60	170	8	91	54	10	6	10
Madhuri	351	3	3	3	63	148	4	72	39	7	6	5
Swati	300	2	4	4	29	134	8	62	36	9	6	8
Sarah	439	3	7	4	71	188	4	92	46	10	7	8
Alka	366	3	6	6	54	161	8	70	44	8	6	6
Ruth	500	3	7	4	60	228	8	100	71	9	6	8
Mary	321	2	3	4	48	144	4	64	38	6	6	5
Lalita	533	3	9	10	42	240	10	114	80	10	9	9

Descriptive Statistics for Belief and Pedagogy Scores

	Range	Minimum	Maximum	Mean	Std. Deviation
Beliefs Score	3.19	-1.34	1.85	0.00	0.83
Belief1 Equality	2.79	-1.50	1.29	0	0.70
Belief2 Democratic	2.99	-1.37	1.62	0	0.81
Belief3 Diversity	3.45	-1.40	2.05	0	0.72
Belief4 Knowledge	2.95	-1.43	1.53	0	0.86
Belief5 Purpose	3.63	-1.81	1.82	0	0.86
Belief6 Outcomes	3.23	-1.39	1.84	0	0.83
Belief7 Commitment	2.96	-1.83	1.13	0	0.77
Belief8 Change	3.29	-1.93	1.36	0	0.79
Pedagogy Score	321.00	212.00	533.00	320.93	75.64
Ped1 Holistic learning	6	3	9	4.27	1.57
Ped2 Community linkages	8	2	10	3.33	1.71
Ped3 Variety of learning materials	51	21	72	42.03	13.20
Ped4 Student participation	152	88	240	139.73	33.54
Ped5 Prior knowledge	8	2	10	4.70	2.36
Ped6 Cognitive engagement	74	40	114	70.25	17.09
Ped7 Critical questioning	55	25	80	39.13	11.12
Ped8 Fear-free environment	7	3	10	6.90	2.06
Ped9 Inclusive	7	2	9	5.83	1.30
Ped10 Continuous assessment	8	2	10	4.98	2.10

6.7 State-wise Differences in Learner-centred Pedagogy Scores

Pedagogy Categories	Overall sample mean (n=60)	Mean Scores for each State			T-test for difference in means		
		Bihar (n=20)	Mah (n=20)	Kerala (n=20)	Bihar vs. Mah	Bihar vs. Ker	Mah vs. Ker
Pedagogy Score	320.93	273.05	290.45	399.30	-1.27	-7.39***	-6.18***
1. Holistic outcomes	0.28	0.24	0.25	0.37	-.54	-4.31***	-4.13***
2. Community linkages	0.34	0.27	0.31	0.43	-1.26	-3.12***	-2.12**
3. Variety of materials	0.37	0.29	0.34	0.46	-1.96*	-6.14***	-3.83***
4. Student participation	0.42	0.35	0.38	0.53	-2.02*	-8.12***	-6.74***
5. Prior Knowledge	0.48	0.35	0.46	0.62	-1.97*	-3.90***	-2.40**
6. Cognitive engagement	0.50	0.45	0.45	0.61	-.02	-5.51***	-5.17***
7. Critical questioning	0.36	0.33	0.31	0.43	.85	-3.07***	-3.87***
8. Fear-free environment	0.68	0.62	0.59	0.85	.51	-4.33***	-4.58***
9. Inclusive environment	0.58	0.51	0.61	0.61	-4.09***	-2.45**	0.00***
10. Continuous assessment	0.50	0.41	0.47	0.61	-1.31	-3.33***	-2.02**

Note: the raw scores for individual pedagogy categories have been reported as percentages of the total for each category, to enable easier comparison and visual depiction as in Fig. 6.1.

6.8 Scores of Low-, Mid- and High-LCP teachers in Key Observation Questions during pedagogy observations

		Low LCP (n=20)			Mid LCP (n=20)			High LCP (n=20)		
		1-1.5	2-3.5	4-5	1	3	5	1	3	5
1. Holistic outcomes	To what extent does the teacher encourage the children to develop their artistic and other non-scholastic talents during the lesson?	18	2	0	17	3	0	12	5	3
	To what extent does the teacher focus on developing the child's character or values during the lesson?	17	3	0	17	3	0	6	11	3
	Does the teacher make connections to other subjects while teaching one specific subject?	18	2	0	16	4	0	15	5	0
2. Community linkages	Does the teacher make connections between what they're learning, and the children's community or context?	13	6	1	10	8	2	4	11	5
	Does the teacher encourage critical discussion about real-life social issues or current events (especially from the perspective of marginalized groups)?	20	0	0	20	0	0	17	1	2
3. Variety of materials	Does the teacher use a variety of teaching-learning materials (TLMs) besides the textbook or blackboard during the lesson?	11	7	2	7	10	3	1	8	11
	Does the teacher encourage students to seek out knowledge from sources besides the textbook?	20	0	0	20	0	0	13	5	2
4. Student participation	To what extent does the teacher give opportunities for students to explore things for themselves, interact with each other, manipulate objects, or move around to explore?	15	4	1	11	8	1	3	7	10
	How often does learning take place through students participating in activities?	17	3	0	14	6	0	6	7	7
	Does the teacher provide the correct answer or new knowledge to students straight away, or does she encourage 'trial and error' and give them a chance to first think and try to figure out the answer on their own? (1 = Teacher always gives the answer to students directly, 3 = Teacher gives students a chance to try, then gives them the correct answer , 5 = Teacher waits until students think and figure out answers on their own, giving hints if needed)	5	14	1	4	11	5	0	11	9
5. Prior Knowledge	Does the teacher give opportunities for children to share what they already know about the topic being taught?	12	7	1	4	14	2	3	6	11
	Does the teacher build on what students have already learned earlier or know from their everyday experience, while teaching a new topic?	13	7	0	8	11	1	6	4	10
6. Cognitive engagement	Does the teacher try to generate students' interest in the topic, or motivate them to learn?	6	13	1	4	14	2	1	7	12
	Do the students seem passive/bored or engaged/enthusiastic? 1 = Passive/ bored; 5 = Engaged and enthusiastic	2	16	2	3	11	6	0	7	13
	Does the teacher seem disengaged/bored or engaged/enthusiastic/dynamic? (1 =	3	16	1	4	10	6	0	5	15

		Low LCP (n=20)			Mid LCP (n=20)			High LCP (n=20)		
		1-1.5	2-3.5	4-5	1	3	5	1	3	5
	Passive/ bored; 5 = Engaged and enthusiastic)									
	For the majority of lessons observed, does the teacher have a learning objective for the lesson, and make it clear to all the students? (1 = No clear learning objective; 3 = Learning objective is clear to the observer but not to the students; 4 = Learning objective is clear to all the students; 5 = Learning objective is clearly explained, and is achieved by students)	4	13	3	2	10	8	2	8	10
	How does the teacher respond when students make mistakes or do not know the answer? [1= Mistakes are scolded or punished; 2 = Mistakes are overlooked ; 3 = Mistakes are gently corrected by teacher (Teacher gives the right answer); 4 = Teacher encourages other students to provide the right answer; 5 = Teachers encourages that same student to keep trying to find the right answer on their own (giving clues or encouragement if needed)]	3	16	1	1	16	3	0	9	11
	Does the teacher encourage the students to express their own thoughts or ideas in their own words, or use their imagination or creativity in writing, art or talking?	13	6	0	13	7	0	6	6	8
	Out of the total 120 minutes observed, how much of students' time is spent off-task (not related to learning)? 1 = More than 40 minutes are off-task, 2 = Between 25 to 40 minutes off-task, 4 = Between 15 to 25 minutes off-task, 5 = Less than 15 minutes total off-task	0	5	15	2	3	15	1	1	18
7. Critical questioning	Does the teacher give any opportunities for students to discuss multiple solutions to a problem, or multiple perspectives to an issue? (eg. teacher asks open-ended questions and encourages a variety of answers, or discusses the perspectives of different social groups when studying social science, or the perspective of different characters in a story, etc) [1 = only one right answer accepted; 5 = teacher encourages students to give multiple answers]	19	1	0	15	5	0	8	6	6
8. Fear-free environment	To what extent is there an environment of fear in the classroom? [1= Teacher is very harsh and strict with students; 3 = Neutral – Teacher is neither very harsh nor very warm; 5=Teacher has a warm, approachable and friendly attitude towards students]	3	10	7	0	11	9	0	6	14
	What kind of methods does the teacher use to maintain discipline in the classroom? [1=Hitting or verbally humiliating individual students (please explain under 'Comments'); 2 = Shouting at or scolding the whole class; 3 = Teacher does not try to control the class at all; 5 = Using positive ways of gaining the students' attention, or correcting students gently]	2	16	2	1	13	6	2	6	12

		Low LCP (n=20)			Mid LCP (n=20)			High LCP (n=20)		
		1-1.5	2-3.5	4-5	1	3	5	1	3	5
9. Inclusive environment	Is there any evidence of discrimination against any specific students (eg. girls, disabled children, etc)? [1 = Some students are clearly discriminated against; 3 = There is no evidence of discrimination; all students treated equally; 5 = Teacher makes positive efforts to give greater attention/ support to marginalized students]	1	19	0	1	19	0	1	16	3
	How does the teacher responds to or interact with 'weaker' students? [1 = Teacher humiliates them or puts them down in some way; 2 = Teacher ignores or overlooks them; 3 = Teacher treats them the same as other students; 5 = Teacher gives them special help according to their needs]	3	14	3	1	17	2	1	14	5
10. Continuous assessment	Does the teacher stop to check whether students are able to demonstrate understanding?	8	11	1	4	11	5	3	7	10
	Does the teacher identify individual students' difficulties (based on students' written work, oral answers, or tests) and help each student to overcome their difficulties?	8	11	1	6	13	1	6	10	4

6.9 Regression results for factors predicting belief and pedagogy scores, without state interactions

Regression results for factors predicting belief scores, without state interactions

Variable	B	t-value	Significance
(Constant)	-3.155		
Maharashtra	1.553	.559	.579
Kerala	19.577	6.796	.000
Age	-.155	-1.301	.199
Male	4.905	1.977	.054
D.Ed	3.073	.914	.365
B.Ed_M.Ed	-.370	-.098	.922
Muslim	3.475	1.261	.213
Christian	-2.559	-.798	.429
Rural	-2.226	-1.118	.269

Note 1: R = .824, R_2 = .679, F = 11.744***
Note 2: Predictor variables include state, age, gender, teaching qualification, religion, location.

Regression results for factors predicting pedagogy scores, without state interactions

Variable	B	t-value	Significance
(Constant)	223.303	4.879	.000
Maharashtra	38.712	1.644	.108
Kerala	138.070	6.112	.000
Age	-.452	-.494	.624
Male	20.199	1.024	.312
Bachelors	25.194	1.542	.131
Masters	43.653	1.731	.091
Teaching Degree	11.524	.466	.644
Income above 15,000	27.165	1.477	.148
Muslim	-1.616	-.074	.941
Christian	38.877	1.450	.155
Rural	17.589	1.135	.263

Note 1: R = .841, R_2 = .706, F = 8.533***
Note 2: Predictor variables include state, age, gender, general education, teaching degree, income, religion, location.

6.10 Summary of significant regression results for factors associated with 7 individual beliefs

Survey Categories	Age	Gender	Degree	Location
1-Equality	Age -.03** Mah-Age .06** Ker-Age .05**	Male .61*** Male-Mah -.7*	DEd .7*** D.Ed.-Mah -2.1*** B.Ed.-Mah -1.4*	Rural -.9** Rur-Ker .87**
2-Democratic	Age -.028* Ker-Age .06**	Male .77** Male-Mah -1.3***	-	Rural -.95**
4-Knowledge	-	Male 1.3*** Male-Mah -2.5***	-	-
5- Purpose	-	Male .56* Male-Mah -.846*	D.Ed.-Ker 1.8*	
6-Outcomes	--	Male .79** Male-Mah -1.08**	-	Rural -1.19** Rural-Mah 1.03*
7-Commitment	Mah-Age .06*		D.Ed. .51*	Rural -2.2*** Rural-Ker 1.9*** Rural-Mah 2.3***
8-Change	Mah-Age .05* Ker-Age .04*	Male .78** Male-Mah -.98**	-	Rural -1.86*** Rural-ker 1.8*** Rural-Mah 1.7***

Note1: The table indicates the B values and significance levels for each regression.
Note 2: For the above regressions, Bihar is used as the reference group. Predictors are state, age, gender, degree, location, and state interactions with all 4 variables.

These results are explained briefly below:

- **Age:** In the overall sample, younger teachers score higher in equality and democratic beliefs. However there are significant differences across states: older teachers in Maharashtra score higher in Equality beliefs, professional commitment, and openness to change. Similarly, in Kerala older teachers also score higher in equality, democratic beliefs, and openness to change.
- **Gender:** Overall, male teachers appear to score higher in beliefs about equality, democratic relationships, knowledge, purpose, responsibility for outcomes, and openness to change. However this effect is outweighed in Maharashtra, where male teachers actually score lower in all of the above beliefs, when controlling for other factors.
- **Degree**: Overall, teachers with D.Ed. compared to ones with no professional degree tend to score higher in beliefs about equality and professional commitment. In Kerala teachers with D.Ed. also score higher in beliefs about purpose. However in Maharashtra teachers with both D.Ed. and B.Ed. score lower in equality beliefs.
- **Location:** Overall, urban teachers score significantly higher in beliefs about equality, democratic relationships, professional commitment, responsibility for outcomes, and openness to change. However the effect is opposite (with rural teachers scoring higher) in Kerala for beliefs about equality, commitment and change, and in Maharashtra for commitment, outcomes and change beliefs

6.11 Relationship between individual beliefs and practices

Pearson Correlations between Specific Beliefs and Practices

	1-Equality	2-Democratic	3-Diversity	4-Knowledge	5-Purpose	6-Responsibility for Outcomes	7-Professional Commitment	8-Change
1. Holistic outcomes	.45***	.50***	.52***	.53***	.65***	.55***	.38***	.36***
2. Community linkages	.33**	.35***	.47***	.48***	.49***	.41***	.15	.29**
3. Variety of materials	.46***	.48***	.41***	.42***	.47***	.37***	.28**	.26**
4. Student participation	.67***	.58***	.62***	.66***	.71***	.65***	.46***	.44***
5. Prior Knowledge	.49***	.42***	.47***	.54***	.49***	.52***	.29**	.33**
6. Cognitive engagement	.57***	.55***	.51***	.59***	.62***	.53***	.38***	.40***
7. Critical questioning	.41***	.46***	.49***	.55***	.55***	.55***	.33**	.43***
8. Fear-free environment	.55***	.49***	.53***	.53***	.53***	.43***	.31**	.40***
9. Inclusive environment	.34***	.30**	.46***	.34***	.39***	.51***	.35***	.18
10. Continuous assessment	.26**	.35***	.37***	.35***	.41***	.31**	.11	.16

Summary of regression results for 7 beliefs as predictors of 10 practices

	1.Holistic	2. Community linkages	3. Variety of materials	4. Student participation	5. Prior Knowledge	6. Cognitive engagement	7. Critical questioning	8. Fear-free	9. Inclusive	10. Assessment
1-Equality	-.30	-.21	4.93	12.20	.60	4.52	1.66	1.00*	-.13	-.15
2-Democratic	.31	.1-	5.01*	2.96	.02	3.44	-0.49	.28	.01	.69
4-Knowledge	.22	.33	1.70	9.95*	.89*	5.07	2.44	.48	.24	.06
5-Purpose	.91**	.76*	3.84	11.88*	.04	5.75	2.20	.58	-.09	.99*
6-Outcomes	.17	.23	-2.59	1.72	.54	-1.36	2.73	-.40	.72**	.04
7-Professional Commitment	.07	-.47	0.11	2.56	.02	.97	-1.17	-.18	.42	-.53
8-Change	-10	.21	-3.83	-5.25	-.21	-2.35	1.70	-.00	-.36	-.25
R_2	.45	.30	.32	.60	.35	.47	.39	.39	.29	.22
F	6.06***	3.11**	3.41**	11.07***	4.03***	6.48***	4.70***	4.73***	3.07**	2.11*

Note: The first seven rows present B values for each regression. Significance indicated at *p<0.1, **p<.05, ***p<.0

8.1 Four-Stage Transformative Problem-Posing TE Framework, compared to various other models for changing beliefs (from Transformative Learning, Freirean and Beliefs Change Literature)

	1. Build democratic relationships	2. Raise cognitive dissonance & empathy	3. Facilitate critical reflection & dialogue	4. Enable creative action
1. 10 stages of Transformative Learning (Mezirow & Associates, 2000)		1. A disorienting dilemma	2. Self-examination 3. A critical assessment of assumptions 4. Recognizing "shared" nature of experience 5. Exploring options for new ways of acting	6. Planning a course of action 7. Acquiring knowledge and skills 8. Provisional trying of new roles 9. Building of competence and self-confidence 10. Reintegration into society
2. Teaching for Transformation (Cranton, 2002)		1. An activating event that typically exposes a discrepancy	2.Articulating underlying assumptions 3. Critical self-reflection of assumptions 4. Being open to alternative views 5.Engaging in discourse 6. Revising assumptions & perspectives	7. Acting on revisions
3. Transformative Learning opportunities model (King, 2005)	Building safety and trust; Determining needs & expectations	Creating learning experiences	Critical reflection, cultivating dialogue	Envisioning and supporting application
4. Transformative Learning for a new worldview (Jackson, 2008)		Handling 'cognitive dissonance': 1. creating cognitive dissonance, 2. confronting insoluble problems,	Individual's capacity to 'stand outside himself/herself: 3. identifying and defining secondary assumptions 4. identifying and describing primary assumptions	Willingness and ability to put to the test of practice the results of one's 'thinking differently': 5. testing 6. handling feedback
5. Freirean Problem-posing (Nixon-Ponder, 1995)	Dialogical Teacher-student relationship	Identify the social problem	Analyse root causes of the problem	Find solutions to the problem

	1. Build democratic relationships	2. Raise cognitive dissonance & empathy	3. Facilitate critical reflection & dialogue	4. Enable creative action
6. Pedagogy for the Privileged (Curry-Stevens, 2007)		*Confidence-shaking* *Process:* 1: Awareness of oppression	2: Oppression as structural and thus enduring and pervasive 3: Locating oneself as oppressed 4: Locating oneself as privileged 5: Understanding the benefits that flow from privilege 6: Understanding oneself as implicated in the oppression of others and understanding oneself as an oppressor	*Confidence-building Process:* 7: Building confidence to take action 8: Planning actions for departure 9: Finding supportive connections to sustain commitments 10: Declaring intentions for future action
7. A Pedagogy of Transformative Leaders (Brown, 2004)		Awareness through critical Reflection	Acknowledgment through rational discourse	Action through policy praxis
8. Transformative Training Process (Brinkmann, 2015)	1. A safe and empowering environment	2. Experience cognitive dissonance	3. Reflect self-critically	4. Practice new habits
9. Experiential Learning cycle (Kolb, 1984)		1. concrete experience,	2. reflective observation, 3. abstract conceptualization,	4. active experimentation
10. Conceptual Change Theory (Posner et al,1982, in Gregoire Gill et al 2004)	Four conditions: 1. From a credible source	2. Learner experiences dissatisfaction with the current conception	3. Finds the new conception intelligible	4. Finds the new conception fruitful

8.2 Mean Survey Scores of Teachers vs. Trainers

Survey Scales	60 Teachers	30 Trainers
1-Equality	.18	.38
2-Democratic	.16	.47
4-Knowledge construction	.20	.49
5-Purpose	-.10	.62***
6-Responsibility for outcomes	-.33	.41***
7-Commitment	.12	.25
8-Change	.11	.35

Note: Significance for t-values indicated as per t-test for difference in means for teachers vs. trainers