Venita Kaul · Suman Bhattacharjea
Editors

Early Childhood Education and School Readiness in India

Quality and Diversity

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Foreword

In a starkly unequal society like India with a democratic polity, public education is an extremely important focal point of aspiration for a large segment of the population located in the social and economic margins, something that no political formation can afford to ignore any longer. In spite of greater focus on elementary education, particularly after the enactment of the Right to Education (RTE), there still remain major hurdles in the path of the poor and the marginalized towards participating meaningfully in schooling. The early years of schooling pose the most difficult of challenges for children from the margins given the state of school readiness they are in. Here, school readiness is understood not merely as a characterization of the child; it is as much about the preparedness of the family, the preschool, and the entire formal and informal processes that are meant to facilitate transition of the child from home to school. Indeed, it is also about 'child readiness' of the school!

It is well known that the educational trajectory of the child is path dependent – the foundations laid in the early years of schooling determine how far and how well the child's schooling is likely to go. It is widely acknowledged among scholars and practitioners that a well-designed and well-managed Early Childhood Care and Education (ECCE) programme focusing on school readiness of the child and the family (as well as child readiness of the school) can provide a head-start to effective participation in schooling by children from the margins. Yet, there is perhaps still not enough conviction in the policy circles in India even at the present juncture for provisioning adequate resources for assuring quality of ECCE or for extending the ambit of the RTE to include the preschool years as well. This is where policy advocacy based on strong research foundations has a significant role to play.

It was the recognition that universities need to provide credible platforms for research designed to support policy advocacy that led to the establishment of the Centre for Early Childhood Education and Development (CECED) in Ambedkar University Delhi (AUD) shortly after the establishment of the University itself. There was a fortuitous convergence of circumstances that led to CECED's success, and Professor Venita Kaul's leadership and the untiring efforts of the dedicated team of professionals that she created and nurtured at CECED were certainly the most

important among them. Doubtless, it helped CECED a great deal that it was located in an ecosystem that was nurtured out of a deep conviction in the AUD's founding leadership about the importance of investing in innovative institutional structures and arrangements to support generation of new knowledge with a view to not merely comprehending complex fluxes of social realities but indeed to intervening in and transforming them.

The India Early Childhood Education Impact (IECEI) Study, of which the present book is an outcome, is itself a path-breaking one, in its conception, design, as well as execution. The magnitude of its empirical base is itself astounding, both in a spatial and a temporal sense. Longitudinal studies involving both quantitative and qualitative explorations are seldom undertaken and executed with such rigour and competence as was done in the IECEI Study. The Study had multiple stakeholders – besides the University and the academia, the Study elicited the participation of governments, NGOs, and international agencies as well. There was a constant presence of highly credible and respected researchers in the field like Professor T. S. Saraswathi right through the life cycle of the Study, whose guidance and advice have gone a long way in ensuring its rigour and credibility. That CECED collaborated with ASER Centre in the IECEI Study also enhanced the competence and effectiveness with which it was conducted. This collaboration was a symbiotic arrangement – the rigour associated with the qualitative and the quantitative dimensions of the methodology of the Study got enhanced through this collaboration in a mutually complementary manner. As the Study unfolded, CECED organized a series of public events, one at every milestone, each meant for sharing and collective reflection on interim glimpses of the reality that the study revealed. These events brought together the whole array of stakeholders. These events demonstrated effectively how strategically critical it is for policy research to keep the momentum of communication going, with the objective of sustaining a sense of ownership for the study and its outcomes among all the stakeholders.

The various chapters of this book are not merely about presentation of the different findings of the IECEI Study. Each one of them is in a way a stand-alone work of scholarship. Each chapter tries to locate within the context of policy and practice particular research questions posed in the study, the manner in which empirical explorations are attempted to address these questions, and the findings that emerge from such explorations. Some of the chapters also attempt to present these explorations meaningfully within the perspective of the larger terrain of scholarship in the area.

A book like this is not meant as a storehouse of esoteric scholarship, although it is undoubtedly the outcome of concerted and focused application of the best of scholarship in the field. This book is meant as an important tool for political mobilization, for organizing civil society initiatives, and for policy advocacy. It also will serve as a priceless reference point for policy practice. Equally important, the book and the Study whose essence it attempts to communicate offer critical insights into complex social and cultural dynamics that scholars and practitioners in the field will gain much out of. It will be used widely as an important scholarly reference. The book generates seminal research questions for furthering the frontiers of scholarship

in the fields of education, childhood studies, and public policy. It also calls for more informed and concerted scholarly attempts at theorization on childhood(s) and public education in societies characterized by extreme inequalities. The book is an important milestone that builds the (more often than not dysfunctional) links between the three apices of the practice-policy-research triangle.

I have a profound sense of fulfillment and pride in writing this foreword. I am greatly honoured and have a sense of deep gratitude for having been asked to write this. This book epitomizes, in more sense than one, the culmination of 10 years of meaningful and authentic work in ECCE done at the CECED, and I have no hesitation in considering this as one of the most significant achievements of the first decade of AUD. Personally, I feel heartened and grateful that I have had the invaluable opportunity of a ringside view of the IECEI Study at every stage of its progress, and of playing a part, albeit one behind the scenes, in nurturing and backstopping the idea all through.

Former Vice Chancellor, Ambedkar University Delhi Shyam B. Menon
Delhi, India
6 January 2019

Preface

Intuitively, we all understand the phrase 'catch them young.' Today, we also know that the phrase is backed by substantial empirical evidence from around the world. Research in a variety of disciplines and contexts confirms that we can best help children acquire the skills and abilities that they will need in the future, both in school and in life, if we ensure that they have access to appropriate environments and inputs in the first 8 years of their lives.

What can sometimes be confusing is understanding what is meant by 'appropriate' inputs. Very often, we think that young children should mainly learn to 'behave': sit still, be quiet, don't fidget, and do as you are told. In addition, in the context of the soaring ambitions generated by a school system that has expanded enormously over the course of a single generation, we push our young children to learn, for example, to recite numbers from 1 to 100, because we think this will help them get ahead of the class before they have even entered school. There is a widespread belief that by ensuring that our young children are able to recite, 'A for Apple, B for Ball,' we are accelerating their learning and equipping them well for the future.

What is not clearly understood is that these good intentions often translate into very poor ways of supporting children's learning. Strikingly, this lack of understanding is as visible among teachers in elite private preschools in India's metros as it is among unschooled mothers in remote rural villages in the country.

But, as child development experts point out, giving children a head-start can mean allowing them to learn at their own pace and making sure we do not push them too far, too fast. Young children learn through play, and their learning process is experiential, less structured, and more multifaceted than anything our adult selves perhaps recognize as 'learning.' The impact of this lack of understanding (ours, not the children's) is that we are sending children to school without the foundational understanding and abilities that will help them make sense of a formal academic curriculum once they begin school.

Until recently, there was no large-scale evidence available in India on children's preparedness for school in the years just prior to entering Grade 1 or the extent to which the skills and abilities they brought with them affected their ability to cope with the curriculum in early primary grades. The longitudinal, mixed-methods India

Early Childhood Education Impact (IECEI) Study, which sampled about 14,000 4-year-old children from 3 major states (Rajasthan, Assam, and Telangana) and tracked them over a period of 4 years, was a major step in this direction. A collaboration between the Centre for Early Childhood Education and Development (CECED) at Ambedkar University Delhi and ASER Centre, with support from UNICEF and a range of government, academic, and non-government organizations and institutions, the IECEI Study generated a treasure trove of information about young children between the ages of 4 and 8 in India: where they are, what they do, and what they learn.

The published findings provided a first set of answers to the questions we posed when we started the study. But as often happens with research, every finding we reported led to a new set of questions to explore. This book builds on those findings and is the result of this second round of thinking about what we found and what it means. The study's most important findings provide the basis for our title – 'Early Childhood Education and School Readiness in India: Quality and Diversity.' Every author contributing to this volume was involved with the study in some way, whether at the stage of design, implementation, data analysis, or all of these.

The book is divided into four parts. Part I establishes the context for the rest of the book with two chapters written by Venita Kaul. In Chap. 1, she unpacks the concept of 'school readiness' and the different ways in which it can be understood. She then grounds this concept in the Indian context, tracing the ways in which early childhood education (ECE), which is potentially closely associated with school readiness, has been conceptualized, designed, and implemented in India over the years. In Chap. 2, she reviews the research that has been done in India on ECE and children's school readiness, ending with a summary of the design, major findings, and recommendations of the IECEI Study.

The remaining three parts of the book are organized in accordance with our understanding of children's development as a process of *interaction* between the child and his or her environment. As Venita Kaul explains in her introductory chapter, current conceptualizations of school readiness go well beyond assuming that it is the child who has to do all the work of becoming 'ready for school.' Preschools and schools, parents, and communities all have a critical role to play in providing an environment that enables children to grow and thrive. Accordingly, the remaining parts of the book are organized around three key dimensions of school readiness. Part II explores the topic of 'Children Ready for School,' Part III is organized around the theme 'Schools Ready for Children,' and Part IV addresses the issue 'Families Ready for School.'

Part II, 'Children Ready for School,' contains three chapters. The first two of these explore two completely different child characteristics and their relevance for children's school readiness. In Chap. 3, Manjistha Banerji and Mansi Nanda use data from IECEI as well as the Annual Status of Education Report (ASER) to examine whether children's age affects their school readiness levels. In a context where children are in school sometimes as early as age 4, and where many states permit entry to Grade 1 at age 5, a discussion on whether age of entry to school matters is clearly relevant. In Chap. 4, Meenakshi Dogra and Aparajita Bhargarh Chaudhary

unpack children's psychosocial development as an important domain influencing their readiness for school and discuss the importance of developing culturally grounded metrics and measures that capture these aspects of children's development in ways that can inform action on the ground. And in Chap. 5, Wilima Wadhwa, Suman Bhattacharjea, and Manjistha Banerji examine whether the quantum of exposure to early childhood education programmes does in fact improve children's early grade learning.

Part III on 'Schools Ready for Children' is the longest Part in the book, with five chapters exploring the institution of a 'school' (including preschool) from a variety of perspectives. Chapter 6, by Purnima Ramanujan and Nayan Dave, sets the stage by consolidating data from various sources to look at trends in the provision of ECE facilities in India. In Chap. 7, Aparajita Bhargarh Chaudhary and Venita Kaul use IECEI data to analyse the relationship between the pedagogy used in preschool classrooms (specifically, traditional, teacher-centric 'chalk and talk' instruction versus more flexible, play-based, child-centred methods) and individual indicators of school readiness. They conclude that the IECEI Study provides hard evidence for what child development experts have been saying for years regarding appropriate environments for young children. Chapter 8 by Sunita Singh also uses IECEI data to explore language and literacy instruction in early primary grades. She finds that despite variations across the three states covered by IECEI, instructional practices in early grades rarely encourage children to become independent readers and writers. Chapter 9 by Sunita Singh and Aparajita Bhargarh Chaudhary takes on the vitally important topic of teachers, examining teachers' beliefs regarding early childhood education and the ways in which these affect their classroom teaching practices. And in Chap. 10, Suman Bhattacharjea looks critically at some key assumptions underlying the ways in which schooling is organized. She concludes that the age-grade structure, so fundamental to school systems in most countries in the world, is deeply inhospitable to children.

Finally, in the book's concluding Part on 'Families Ready for School,' Benjamin Alcott, Suman Bhattacharjea, Purnima Ramanujan, and Mansi Nanda take a closer look at participation trends in ECE in India. They use both quantitative and qualitative data collected as part of the IECEI Study to understand not only *whether* children participate in preschool but also *which* provider they attend and *when* they do so and the ways in which these decisions reflect parents' perceptions about appropriate environments for young children.

In many ways, this book marks an end point to the 7-year journey that we undertook together as CECED and ASER Centre, supported by our state partners, funding agencies, and government departments. This journey was largely made possible thanks to a team of young researchers who brought dynamism and dedication in addition to a variety of skills to the project. Many of them are authors of the chapters in this volume, and we take this opportunity to thank them for their excellent contributions. We would especially like to thank Meenakshi Dogra who, while also an author, agreed to coordinate the entire process of negotiating deadlines and coordinating with authors for chapter submissions despite a heavy work schedule of her own. We would also like to extend our grateful thanks to Professor Vrinda Datta,

Director of CECED, and Dr. Payal Sahu for their willing facilitation, to Professor Shyam Menon for his steady support to both the longitudinal research and this publication, and to Punam Thakur for her efficient and meticulous editing.

Last but certainly not least, we have been very privileged to have been supported and accompanied throughout this journey by Professor T. S. Saraswathi, Professor Emerita of Human Development and Family Studies at the Maharaja Sayajirao University of Baroda. It is in large measure thanks to her that this book became a reality, and so it is entirely fitting that, along with the editors of this volume, she has the last word.

New Delhi, India — Venita Kaul
New Delhi, India — Suman Bhattacharjea

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Editors and Contributors

About the Editors

Venita Kaul PhD, is Professor Emerita of Education and Executive Chair of the Advisory Committee of the Centre for Early Childhood Education and Development (CECED), at Ambedkar University Delhi. Prior to this assignment, Professor Kaul was a Senior Education Specialist at The World Bank for over 10 years. During her tenure, she led several education projects in the South Asian region. Earlier, Professor Kaul served at the National Council of Educational Research and Training for over 20 years and took early retirement from position of Professor of Preschool and Elementary Education. She has been a Member of several Committees of the Indian government in an advisory capacity, including on the National Advisory Committee constituted by the Ministry of Human Resource Development (MHRD) to advise on the implementation of Right to Education (2010) and the Working Group constituted by the Ministry of Women and Child Development (MWCD) to advise on Development of National Policy on ECCE (2010), and a Member of the Committee constituted by MHRD to oversee functioning of National Council for Teacher Education which is a statutory body of the government to regulate teacher education in the country. At the international level, she has been a Member of the steering group of Asia-Pacific Regional Network for ECD and is an Invited Member of the Forum for Investing in the Young Child. She has also been on the boards of a number of well-known NGOs working in the area of education. Professor Kaul has several national and international publications in the area of early childhood education, child development, and primary education to her credit.

Suman Bhattacharjea EdD, is Director of Research at ASER Centre, New Delhi. ASER Centre is the research and assessment unit of Pratham, one of the largest non-government organizations in the field of education in the country. Dr Bhattacharjea has led or participated in several major studies examining different aspects of the education system in India with particular emphasis on generating actionable evidence with respect to children's learning outcomes at the pre-primary, primary, and

secondary stage. She has also been closely involved with efforts to convert research findings into capacity building modules for nonacademic audiences. Dr. Bhattacharjea holds a bachelor's degree in Economics from the University of Delhi and master's and doctoral degrees in Education from the Harvard University Graduate School of Education. She has worked as a Software Developer, a High School Teacher, an Education Specialist, and a Researcher. She has extensive experience in the fields of education, gender, and women's rights and has worked with government, private, non-government, and international organizations in several countries, including India, the United States, Pakistan, and Mexico. She has taught courses on research design, gender, and education.

Contributors

Benjamin Alcott is a Lecturer at the University of Cambridge's Faculty of Education. He received his PhD in Education Policy from the University of Michigan. Ben's research focuses on how policies can lessen educational disparities, especially in the early years. He is particularly interested in the potential for mixed methods to provide insights into how households respond to the educational opportunities available to their children and in how longitudinal approaches can help us understand the longer-term impact of learning. His work has focused on conditions in India, Pakistan, Uganda, Tanzania, Kenya, the United States, and the United Kingdom. Email: bma27@cam.ac.uk

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T. S. Saraswathi retired as Senior Professor in Human Development and Family Studies at the Maharaja Sayajirao University of Baroda, India. She obtained her doctoral degree in Psychology and Child Development as a Ford Fellow at Iowa State University in 1972 and was a Visiting Fulbright Scholar at Cornell University in 1983–1984. She has held visiting academic appointments in Tufts University; De La Salle University, the Philippines; and Boğaziçi University, Istanbul, Turkey. She has coedited Volume 2 of the *Handbook of Cross-Cultural Psychology* (1997, with Berry and Dasen), *International Encyclopedia of Adolescence* (2007, with Arnett et al.), and *The World's Youth: Adolescence in Eight Regions of the Globe* (2003, with Larson and Brown). Her edited volumes in India include *Cross-Cultural Perspectives in Human Development: Theory, Research and Applications* (2003) and *Culture, Socialization and Human Development* (1999), both by SAGE. Her recent publication with Routledge (2018) is titled *Childhoods in India: Traditions, Trends and Transformations*. She has contributed scientific papers in the areas of moral development, culture and socialization, adolescent development, and social policy. Email: Saraswathi.1939@gmail.com

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Part I
Background

Chapter 1
Introduction: Positioning School Readiness and Early Childhood Education in the Indian Context

Venita Kaul

Abstract This chapter provides a theoretical, conceptual, and contextual introduction to the book. It is divided into two parts, with the first part focusing on helping the readers develop a technical understanding of the meaning, scope, and significance of the concepts of early childhood education and school readiness and their interrelationships. This discussion rests in the context of the current "learning crisis" that is looming large over school education across the Global South. The second part places the discussion specifically in the Indian context, with the aim of familiarizing readers with the broader landscape of policies and provisions in early childhood education and school readiness in the country; it also gives a glimpse of the challenges that still remain.

Keywords Early years · Early childhood · School readiness · Learning levels · Early childhood in India

Learning Crisis, Early Childhood Education (ECE), and School Readiness: Are These Linked?

India has experienced a positive change over the last two decades which is reflected in parental demand for children's schooling. This was earlier a significant challenge among the marginalized communities, but is no longer a major issue. This shift is not based solely on anecdotal evidence but from the significant increase evident nationally in the gross enrolment ratio (GER) among 6- to 14-year-olds from 81.6% in 2000–01 to 96.9% in 2014–15 (GoI, 2016). School infrastructure and teacher availability have also shown significant improvements, largely through the initiatives under the Government of India's "Education for All" program, Sarva Shiksha Abhiyan (SSA). While these are positive trends, the downside is that basic learning levels of a large majority of children remain persistently low, with significant numbers continuing to not learn at their grade levels (ASER Centre, 2017).

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This reflects an escalating early learning crisis of "schooling without learning" (World Bank, 2018). This situation is not exclusive to India: 250 million children worldwide cannot read, write, or do basic mathematics; 130 million of these are actually in school (UNESCO, 2013–14). This is an emerging crisis across low and middle-income countries in which "millions of young students …… face the prospect of a lost opportunity ….. which is also a great injustice to children and young people worldwide. This learning crisis is widening social gaps instead of narrowing them" (WDR, 2018, p. 1).

While this undoubtedly calls for urgent action across the Global South, the key issue is: What should the action be? Typically, governments across countries tend to respond to low learning levels by addressing them once a child is already in school, mainly through investments in more effective assessment or monitoring mechanisms, teacher preparation, revision of textbooks, improved physical infrastructure, and so on.

While these are valid aspects to be considered, there is very limited discourse or reflection on identifying a more fundamental problem, which is that, while the curricular approaches and classroom practices tend to remain stagnant, the educational scenario is consistently changing with more and more children coming into the school system from diverse strata of society, many of whom are first-generation learners. This shift potentially has an enormous impact on children's learning needs.

Some key questions that demand reflection are: What is the profile of the children who are coming into the public school system today? In what ways is this profile different from past generations, and what are the specific learning needs that are emerging because of this change? Are these children coming from literate families, as was the situation in the past when education was a privilege of a few, or are they in most cases first-generation learners with families who are themselves not familiar with the school system and thus not aware of what is good-quality education for their children and how to support their children's learning? Are school curricula and practices responsive to these children's emerging learning needs and "ready" for them? Above all, do the diverse experiences that the children come with from their early childhood years, equip them adequately to negotiate the conventional primary school curricular expectations?

These concerns can be condensed into three primary questions. First, are parents "ready" to prepare their children for the demands of schooling in terms of possessing the knowledge, skills, and attitudes needed to enable them to give their children an appropriate early stimulation environment at home? Second, are schools "ready" with an early grades' curricula and classroom environment, appropriate to and in upward continuity from preschool, to meet the emerging learning needs of the children coming into the school system? Third, and most importantly, what are the competencies that children need to acquire at the preschool level that will impact their learning levels in primary grades and to what extent are children in primary grades "ready" in terms of having acquired these foundational competencies?

This chapter is designed to give readers a conceptual and theoretical understanding of the issue of school readiness and its relationship with early childhood educa-

tion, which is also the focus of this volume. This is addressed from two perspectives: (a) Why it is important to locate the issue of low learning levels at the early childhood stage, that is, the need and significance of early childhood education, and (b) the concept and definition of school readiness, its association with early childhood education, and its impact on later learning, especially of mathematics and language at the school level. The chapter then moves to a discussion of the Indian context with regard to both early childhood education and school readiness in terms of policies, provisioning, and participation of children.

Significance of the Early Years of Life and the Critical Periods

Multidisciplinary research from neurobiology, economics, and child development has provided credible evidence of the critical significance of the first few years of life for life- long development, with most of the brain growth already complete by the time a child is 5 years old (Haartsen, Jone, & Johnson, 2016). Research also confirms the importance of "stable, responsive, nurturing relationships and rich learning experiences in the earliest years that provide lifelong benefits for learning, behavior and both physical and mental health" (Shonkoff, 2009, p. 1). Within this span of the first 6 years of life, there is a succession of "critical periods" of development when a child is "biologically primed" to respond to appropriate stimulation, if available, which can lead to the development of more advanced neural structures and/or skills (Doherty, 1997). Each of these periods is associated with the formation of specific neural circuits that are associated with specific abilities. As the brain matures, higher-level circuits build on lower-level circuits (Shonkoff & Richter, 2013), thus confirming the fact that the learning process is cumulative and continuous in nature. These critical periods provide "windows of opportunity" for developing some specific competencies such as language fluency and social competency with peers, symbolic relevance, and certain cognitive competencies which are foundational, not only for school learning but also for lifelong learning and development (Doherty, 1997).

A crucial question that emerges is: What are the resources needed within a child's environment in these earliest "critical periods" in life that have the potential to influence the quality of his/her experiential learning opportunities? Some of these relate to the family's socioeconomic status such as mother's education, availability of play and print material, responsive and interactive caregiver practices, health and nutritional security, learning environment at home, and community resources such as family support programs. But given that a large number of children, especially from more marginalized communities, are less likely to have access to many of these resources at home, another issue that arises is: Are these children coming to school with inadequate school preparedness or readiness?

This brings us to the next question: What are the specific aspects/attributes that constitute "school readiness"? Is school readiness a universal social construct

attributable to children primarily from a deficit perspective,[1] or should it be seen more comprehensively from an interactionist, sociocultural perspective in terms of the role that the family and the larger community, including early childhood education programs, can play in influencing a child's preparedness for school?

School Readiness: How Do We Understand it?

Readiness for school as a construct often gets engulfed in a debate as it is confused with the concept of "readiness to learn." While readiness for school implies preparing the child, in accordance with the child's developmental age and status, to succeed in a socially structured learning setting of a school, readiness to learn is a developmental characteristic or process from birth (UNICEF, 2012).

Definitions of school readiness available in literature stem from three different perspectives: The *maturationist or nativist frame* considers readiness for schooling in terms of age and maturational status, often using developmental milestones as the eligibility criteria (Gessell, Ilg, & Ames, 1974; Pandis, 2001). This frame has influenced the practice of using age as the sole criterion for school admissions and this continues to be followed across many school systems today, including in India. The *empiricists*' view, on the other hand, focuses on a measurable set of skills and competencies which are relatively universal such as identification of colors, shapes, ability to count, and recognizing letters as indicators. This perspective views readiness as "something that lies outside the child" (Meisels, 1998, p. 52) which is taught by families, teachers, and schools that prepare children to "be successful in a typical school context" (Carlton & Winsler, 1999, p. 338). Many current education programs, including private schools in India, tend to reflect this viewpoint (Brown, 2007). The *interactionist* perspective (Murphy & Burns, 2002) emphasizes the bidirectionality between a child and his/her environment. It draws on Piaget's constructivist viewpoint which highlights a child's active role in constructing his/her knowledge while also taking into account Vygotsky's social constructivist perspective which emphasizes the social dimension as being critical to the co-construction of understanding in a child. School readiness within this interactionist framework may be defined as a product of a child's contributions to schooling and the school's contribution to the child (Meisels, 1999; Smith, 2016).

The construct of school readiness also needs to be examined from the sociological perspective of social disadvantage and its association with school readiness. Evidence from neuroscience and developmental research indicates that the preschool years represent a critical period in the development of certain mental processes that support effective, goal-oriented approaches to learning, particularly working memory and attention control. These mental processes are often delayed in

[1] According to the social deficit perspective, individuals from underprivileged social groups inherently lack the potential or ability to achieve because their social and economic contexts limit their exposure levels.

children growing up in poverty (Noble, McCandliss, & Farah, 2007) and appear to play a central role in predicting school adjustment and academic attainments (McClelland et al., 2007).

Research also demonstrates that a large number of children enter school lacking academic and /or social skills needed for success, with learning gaps widening over time since many education systems do not cater to this diversity in learning levels among children, resulting in a cumulative deficit (Feinstein, 2003; Pritchett & Beatty, 2012; Wildy & Styles, 2011). These skills could relate to a range of behaviors and abilities such as literacy, numeracy, ability to follow directions, working with other children, and engaging in learning activities, many of which require more specifically planned and structured experiences and learning opportunities for children during the early years, as foundational for later learning (Case, Griffin, & Kelly, 1999; Kaul, 1991; Mustard, 2002). Current research on school readiness is also informed by the emerging priority of the twenty-first century of children enabled to develop not just functional literacy but also higher-order thinking for problem-solving and wealth creation (O'Gara, 2013).

The EFA Global Monitoring Report (UNESCO, 2007) concludes that there is consensus in research which suggests that school readiness encompasses development in five distinct but interconnected domains: physical well-being and motor development, social and emotional development, approaches to learning/language development, cognitive development, and general knowledge.

The UNICEF (2012) position paper on school readiness adopts a broader and more comprehensive definition from an interactionist perspective which specifies three dimensions – children's readiness for school, schools' readiness for children, and families' and communities' readiness for school. This definition moves the concept of school readiness away from a deficit approach of inadequacy in children to a broader frame that focuses on the need for an enabling social environment for children.[2]

Early Childhood Care and Education (ECCE) and School Readiness: A Positive Relationship

The last two decades have seen significant and credible evidence building up globally on the benefits of investments in ECCE, particularly in the low- and middle-income countries in children's health, learning, and behavior (Engle et al., 2011).

[2] The IECEI study referred to in the preface and summarized in Chap. 2, which has formed the basis of this publication, derives its framework from this interactionist perspective in conceptualizing the construct of school readiness, reflecting a distinct and more eclectic perspective bringing the "social" and the "developing individual" within an interactive frame. A similar framework, which examines this phenomenon of school readiness comprehensively from the multiple perspectives of the child and the family and the quality of early educational experiences in preschool/school settings, has also informed the structure of this publication.

This has had an impact on the expansion of ECCE's provisions across countries with at least 68 countries, including India, approving the national early childhood policy instruments – policies, strategic plans, and laws; another 23 instruments are under development (Vargas-Baron, 2015). This surge in evidence has also informed advocacy for ECCE resulting in getting it included as a target under Goal 4 of the Sustainable Development Goals (UNESCO, 2015) to which most countries, including India, are signatories.

Research has also provided evidence of not only immediate but also latent and long-term benefits of good-quality ECCE through large-scale longitudinal research in more developed countries such as the UK, the USA, and Turkey (Kagitcibasi, Sunar, & Bekman, 2001; Ramey & Ramey, 1998; Schweinhart & Weikart, 1997; Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart, 2011). These large-scale studies make it possible to generalize the findings more confidently regarding the benefits that they demonstrate, which are particularly significant for children who are at risk in terms of their subsequent cognitive learning and socio-emotional adjustments. These benefits are sustained even in adulthood, more specifically in terms of better occupational and marital adjustments; less juvenile delinquency and incarceration; and better earnings. The studies, however, caution that the benefits from early childhood education are dependent on the quality of the education offered in terms of standards related to qualified teachers, validated developmentally appropriate curriculum, parent involvement, and feedback from assessments (Schweinhart & Weikart, 1997).

Several meta-analyses of studies in the USA and other countries using different methods and definitions have also reached the conclusion that, on average, early childhood interventions produce substantive impacts on learning and development across a broad range of domains. While the size of the effect declines once children enter primary school, its effects on schooling and other real-life outcomes are subject to the population targeted; the political, social, and economic context; and the program's characteristics (Duncan & Magnusan, 2013; Rao, Sun, & Zhang, 2014). While poor-quality childcare and education can be counterproductive, returns on investment in quality can be large (Engle et al., 2011). A key message that comes through from research is that attempts to scale up ECCE through poor-quality programmes and an untrained and unqualified workforce will not compensate for mediocre school systems and that children, especially poor children, will be the losers (Dalli, Barbour, Cameron, & Miller, 2017). Our own longitudinal research, on which this publication is based and which is reviewed later in the next chapter, supports these observations.

ECCE and School Readiness: The Indian Scenario

The issues discussed earlier assume significance in the Indian context. The crisis of basic learning levels in elementary schools is a growing concern in India as in many other developing countries (ASER Centre, 2017). Empirical evidence that supports

an association between ECCE and school learning is recent even though ECCE has been a part of the Indian policy framework since as early as 1986 when the last National Policy on Education (1986–92) was formulated. Therefore, prior to discussing the research evidence now available for India from the India Early Childhood Education Impact (IECEI) Study and other smaller research studies in the country, I first describe the Indian landscape in the context of ECCE in terms of relevant policies and provisions. Subsequently I identify some emerging concerns which provided the context for this research.

As a country, India is characterized by two significant challenges – its phenomenal scale and its wide diversity. It is the world's largest democracy with its federal structure comprising of 28 states and 7 union territories and a population of 1.2 billion (GoI, 2011) with an estimated population of 70 million children between 3 and 6 years of age (MWCD, 2011–12). Its diversity is equally challenging with the coexistence of 2000 ethnic groups, 29 official languages (and many dialects), and all religions of the world represented in the country. These challenges provide the backdrop as we examine India's quest, efforts, and achievements in meeting the goals of access, equity, and quality in ECCE.

In India, ECCE has been conceptualized as "integrated services for holistic development of all children along the continuum from the prenatal period to 6 years of age… towards ensuring a sound foundation for survival, growth and development of the child…. ECCE encompasses the inseparable elements of care, health, nutrition, play and early learning within a protective environment" (GoI, 2013, p. 1).

Although the concept itself is multidimensional, encompassing health, nutrition, care, and preschool education (which therefore gets delivered in a multisectoral mode), this publication focuses on only one domain – preschool education for 3-to-6 year-olds, which is directly associated with school readiness.[3] We begin by briefly tracing the historical journey of ECE in India with specific reference to ECE for 3- to 6-year-old children and then move on to reviewing related policy and programmatic initiatives undertaken in this domain, some of which I have had the privilege to observe or be a part of. The chapter concludes by describing some national initiatives for addressing emerging issues and challenges in the Indian context with regard to defining, owning, and implementing quality ECE programs.

Early Years and India's Cultural and Historical Legacy

The contemporary understanding of and emphasis on holistic development of children below 6 years is not a new or borrowed phenomenon in India. India's ancient scriptures, the *Vedas*, viewed both mother and child as a symbiotic unit and emphasized *samaskaras,* or age-based rites of passage and childcare practices, reflecting a developmental perspective. Based on the age of the child, these *samaskaras*

[3] Preschool education for 3- to 6-year-olds is referred to as early childhood education (ECE) in this volume.

sequenced the optimal physical and psychological progress in each phase of a child's life cycle, marked by distinct developmental milestones (Khalakdina, 2011). This ancient understanding is also reflected in the existence of a rich repertoire of traditional infant games, lullabies, stories, rhymes, and riddles which may well be considered in today's parlance as "early stimulation activities" for infants. These formed an integral part of childhood and childcare practices across India till a few generations back. Unfortunately, in more recent times, with social structures moving toward nuclear families and the demand for surrogate childcare becoming the norm rather than the exception, this legacy of holistic, pro-child development and caring practices is gradually disappearing.

Organized Preschools: Western Influence While developmentally appropriate activities such as those mentioned earlier were part of the Indian legacy across states in terms of child rearing, these were the responsibility of the home and the family. There was no organized system of early childhood education for a young child in India till the late eighteenth century. It was during this period of British occupation that the first set of infant schools were established in eastern India by early missionaries which were seen largely as attempts at moral and spiritual redemption of the natives, particularly native Christians (Kaur, 2004).

The concept of organized kindergarten or preschool education actually came into India in the nineteenth century in a scattered mode with a focus on the teaching of English and literacy by European missionaries. A major impetus to ECE came in the early twentieth century when Maria Montessori visited India at Mahatma Gandhi's invitation and conducted training in what is even now known as the Montessori method of early education at several locations in the country. However, these programs were still accessible only to a privileged few.

The Indian Balwadi The first attempt to reach out to the more marginalized sections of society with organized ECE came when Tarabai Modak from the Nutan Bal Shikshan Sangh,[4] trained by Montessori, established an improvised and low-cost version of the Montessori school which she called a "balwadi" or "children's garden" for tribal children in Kosbad in Thane district of Maharashtra. This nomenclature of balwadi has since been adopted to describe low cost preschools or ECE centers for children from impoverished families as a welfare measure. Balwadis are supported either by the government and/or run by NGOs or funded by other sources. By design, the balwadis are meant to offer only ECE and not integrated services and that too of minimal quality, largely due to resource constraints.

[4] See website Nutan Bal Shiksha Sangh.

Policy Framework for ECCE in India

ECCE has been the object of increased policy focus in recent years, possibly due to the influence of international agreements to which India is a signatory, such as the Education For All (UNESCO, 1990) and the more recent Sustainable Development Goals (UNESCO, 2015), resulting in clearer definitions of policy objectives for this age group.

The Constitution of India which was formulated in 1950 when India became a Republic, articulates the state's commitment to free and compulsory education of all children "up to the age of fourteen years within ten years of promulgation of the Constitution" (Article 45). The phrase "up to the age of fourteen" was consistently interpreted to include ECE for children below 6 years too within its ambit. The National Policy on Education (1986, p. 7) also devoted a complete chapter to Early Childhood Care and Education (ECCE), "as a feeder programme for primary education" and dwelt extensively on the need for a play-based approach for this stage of education. However, despite this policy acknowledgement, the formal system, in official documents for public education, consistently considers it to be for Grades 1 to 10 only. The nodal responsibility for ECE was allocated to the Ministry of Women and Child Development (MWCD) in 2006.

The more recent Right to Education Act (GOI, 2009) in a way reversed constitutional provisions by making education for 6- to 14-year-olds the fundamental right of every Indian child, thus omitting the first 6 years from its ambit. However, after considerable advocacy and reaction from civil society, Section 11 was inserted in the Act, which uses the phrase "states shall endeavor" to provide ECE; this is also incorporated in the amended Article 45 of the Constitution, but this inclusion still does not make ECE a justiciable right of every child. More recently, the government has been contemplating extending the Act to include ECE, but the matter is still under consideration.

As one of the six components of the Integrated Child Development Services (ICDS), ECE was generally considered the weakest in terms of implementation, but in 2013, MWCD brought ECE center stage by formulating and getting approved a National Policy on ECCE which focused on care and early learning of children below 6 years of age. This policy, accompanied by the National Curriculum Framework and Quality Standards, prescribed a developmentally appropriate curriculum and again discouraged formal teaching of the three R's (MWCD, 2014). The policy generated some sense of priority for ECE within ICDS' integrated structure and all states started preparing their own curriculum for ICDS. However, to date there is no available documentation of the process followed by the states in developing the curriculum and/or any assessment of the quality of its implementation.

More recently, with the restructuring of the centrally sponsored Sarva Shiksha Abhiyan (SSA) Scheme into the Samagra Shiksha Abhiyan, (GOI, 2018) ECCE has received a further spurt in attention at the policy level with a renewed interest in ECCE in MHRD, possibly due to the recent inclusion of ECCE as a SDG target in

the context of Goal 4 and the resulting interest globally in this area. A second factor contributing to this spurt could be concerns regarding the depleting strength of students in government schools due to an extensive expansion of private schooling across India which has resulted in the widening of choices for parents. This is also reflected in the recent expansion of the approved structure of school education under the Samagra Shiksha Abhiyan, which was earlier from Grade 1 to 10, by including pre-primary education at the lower end of the school continuum and senior secondary at the other end of the continuum.

SSA has thus been rechristened Samagra Shiksha Abhiyan or the "Integrated Education Mission." Under this mission, MHRD is taking greater ownership of preschool education for 3- to 6-year-olds. As a result, states have been encouraged to expand their preschool education networks by either colocating the existing ICDS anganwadis in the school premises and linking the two in convergence with ICDS or adding their own pre-primary classes under their education departments to the existing primary schools, if this is economically viable. To support this move and for ensuring quality, the National Council of Educational Research and Training (NCERT) has also for the first time come out with an official curricula for 2 years of preschool education, which is soon to be launched.

Current Provisions at Scale in ECCE

ICDS The concept of integrated child development or the interdependence between health, nutrition, and preschool education, though part of the Indian legacy, was reintroduced formally in 1975 for children below 6 years through the conceptualization and operationalization of ICDS. ICDS is a public sponsored program, modelled to an extent on the US Head Start Program which aims to meet children's foundational needs for holistic development from a life-cycle perspective. This program is targeted toward the marginalized and poorer sections of society. It started as a pilot in 1975 in 35 administrative blocks in the country and is today universalized across the country with 1.3 million anganwadis[5] or early childhood development centers, making it the world's largest integrated program for children below 6 years of age and for pregnant and lactating women (MWCD, 2014–15).

ICDS offers six services to children – immunization, supplementary nutrition, health check-ups, referral services, preschool nonformal education, and nutrition and health education. These six services are expected to be delivered by a single local multipurpose ECD functionary known as the anganwadi worker (AWW) along with a helper.

[5] An anganwadi is a community or habitation level center for delivery of six ICDS services related to health, nutrition, and preschool education; covering pregnant women, lactating mothers, adolescent girls, and children below 6 years.

This expectation of handling six diverse services requiring different skill sets and that too with minimal training and facilities has proven to be an extremely challenging requirement, which has led to a compromise of the quality of services (Kaul & Sharma, 2017). As a result, while preschool education through ICDS is available free of charge across the country, the focus tends to tilt toward its nutrition supplementation component at the cost of the quality of preschool education (Kaul & Sankar, 2009).

Private Preschools With parental aspirations rising over the years due to several factors, including overall poverty reduction, the demand for alternative models of better quality ECE services has increased. This has led to a rapidly expanding private sector, which generally offers preschool education as a part of composite schools. These range from expensive, high-end preschools to affordable preschools often offering minimal quality, particularly in urban slums and rural areas, with a recent survey reporting 22.5% enrolment of 4-year-olds in private preschools (ASER Centre, 2017; Paul, Krishnan, & Bikhchandani, 2016). These preschools are providing significant competition to anganwadis and schools in terms of diverting their enrolments. They also tend to be more responsive to parental demands in terms of curriculum with an emphasis on rote learning of alphabets and numbers, "English medium" labels, smart school uniforms, and a clear focus on the formal teaching of the three R's (Kaul et al., 2017). It was in response to the persistence of these developmentally inappropriate practices that the National Policy on Education categorically stated that "Formal methods and introduction of the three R's will be discouraged at this stage." (GoI, 1986, p. 10). However, in the absence of any regulatory system, these practices appear to be continuing with scant regard for children's maturational or experiential readiness, thus leaving them with a weak foundation for lifelong learning.

National Initiatives for Strengthening Quality in ECE

The quantity versus quality debate regarding the expansion of a standard model versus promoting quality, equity, and diversity in ECE has persisted over decades, especially in the context of ICDS, which tends to be "a one shoe fits all" design. As early as in the 1960s and 1970s, when ECE's significance was gaining prominence globally, some initiatives were also taken in India with support from UNICEF to contextualize ECE methods and materials while maintaining quality (Pattnaik, 1996). I had the privilege of participating in some of these initiatives initially as a junior professional, and what is presented below is based on my own lived experiences and close engagement with these activities.

Children's Media Laboratory (CML) and the Early Childhood Education Project The CML project was designed and implemented by NCERT in response to a survey which highlighted an acute dearth of Indian reading material, films, and audio programs for children below 6 years.

CML's objective was developing play and learning material in multiple media including print for very young children in various Indian languages. Picture story books for infants, toddlers, and preschoolers with locally generated stories were developed and printed as prototypes in a graded format for publishers to adapt/replicate. A School Readiness Program Kit was developed for a 6-week phase of initial preparation for children in Grade 1, since most children came directly to school without any preschool education. This was trialed in many states with good results. Surveys of traditional infant and childhood games and toys were done across states, and their significance for children's stimulation and development was documented.

This project subsequently evolved into an Early Childhood Education Project which had the objective of setting up resource centers for ECE in eight states with six centers located in the State Councils of Education, Research, and Training (SCERTs) and two in central universities in Andhra Pradesh and Gujarat (Andhra Mahila Sabha in Hyderabad and MS University in Vadodara). These were supported within the public sphere, primarily by UNICEF with a view to making available decentralized resource support and expertise in ECCE to state governments at the institutional level. Preschool sections were set up across the eight states as adjuncts to primary schools on a pilot basis. Each of the eight state resource centers developed state-specific play and learning materials for children below 6 years of age, including locally developed and contextualized story books and preschool curricula and training packages. A major by-product of this project was the creation of an active ECE community in the public space in India for the first time, which met biannually. These biannual meetings and vibrant exchange of ideas created a strong momentum for good quality ECE across states. However, with the project coming to a close in the mid-1990s, the momentum also waned.

Resource Centers in ECE A few resource centers such as MS Swaminathan Foundation, Chennai; Center for Learning Resources, Pune; and Mobile Creches, Delhi, and a few others also came up within the nongovernment sector with specialization in ECE. These brought in their own experience to the development of some useful training and curricular materials. For example, the MS Swaminathan Foundation brought out a series of case studies titled "Suraksha Series" which covered different ECCE programs on the ground (Swaminathan, 1995).

ECCE in the District Primary Education Project (DPEP) Attention to systemic issues of access, equity, and quality in ECE was again revived in the late 1990s and 2000 onward when the externally funded District Primary Education Program was implemented across states. ECE was included as an important component in these projects with the dual purpose of (a) providing a sound foundation for learning for children in primary education and (b) for facilitating older girls' participation in primary education/schooling by providing surrogate care facilities for their younger siblings through the ECCE centers. Many ICDS anganwadis were relocated to primary school campuses in some states and in others new centers were set up and their timings synchronized with those of primary schools. Evaluation studies conducted under

DPEP indicated very promising results, both in terms of increasing girls' enrolment and creating a joyful learning environment in schools. One reason for this perhaps was that these initiatives were also taken to extend the preschool pedagogy to the early primary classes in the mode of what was termed "joyful learning" (Sood, 2003).

ECE in Sarva Shiksha Abhiyan (SSA) Some ECCE initiatives including those of curriculum renewal were continued by the Ministry of Human Resource Development (MHRD) in Sarva Shiksha Abhiyan (GOI, 2001) under its Innovation Fund for strengthening ECCE in ICDS. This provision continued till around 2012–2013, after which this support gradually faded away, possibly due to a lack of convergence between MHRD and the nodal ministry for ECE i.e. the MWCD, as also perhaps due to concerns regarding duplication of resources.

University Research Centers for Early Childhood Development A significant development in 2009–2010 at the higher education level was the emergence of new initiatives by two universities, Ambedkar University Delhi, a state university and Jamia Millia Islamia,[6] Delhi, a central university, to establish a Center for Early Childhood Education and Development (CECED)[7] and a Center for Early Childhood Development and Research (CECDR), respectively. The former had a greater focus on early learning. Over the last few years, both these centers have undertaken some dedicated research and quality promotion activities in the area of early childhood education and in the development of children from birth to 8 years. Under their auspices, two postgraduate programs have also been launched in this domain to create human resource capacity in ECE. CECED has made some significant contributions to indigenous knowledge by formulating and standardizing Early Learning Development Standards and Psychometric Measures or instruments for assessing ECCE's quality, school readiness levels, and early learning outcomes. It has also led the longitudinal IECEI study in three states (Chap. 2). These university centers along with the Center for Learning Resources in Pune, Mobile Crèches in Delhi, Andhra Mahila Sabha in Hyderabad, and a few departments of human development and family studies in MS University, Vadodara, and Delhi University are currently emerging as active resource institutions in early childhood development.

At the decentralized level, states have been advised to expand preschool provisions by relocating their existing anganwadis to the premises of elementary schools where feasible and/or establishing new preschool sections in schools to strengthen convergence and linkages with schools.

State Initiatives in ECE Some states have initiated action on fine-tuning initiatives in ECE, specifically from the perspective of capacity building and quality promotion through setting up of model ECE centers/anganwadis, training of anganwadi workers, or introducing technological measures for resource support and regular

[6] See Center for Early Childhood Education and Development (CECED) website: Ceced.net.

[7] See Jamia Millia Islamia University, Center for Early Childhood Development and Research. website. https://www.jmi.ac.in/cecdr

monitoring. These activities, which are often being supported/initiated by UNICEF and other development partners and in some cases by multinational consulting companies, are still at a nascent stage. These need to be further supported, strengthened, evaluated, and scaled up. Chapter 2 that follows, reviews research in India and on that basis provides some empirical feedback on some of the measures taken by the government. It also raises several issues pertaining to access, quality, and equity that continue to remain a challenge, given India's scale and diversity.

In conclusion, the recent global acknowledgement of the key importance of ECE as a foundation for Goal 4 related to school education in the context of the SDGs (UNESCO, 2015), and also its acknowledgement in India, holds out promise of this domain getting its long due priority and support from the government and other development partners. The holistic approach required for the treatment of this substage of education, however, demands a revisioning of ICDS and MHRD's relative role and more comprehensive planning and interministerial coordination, backed by appropriate financial support. All of these are undoubtedly further contingent on the existence of a strong political will and commitment to ensuring that young children have access to high-quality early childhood care and education, not only as a high priority investment in the future but even more significantly as a fundamental right of every Indian child.

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Chapter 2
Research in India on Early Childhood Education and School Readiness: Some Learnings

Venita Kaul

Abstract This chapter offers field-based and empirical insights into the content, processes, and implementation of ECCE in India, through a review of the research available within the country on ECE and School Readiness. The first part of the chapter focuses on research studies conducted in the past decade in India; these are thematically categorized. This part also discusses the implications of their findings. The second part provides a brief introduction to the methodology, findings, and recommendations of the recently concluded longitudinal India Early Childhood Education Impact Study (IECEI), which is the first large-scale study of its kind in the country; it has also influenced the content and structure of this volume.

Keywords Indian research · Early childhood education · ICDS · India Early Childhood Education Impact Study(IECEI)

The Research Context

Early Childhood Care and Education (ECCE) and its important role in the context of preparing children for school have been well acknowledged in India over the years in terms of both policy and, to an extent, provisions. As discussed in Chapter 1, the Integrated Child Development Services (ICDS) has been in existence in India since 1975 and is almost universalized now. This is perhaps the largest public-sponsored provision of services for children below 6 years of age in the world. The program includes preschool education as one of its six services. Private provisions for ECCE are also expanding at a significant pace across the country and are no longer limited to urban areas. In comparison, the NGO sector in ECCE is miniscule in terms of coverage, although it is of some significance with respect to alternative models. While provisioning in terms of ECCE services is significant, ECCE as a domain for research has been relatively less explored.

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Perhaps a major reason for this is the fact that India has only about 30 Home Science colleges that offer postgraduate programs in home science and child development, with ECCE as one of their many courses. Being an area of very low visibility among the academia, ECCE as an independent subject/discipline had till recently not been included in universities and other higher learning and research institutions. It is only in the last decade that a few universities such as Ambedkar University, Delhi; Jamia Milia Islamia; M S University Vadodara; and SNDT University, Mumbai, started offering postgraduate programs in this discipline and/or set up centers[1] for research in this area so that some interest in research in ECCE is emerging.[2] As compared to these initiatives, national institutions like the National Council of Educational Research and Training (NCERT) and the National Institute of Public Cooperation and Child Development (NIPCCD), which have the mandate to engage more directly with the states and the larger system in an advisory role, have in the past been able to undertake more significant research in this area.

A major deterrent to research is also the dearth of reliable data on ECCE in the country, as ECCE is a largely unregulated sector. Research initiatives on ECE or school readiness in India have therefore been largely focused on the public-sponsored ICDS program, which, as mentioned earlier, is almost universalized across India with 1.3 million centers on the ground. Studies range from an assessment of the impact of participation in ICDS' preschool education component to assessing the impact of interventions, and/or reviews of diverse process related ECE characteristics such as curriculum, multilingualism, early literacy, community participation, and mentoring support.

Given India's scale and diversity, representativeness of the sample is a major methodological challenge for research. Since many of the existing studies are limited to one or a few states with samples that may, in their own right, be large and representative for the state but may not necessarily stand the test of representativeness for the size and diversity of the country, the findings do not lend themselves to generalizations. However, they do provide glimpses of the program's functioning and often generate insights into possible associations and interrelationships in the given domain that have the potential to impact, thus providing some direction for further research and making improvements in program implementation.

Some Insights from Research

I now discuss some of the learnings from larger research and evaluation studies in the context of specific thematic areas that have emerged from the review.

[1] See website for CECED and CECDR in References.

[2] The National Policy on ECCE (2013) specifies 3 to 6 years as the age for preschool education and the Right of Children to Free and Compulsory Education Act (RTE, 2009) indicates age 6 as eligibility for entry to grade 1.

Is ICDS Delivering Good Quality ECE/Preschool Education?

ICDS has been in operation since 1975 though it was scaled up only after the 8th Five Year Plan. Hence, its ECE component has been studied more systematically only in the last two decades. A survey by NCERT which had representation from all four regions of the country found that a large number of children came to school with no preschool experience despite the availability of ICDS. These children demonstrated deficiencies in concepts and skills related to readiness for reading, writing, and mathematics (NCERT, 1998). The National Institute of Public Cooperation and Child Development (NIPCCD) published a compilation of 68 studies conducted between 1996 and 2008, each of which evaluated ICDS from multiple perspectives (NIPCCD, 2009). These covered almost all the Indian states. Given ICDS' multisectoral design, the studies covered different services of the program, and some also included ECE or preschool education as it is referred to in the ICDS context. The latter studies, which are largely in survey mode, provide some insights into issues of access, equity, and quality in ECE.

The overview from these studies indicates that allowing for state differences, "pre-school education has been in great demand, especially in areas where parents were relatively well educated. However, the development needs of young children are poorly understood by communities, and therefore the community monitoring of preschool education is limited. This has led to some casualness about pre-school education in many Anganwadi Centers (AWCs). Lack of space, infrastructure and basic facilities were common hurdles, and many Anganwadi workers (AWWs) were inadequately trained for this purpose" (NIPCCD, 2009, p. 97).

One of these studies conducted in Odisha, with a sample of 455 children across rural, urban, and tribal belts, focused in particular on the preschool curriculum and reported it to be largely focused on rote counting. Interestingly, and almost counter-intuitively, when asked to count up to 5, the tribal children performed better as compared to the other two categories. In Karnataka, a large number of respondents mentioned that "pre-school was the weakest link in the ICDS programme, because the AWWs spent a lot of time on added responsibilities outside the core ICDS programme. This left them with insufficient time to concentrate on pre-school activities. Another reason was the presence of Kannada or English medium private schools which motivated some parents to send their children to these schools. This was because the kindergarten programme of these schools laid emphasis on reading and writing, whereas the pre-school of ICDS limited itself to oral knowledge" (IIM, Bangalore 2005 p. 126)

Similar evidence was reported in Rajasthan and other states as well, reflecting a lack of awareness among parents of what is good quality ECE, as also the lacunae in the ICDS preschool services run solely by a single, poorly trained, multipurpose worker with support from a helper. In this context, a World Bank study in Tamil Nadu included in the compilation found that the state's initiative to make two workers available in almost 90% of the centers, one to take care of the 0- to 3-year-olds and the other to take care of preschool education of the 3- to 6-year-olds,

improved the quality of the preschool education provided. This finding provides clear support to a recommendation made recurrently in various fora for a second worker in each center who could be trained and given responsibility for conducting ECE for 3- to 6-year-olds. This recommendation has been ignored possibly due to financial constraints; as a result, the existing situation with regard to ECE continues to remain the same; this is also evident in later research.

An evaluation of ICDS, sponsored by the erstwhile Planning Commission in 2011 which covered 300 ICDS projects[3] spread over 100 districts in 35 states and UTs, reported that, on average, most of an AWW's time was spent on record keeping followed by preschool education and then on feeding activity. In terms of the quality of the curriculum, on average, activities which did not require materials or space such as stories, counting, and free conversations were observed in most centers, while those like drawing, puzzles, and material-based activities were less popular and available in only around 50% of the AWCs. However, there were significant state differences. The evaluation also confirmed that maximum participation in preschool education in ICDS was from the underprivileged and backward classes. It also raised the issue of gender with more girls than boys participating in ICDS and more boys attending private schools. In a study conducted in 2012–2015 in 12 districts of Gujarat, Chudasama et al. (2014) also raised issues of low coverage and quality of preschool education. They identified gaps in terms of infrastructure facilities; quality of the training; coverage, supply, and provision of supplementary nutrition; status of ECE activities in AWCs; and provision of other services to the beneficiaries. A baseline study in Medak district of Andhra Pradesh documented serious limitations in an ICDS tribal project such as poor infrastructure and lack of space; low academic qualifications of the AWWs; inadequate training for just 4 days; worker absence; and irregular attendance by children who were largely from illiterate and poorer families that hampered effective implementation of ECE (APF, 2013). A comprehensive multisectoral perspective emerged from a study by the World Bank in 2004 which examined major schemes for children in the public domain and identified several gaps in implementation, including wastage due to duplication of resources. It made a strong recommendation for strengthening institutional capacity and decentralization in planning and implementation in a convergent mode at the village level, leading to a very successful demonstration project in Madhya Pradesh "Bachpan." The study also presented an Indian conceptual framework for children's holistic development (World Bank, 2004).

Does Participation in ECE/Preschool Education Matter?

The most comprehensive study on ECCE in India which examined the status and impact of preschool education on children's school readiness and subsequent learning levels is the recent longitudinal mixed methods India Early Childhood

[3] Each ICDS project has 100 centers.

Education Impact Study (IECEI, 2011–2017) which has also informed the conceptual framework for the design and structure of this volume. Given its integral relationship with this publication, this study and its findings are separately summarized in greater detail later in this section.

NCERT conducted a national level study to assess the impact of participation in ECE on dropout rates in primary grades across eight Indian states. Using a quasi-experimental design, the study retrospectively backtracked 38,000 children in Grade 5 across eight Indian states to compare dropout rates between preschool participants and nonparticipants. The results indicated a significant gain of 8–20% in retention rates among the former, which it attributed to age-appropriate participation in ECE (Kaul et al., 1994)**.** Anecdotal evidence from teachers suggests that these benefits extend to the psychosocial domain as well since children with preschool experience are observed to be more confident and participate more actively in school activities as compared to those who come directly to school.

Experiences and Effects of Curricular Interventions in Preschools

Dhingra and Sharma (2011) compared 200 children enrolled in anganwadis and 200 homebound children in Jammu district on six cognitive skills—conceptual information, comprehension, visual perceptions, memory, and object vocabulary. Their study showed significant gains associated with anganwadi participation and identified age and gender as significant factors with girls and older children performing better. In a longitudinal research in a tribal multilingual context, Gupta and Samant (2017) reported that 5-year-old children were able to perform prenumber concept tasks but struggled with sequential thinking. They attributed this to lack of exposure to these concepts and skills in their curriculum. A few smaller-scale studies conducted in different states also explored and reported positive effects of participation in preschool education in ICDS, as compared to a control group of nonparticipants (Dhingra and Sharma, 2011; Raizada, Sachar, Bhatia, Sehgal, & Soni, 1993). Singh (2013), however, reported a negligible impact of preschool participation in his study and raised issues regarding the quality of preschool education in ICDS.

A longitudinal micro-study on the impact of a year-long concept based intervention focused on the mathematical readiness curriculum for 4- to 5-year-olds in an urban preschool. It tracked learning outcomes into primary grades and reported a significant impact of the intervention especially in the case of higher-order skills (Kaul & Dadhich (1995). A more recent unpublished impact evaluation of an NGO initiative in ECE covering anganwadi centers across Bengaluru in Karnataka indicated benefits of providing open-ended play materials like building blocks and other toys and time and space in the curriculum for free play in facilitating concept formation (CECED, 2013). In the context of a curricular reform intervention, Meenai, Sen, and Firdos (2015) identified support of facilitating middle- and

senior-level officials as a key factor in the effective implementation of preschool education from a systemic perspective in ICDS anganwadis in Haryana.

A national survey of preservice teacher education institutions in different regions in the country explored the extent of professionalism in preparing ECE teachers in India. The findings indicate significant issues in teacher preparation with inequitable distribution of teacher education programs/institutions in the country; inadequate regulation of quality and certification; and lack of demand for professional preparation due to absence of any regulatory requirement for appointing professionally trained teachers in ECCE, primarily since there is minimal government presence in this domain of school education (CECED, 2011).

Challenges in Research in Tribal Multilingual Contexts

A recent longitudinal study by ICF to assess the impact of mother tongue-based education on tribal children in Odisha documents the challenges faced in conducting research in tribal areas. The challenges include lack of availability of culturally relevant and standardized early childhood education tools in India; translation of tools into tribal languages that do not have a written script; and identifying, recruiting, and training data collectors with appropriate cultural understanding, familiarity with tribal language, and educational skills who are also willing to work in remote and insurgent areas of the state (Gupta, 2016). In the context of the same study, Rajesh and Samant (2017) mention the critical importance of engagement with the local community and a committed community-based teacher who understands the local language and can, with training and coaching, be able to create a joyful learning environment for the local children.

In her documentation of the classroom processes in a trilingual environment with English, Hindi, and Urdu languages in preprimary and Grade 1 in an urban school, Sen (2017) laments the lack of attention to children's sociocultural context while using pedagogic practices that are teacher directed and records how "these do not privilege the centrality of the learner in the learning process" (p. 122). She observed no difference in the teaching methodology for all the languages irrespective of varying levels of children's familiarity with each.

While these research studies are solely in the context of the underprivileged, two small-scale unpublished studies conducted by postgraduate students as part of their course requirement provide an interesting but very different urban, middle class perspective. Both studies interviewed parents, while one also observed a preschool. The latter reports English competency to be a top priority for parents as expressed by them for their children's academic and professional success, while they believed that the mother tongue could be learnt informally. In the two preschools observed by the student there was very little evidence of the use of home language or multilingualism as a resource (Dutt, 2018). This language disconnect is a major issue in the higher end private preschools in India. A recent reading survey of elementary grades from a sample of private schools in this category across India

indicates good skills of decoding but poor reading comprehension, which is perhaps symptomatic of this issue (Stones & Milestones, 2018).

Another study by a student focusing on the learning environment at home found that mothers reported telling stories and singing songs with children but also believed that this practice was slowly getting replaced by children's commercial programs on television and You Tube programs on smart phones. She found that children's homes had Chinese manufactured toys but there were no books other than school books. The impact of technology was clearly evident (Gurung, 2018).

On the basis of a recent review of the findings of the multicountry Young Lives study which includes a sample from Andhra Pradesh in India, Woodhead's (2009, p. 19) remarks provide a relevant conclusion to this section:

> current arrangements for early childhood care and education appear in many cases to run counter to the requirements for implementing the rights of every child, and are equally incompatible with achieving social equity. While some government services in the countries studied are explicitly intended to be pro-poor, all too often they do not function effectively to achieve that goal in practice. At the same time, the impact of a growing private sector is to reinforce rather than reduce inequities of access to quality education. In order to reverse these trends, governments along with international donors and other agencies have a central role to play.

The India Early Childhood Education Impact (IECEI) Study: A Summary

The IECEI study (Kaul et al., 2017) is the first large-scale study on early learning in India and perhaps also in South Asia that was designed as a longitudinal, mixed-methods study to examine trends in young children's participation in preschool at the age of 4 years and beyond till the age of eight years; the quality of the institutions that they attended; and the short- and medium-term outcomes of this participation. It explored the relationship between quality and quantity of children's participation in preschool on the one hand and their school readiness at 5–6 years—the age for school entry in most Indian states—on the other. The study also examined the association between children's school readiness levels at age 5 with their performance in early grades in primary schools. School readiness was conceptualized in terms of cognitive (including language) and personal social skills and behavior associated with academic performance and social adjustment.

Research Questions

Specifically, the IECEI study aimed to answer the following questions:

- What institutions do children participate in between the ages of 4 and 8, and how do these patterns vary over time and across locations?

- What is the impact of these participation trajectories on children's school readiness at age 5?
- Does greater school readiness at age 5 improve children's learning outcomes at age 6, 7, and 8?
- Is the relationship between preschool participation and subsequent learning outcomes similar for all children, or do the outcomes vary depending on children's personal and household characteristics?
- Are there specific dimensions or characteristics of preschools that improve children's readiness for school which can therefore be identified as components of "good quality" early childhood education in the Indian context?

Methodology

The IECEI study was implemented over a period of five years (2011–2016). It was implemented exclusively in the rural sector across three Indian states: Telangana (erstwhile Andhra Pradesh), Assam, and Rajasthan (Fig. 2.1), selected to represent different regions of the country. Within each state, two districts were selected, of which one was purposively selected because it housed a "known practice" ECE program (one that was regarded as being "innovative" by many experts) to ensure adequate variations in quality, so as to be able to examine the association between quality characteristics and outcomes.

The IECEI study was designed with the objectives of generating: (a) district level estimates of children's participation and outcome indicators, requiring a survey method with a larger, randomly selected sample and quantitative indicators; and (b) a more detailed, observation-based understanding of the characteristics of preschool programs and their impact on children through a quasi-experimental method, requiring smaller samples, greater technical expertise, longer periods of data collection, and more varied data collection instruments. A third strand used qualitative methods to elicit a more in-depth and nuanced understanding of quality dimensions in preschools through analytical case studies of nine good practices and subsequently of an entire village to understand the phenomenon of privatization in rural India. Thus, the study was designed as three separate strands, each with measures and methods appropriate to its objectives, linked by a common village sampling procedure and a common set of core indicators. An overview of each strand's objectives, sample, and methods is provided in an annexure to this chapter (Table 2.1).

Strands A and B tracked preschool participation trends among the respective sampled cohorts on a quarterly basis over the study period and assessed their school readiness outcomes (at ages 4 and 5) and cognitive learning outcomes (at ages 6, 7, and 8) on an annual basis. In addition, both strands collected data on household characteristics of the sampled cohort of children to assess the contribution of these factors to a child's school readiness and later learning. In addition, Strand B also conducted detailed classroom observations every year for ECE's quality assessment

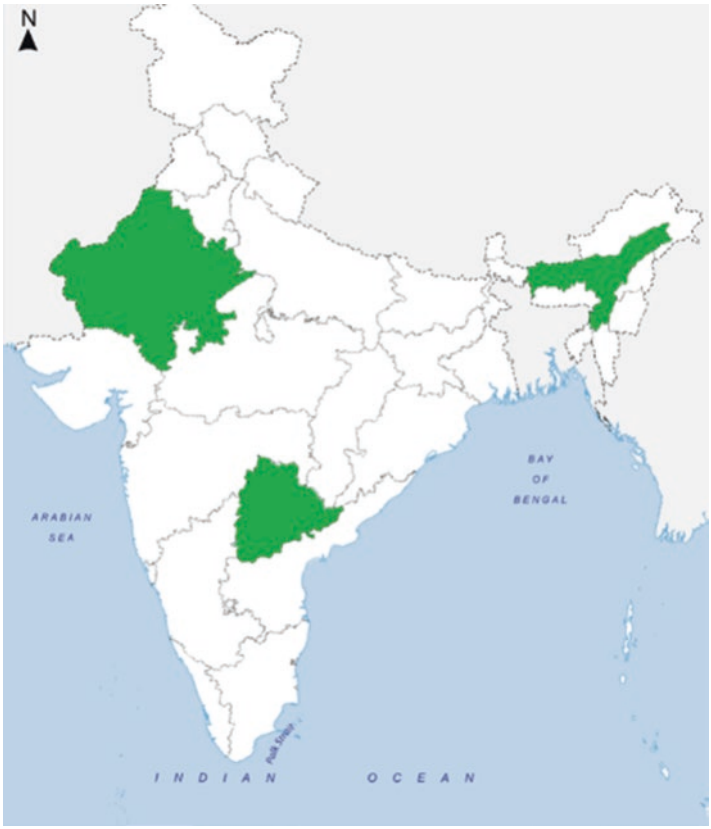

Fig. 2.1 Three Indian states covered in the IECEI study

and that of early grade programs attended by the cohort of children being tracked, to analyze the quality of the institutions at the preschool and primary stages and their impact on children's school readiness and subsequent learning in school. The instrument employed in the study for each variable was developed /adapted for the requirements of the study through a rigorous process of trialling and validation. Finally, under Strand C, the research also incorporated methods and measures to study parental choices with respect to their children's preschool participation in a subset of households and, more comprehensively, through a village case study and a more in-depth analysis of the systemic factors promoting quality from nine case studies of good practices. The results from the three strands were triangulated for the final analysis and for identifying the research findings and recommendations (Kaul et al., 2017).

Major Findings

Some key findings of the IECEI study are:

A. Status of Early Childhood Education in India

(i) Near universal access: Every one of the 350+ villages sampled for the study across the three states was found to have at least one ICDS anganwadi and over half of all the villages also had at least one privately managed preschool. With respect to children's participation, over 80% of the sampled children across the three states were already attending some form of early childhood education center at age 4, whether government-run anganwadis or privately managed preschools. There were, however, state differences in both provisioning and participation levels.

(ii) Multiple Pathways: Tracking of the cohort over 4 years revealed that participation trends in early grades from age 3 to 8 were nonlinear with children following multiple pathways. In contradiction of the Right To Education Act all the three states covered had 5+ and not 6 years as the official entry age for Grade 1, so that most 5-year-olds were found already in school and not in preschool. But some 4-year-olds were also in primary school and some 7-8-year-olds were still in preschool. Children thus did not follow clear age-wise trajectories as the policy expects. Despite the no-detention policy, children's progression was not necessarily linear. There was significant lateral movement including cases of repetition, especially across private preschools and schools. Thus, it was only by age 8 that over 90% of the sampled children in all the three states were in primary school and the enrolment stabilized. The common assumption that children across the country follow a linear trajectory and enter the same grade at the same age, does not therefore match with ground realities.

(iii) Formal Teaching: Curriculum and pedagogical processes tend to focus on formal teaching of academic skills and are not in most cases developmentally appropriate. Both anganwadis, and more particularly, private preschools, the two main options available to a majority of the children, were not observed to be offering an age and developmentally appropriate play-based curriculum as per policy. Formal teaching of reading, writing, and arithmetic was observed to be the most prevailing practice across preschools in terms of the time on task analysis. This was found to have an inverse relationship with developmentally appropriate practices. Play, storytelling, and free play in activity corners and other early childhood activities were conspicuous by their absence. There were significant state differences.

(iv) School Readiness levels: Overall, the children's school readiness scores at age 5 were very low. Children's school readiness levels in cognitive and language domains were found to be very low at the time of school entry, that is, at age 5+. This is a matter of concern. Poor outcomes were more

marked for certain cognitive competencies such as sequential thinking, pattern making, classification, one to one correspondence, relative comparisons of numbers, and phonemic differentiation. Given that this was the status despite the fact that the sampled children had participated in preschool programs may be attributable to the poor quality of the programs that they attended.

B. Impact of School Readiness: Some Significant Associations

(i) While overall school readiness levels were found to be low, even one year of participation in a preschool setting from age 4 to 5 was found to have a significant association with children's school readiness levels. However, over time, the effect size, though still significant, decreased.

(ii) Preschool participation effects were much larger and had more significant and sustained association with school readiness levels at age 5+ and with learning levels in primary grades when the quality of the programs attended was observed to be better and more developmentally appropriate as per the scores obtained from classroom observations on the quality tool.

(iii) Other factors influencing school readiness levels were the age of the child,[4] mother's education, household assets, and learning environment/print availability at home.

(iv) A longitudinal analysis indicated that school readiness levels (on preliteracy and pre- math competencies) at age 5+ had a significant linear association with mathematics and language scores through the primary grades, thus "validating" the significance of "school readiness" as a construct as conceptualized and measured in the study, for later levels of learning. This finding may also help explain children's persistently poor learning outcomes in primary grades.

(v) A longitudinal analysis also indicated that most children had not acquired these competencies at the time of entry to school and were able to master many of these only by age 7 or 8, despite having attended a preprimary program. There is, however, some indication from a similar analysis with data from an innovative preschool program on a very small sample that mastery of these competencies can be accelerated and children enabled to have a sound foundation, if they are exposed to a good quality, play-based, and developmentally appropriate preschool curriculum between ages 4 and 5. Such exposure was also found to reduce equity gaps in learning outcomes between children from more disadvantaged and less disadvantaged households. This needs further research and validation by a larger sample.

[4] The National Policy on ECCE (2013) specifies 3–6 years as the age for preschool education, and the Right of Children to Free and Compulsory Education Act (RTE, 2009) indicates age 6 as eligibility for entry to Grade 1.

(vi) The key quality factors that emerged as significant for children's readiness related to attributes of the teacher, the curriculum, and the physical setting. In particular, high quality ECE programs have teachers who understand the age, developmental and contextual appropriateness of the curriculum; who are sensitive to children's needs and not only interact regularly with the children but also encourage interaction among them; and an ECE curriculum that focuses on concept formation and cognitive skills, rather than formal teaching.

(vii) The study confirms a significant association between school readiness and learning levels in primary grades. It also confirms the key contribution of a developmentally appropriate preschool curriculum in enhancing school readiness levels with sustained impact on performance in the primary grades. Age emerged as a significant factor influencing school readiness with some higher-order cognitive skills and competencies not evident in children till the age of 7–8 years. At the same time, the study also identifies a nonlinear trend in participation in early years all the way up to 8 years resulting in a high probability of multiage class compositions in every grade. Given this fluid and dynamic state, the study makes a strong recommendation for a *foundational curriculum* which allows for upward curricular continuity and individually paced, flexible learning from preschool to primary grades. Some of its other recommendations include setting up measures for regulation; strengthening teacher development; and mentoring and advocating for 6 rather than 5 years of age as more appropriate for entry to Grade 1.

Conclusion

The research reviewed in this chapter reflects at best a glass half full. While a large number of children are getting the benefits of access to ECE through ICDS (universalization of which in the public domain is no mean achievement of the government) and through the expanding private sector, issues of inadequate equity, quality, and institutional capacity still remain to be addressed. There is no doubt that "the continued success of the ICDS will be determined by how well it evolves to address current weaknesses, adheres to evolving quality standards, and prepares children for life in school and beyond" (Rao & Kaul, 2017, p. 31).

The fact that there are significant state differences indicates the need for moving away from one shoe fits all strategies to addressing these issues more comprehensively and contextually, since it is evidently not only the characteristics of the community or the program that influence what children need and ultimately receive but also the larger political economy and governance structures and processes within which these are situated, that are important. To conclude, nothing short of a system approach and coordinated planning and implementation can successfully serve the needs of India's children. To end with a quote from a popular African proverb "it takes a village to raise a child."

Annexure

Table 2.1 Research design of the IECEI study

RESEARCH DESIGN: MIXED METHODS, 3 STRANDS			
Strand	Methodology	Objectives	Sample
A	Survey method	To derive district level estimates of (a) Children's preschool and school participation from Age 4 to Age 8 (b) Children's school readiness levels at Age 4 and Age 5 (c) Children's early grade learning outcomes Age 6, 7 and 8.	306 villages 1591 preschool centres 11225 children
B	Quasi-experimental	(a) To study quality variations among ECE provisions across public, private & voluntary sector (b) To identify program elements that demonstrate significant impact on children's school readiness and subsequent early grade outcomes	75 villages 298 preschool centres 2779 children
C	Qualitative Case Study	(a) To conduct In-depth case studies of preschool programs considered to be examples of 'good practice' (b) To provide a more nuanced assessment of quality in terms of content, process, facilities	9 case studies, across states

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Part II
Children Ready for School

Chapter 3
Till What Age Is "Age" Relevant? Examining the Effect of Age on Early Learning

Manjistha Banerji and Mansi Nanda

Abstract Various rounds of the annual ASER surveys as well as the IECEI study have pointed to the lack of a standard age of entry to school. While the IECEI study reports on low levels of school readiness and the relationship between readiness and learning achievements in primary grades along with several factors that influence learning levels, it does not discuss in sufficient detail the question of age of a child as a possible important factor. This chapter addresses this gap. Its focus is on the effects of age on the learning outcomes of young children as seen in both their school readiness and early grade scores in three states in the country: Assam, Rajasthan and Telangana. A statistical analysis indicates that the "age effect" is not significant. However, this lack of significance may not be as much because of the absence of a "real" difference in learning levels between the younger and older children as much as it is due to the overall low scoring context in which these children are located.

Keywords School entrance age · Age differences · School readiness · Early childhood education · Longitudinal studies

Introduction

Environmental and individual factors influence children's learning and development. Different experiences shape their cognitive, socioemotional, and psychological abilities before they enter a formal school. Inequities in children's cognitive and language development appear as early as 4 months of age (Fernald, Marchman, & Weisleder, 2013). With debates in India centering on low learning levels (ASER Centre, 2017)

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and gaps between the demands of the curriculum and children's abilities (Bhattacharjea, Wadhwa, & Banerji, 2011; Chavan & Banerji, 2012; Pritchett & Beatty, 2012), an important question is whether children are coming prepared for school. The IECEI study (Kaul et al., 2017) addresses this question. It provides evidence on what kind of institutions young children in India are attending, what they learn before they enter school, and their learning levels in early grades. While the report establishes strong relationships between school readiness and early grade learning up to the age of 8 years, it also points to children's low school readiness levels in terms of their cognitive abilities. Further, it highlights many factors at the household and individual levels that influence school readiness and early grade learning. However, one individual factor that it does not discuss in detail is the age of the child. In this chapter, we unpack the effect of age on children's learning outcomes as measured by their school readiness and early grade scores in assessments administered during the IECEI study.

This is an important policy question because currently there is no standard age of entry into primary school across India. While the Right to Education Act (2009) envisages age 6 as the age of entry to Grade 1, this norm is not necessarily followed by all states (Sood, 2003). In 2011–2012, 26 of India's 35 states and union territories allowed entry into Grade 1 at age 5, while nine followed the nationally prescribed norm of entry at age 6 (GoI, 2014). Moreover, parents too are not well-informed about the appropriate age of entry to Grade 1, which ranges from as young as age 4 to even age 8 (ASER Centre, 2017; Kaul et al., 2017).

Enrolment in Grade 1 (and Grade 2) at Ages 5 (and 6) Versus Enrolment in a Preschool: The National Picture

What percentage of 5- and 6-year-olds are, respectively, in Grade 1 and Grade 2, as opposed to being in preschool? Enrolment figures for these two age groups using the nationally representative ASER data are presented in Table 3.1. The table shows that close to half of all 5-year-olds were in preschool[1] in 2016 and close to a third were in Grade 1.

However, as is the case with most education-related statistics (Desai et al., 2010), the national figures hide large state-level variations. Maharashtra stands out as having the highest percentage of 5-year-olds in preschool, nearly 8 out of every 10 children are in preschool. In contrast, states in North East India, particularly Manipur, Mizoram, and Nagaland, have preschool enrolment of around or less than 1 out of 10 children.

Preschool enrolment at age 6 drops sharply at the national level. In 2016, it stood at around 17%, while close to three-fourth of all 6-year-olds were either in Grade 1 or Grade 2. A majority of the children across states were in Grades 1 or 2, but a few states continued to have a substantial percentage of children in preschool. For example, about a quarter of 6-year-olds in Punjab, Uttarakhand, Uttar Pradesh, Maharashtra, and Telangana were in preschool.

[1] Preschool is defined to include anganwadi centers and private kindergartens.

Table 3.1 Percentage of 5- and 6-year-olds in early grades and preschool, by state

	5-year-olds			6-year-olds		
	Percentage in Grade 1	Percentage in preschool	Percentage not enrolled anywhere	Percentage in Grade 1 or Grade 2	Percentage in preschool	Percentage not enrolled anywhere
All India	34.83	47.67	11.30	74.37	17.03	4.33
	North India					
Haryana	38.53	45.08	8.10	73.34	16.84	3.17
Himachal Pradesh	36.95	53.34	8.10	86.57	9.68	0.86
Jammu and Kashmir	34.80	38.82	17.91	72.57	20.09	3.32
Punjab	29.74	57.97	3.57	67.92	24.71	1.33
Uttarakhand	37.08	55.79	4.41	69.14	22.95	3.81
Uttar Pradesh	37.63	34.1	21.02	64.24	21.14	8.52
	West India					
Gujarat	29.76	61.11	7.40	85.2	10.35	2.72
Maharashtra	10.91	83.18	4.14	74.23	22.93	1.66
Rajasthan	43.49	30.48	12.38	71.66	14.26	4.57
	East India					
Bihar	30.12	52.09	13.47	67.8	21.79	6.21
Jharkhand	38.28	44.99	7.79	72.59	17.42	3.56
Odisha	31.77	60.32	3.74	80.33	14.82	1.19
West Bengal	55.87	21.55	15.40	86.55	6.58	5.48
	North-east India					
Arunachal Pradesh	42.84	8.69	10.10	84.72	5.23	4.45
Assam	63.51	21.04	6.59	89.28	6.35	1.06
Manipur	28.26	3.23	8.87	93.55	1.48	1.64
Meghalaya	28.96	23.29	10.04	86.22	8.42	2.11
Mizoram	66.13	6.65	2.27	93.27	1.63	1.56
Nagaland	22.6	4.31	6.03	94.58	1.25	1.37
	Central India					
Chhattisgarh	33.63	55.58	6.83	84.46	11.89	1.67
Madhya Pradesh	38.28	47.12	8.30	75.66	14.71	3.68
	South India					
Andhra Pradesh	22.43	70.12	5.46	72.54	24.7	0.94
Karnataka	14.62	80.19	3.49	80.98	16.06	1.88
Kerala	47	46.52	3.01	96.38	2.59	1.03
Tamil Nadu	45.13	49.42	3.19	92.71	4.55	0.78
Telangana	31.62	60.64	3.37	68.07	25.59	2.63

Notes: 1. The residual percentage consists of children in grades higher than 1 among 5-year-olds and grades higher than 2 among 6-year-olds
2. States with small sample sizes not included
Source: ASER Centre (2017)

Likewise, the percentage of children not enrolled anywhere fell as children grew a year older, from 5 to 6 years. Nationally, this proportion was 11.3% for children at age 5, which dropped to a mere 4% for children at age 6. Yet again, interstate disparities are not small. In Himachal Pradesh, Andhra Pradesh, and Tamil Nadu, less than 1% of the children aged 6 years were not enrolled anywhere. Uttar Pradesh was at the other extreme, where about 9%, or almost 1 in 10, of all 6-year-olds were reported as not enrolled either in preschool or school. Given that Uttar Pradesh is one of the most populous states in the country, this is a rather worrying situation. Other states where the percentage of 6-year-old children not enrolled anywhere was similarly high were Bihar (6.21%), West Bengal (5.48%), Rajasthan (4.57 %), and Arunachal Pradesh (4.45%).

Table 3.1 provides national estimates of enrolments in early years of education; more importantly, it also highlights the wide disparities across states with respect to enrolment figures, whether it is enrolment in preschool or school or children not enrolled in either of these institutions. From the perspective of teachers, school managements, and policymakers, this underscores age heterogeneity in early grade classrooms that ought to be considered for effective early grade education. Chapter 10 in this volume discusses how these ground realities are contrary to many of the implicit assumptions in policies related to early childhood learning.

What are the enrolment trends over time? Table 3.2 indicates that until about 5 years ago, more 5-year-olds were in Grade 1 than in preschool. The two were roughly equal at around 40% in 2013. Trends after 2013 are indicative of an increasing percentage of 5-year-olds in preschools and their declining percentage in Grade 1. That said, although the trend is toward more 5-year-olds enrolling in pre-primary, there is still a substantial percentage enrolled in primary – more than one in three 5-year-olds were in primary school in 2016 at the all-India level with large interstate variations. Thus, it is important to examine whether difference in when a child enters primary school has an impact on her performance in early grades.

Table 3.2 Trends over time in enrolment of 5-year-olds at the all-India level

	Enrolment status of 5-year-olds at the all-India level		Enrolment status of 6-year-olds at the all-India level	
	Percentage in Grade 1	Percentage in preschool	Percentage in Grade 1 or Grade 2	Percentage in preschool
2006	38.63	40.71	No data	
2007	49.55	31.69	85.08	4.79
2008	48.5	36.28	84.82	7.9
2009	43.5	39.03	82.35	8.66
2010	46.91	34.86	82.31	8.35
2011	No data			
2012	41.89	39.29	77.39	12.73
2013	40.32	41.01	75.71	14.16
2014	37.58	45.33	74.8	15.84
2015	No ASER survey			
2016	34.83	47.67	74.37	17.03

Differences in Enrolment and Participation Trends Across IECEI Study States

Enrolment, however, presents only a partial picture of young children's participation in their early years of education. For example, enrolment in ASER surveys typically refers to formal enrolment as reported by the parents or any other adult in the household present at the time of the survey. But enrolment is not synonymous with attendance (Bhattacharjea et al., 2011; Mehta, 2002). As per ASER 2016, only about three-fourth of the enrolled children were attending primary (Grade 1 to 4/5) or upper primary school (Grade 5 to Grade 7/8) on the day an ASER survey team visited the school (ASER Centre, 2017).

To capture the complexities of children's participation in early years of education, the IECEI study report (Kaul et al., 2017, p. 30) uses a broader definition of "participation," which does not focus exclusively on formal enrolment. Experience in the field has shown that a child might be formally enrolled in one school but attending another school. The IECEI study's intent was going beyond the official records captured by "enrolment" and recording where children were going regularly irrespective of their formal status in school. It defines "participation" to include both formal and non-formal enrolment, the latter being cases where a child may be attending an institution (school or preschool) without any formal enrolment. This may include, for example, instances where a child may be accompanying her older sibling to a school or preschool although not formally enrolled in the institution. Further, the study did not rely exclusively on parents to capture "participation." Field surveyors were instructed to examine enrolment and attendance records and observe whether the sampled child was attending any of the preschools/ primary schools in the village with the information provided by the parents as the starting point. In case of discrepancy between enrolment status as reported by parents and the surveyors' observations (e.g., when parents said that the child was not enrolled but the surveyors observed the child in a school or preschool), the surveyors' observations were given primacy.

It is instructive to examine whether the two alternative definitions of "participation" and "enrolment" provide different snapshots of children's participation in their early years of education. Table 3.3 presents "participation" trends as measured by the IECEI study and enrolment trends as reported in the annual ASER surveys for 5- and 6-year-olds for relevant years. ASER surveys are conducted between September and November.[2] The average age of the sampled children in the IECEI study was 5.2 years in November 2012 and 6.2 years in November 2013. Therefore, enrolment percentages of 5- and 6-year-olds for ASER 2012 and 2013 are compared with IECEI's "participation" percentages in November 2012 and November 2013 for the study districts. Table 3.3 highlights that there are differences in "enrolment" percentages as measured by ASER surveys and "participation" percentages as mea-

[2] http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER%202016/Report%20sections/frequentlyaskedquestionsaboutaser_english.pdf

Table 3.3 Comparison of ASER "enrolment" status with IECEI study's "participation" status

	ASER		IECEI study	
	Percentage in Grade 1	Percentage in preschool	Percentage in Grade 1	Percentage in preschool
	Dibrugarh, Assam			
2012 (Average age 5)	45.45	38.64	7.38	92.07
2013 (Average age 6)	56.82	20.45	38.79	55.5
	Kamrup, Assam			
2012 (Average age 5)	50	38.1	7.74	91.91
2013 (Average age 6)	71.7	7.55	37.74	50
	Ajmer, Rajasthan			
2012 (Average age 5)	32.89	28.95	28.31	59.75
2013 (Average age 6)	45.45	5.19	34.23	35.77
	Alwar, Rajasthan			
2012 (Average age 5)	44.44	26.26	59.75	34.73
2013 (Average age 6)	64.77	9.09	42.79	16.53
	Medak, Telangana			
2012 (Average age 5)	80.95	2.38	45.5	49.94
2013 (Average age 6)	39.58	2.08	35.94	21.4
	Warangal, Telangana			
2012 (Average age 5)			28.11	70.96
2013 (Average age 6)			40.02	39.43

Note: 1. Percentage distribution not displayed for Warangal for 2012 because cell size is insufficient. 2. Data not available for Warangal for 2013
Source: ASER Centre, 2013 and 2014; IECEI

sured by the IECEI study. For example, slightly more than a quarter of the 5-year-olds in Ajmer district in Rajasthan were in preschool as per ASER 2012. The corresponding percentage from the IECEI study is close to 60% of all sampled children. As per the IECEI study in Assam, only about 7% of the sampled children were in Grade 1 in Dibrugarh district, when their average age was 5 years. In contrast, ASER 2012 indicates that close to half of all 5-year-olds were in Grade 1 in Assam.

In other words, Table 3.3 supports our argument regarding the importance of moving beyond enrolment for a nuanced understanding of children's participation in early childhood education in India. In this chapter, we use the broader definition of "participation" in a regression framework to tease out the "true" effect of age on learning levels.

Role of Age in Children's Learning: Evidence from Neuroscience and Empirical Evidence from Developed Countries

Enrolment figures as measured by ASER surveys (Table 3.3) and participation figures as reported in the IECEI report (Tables 3.4.1 and 3.4.2 in Kaul et al., 2017, p. 31) show that children entering primary school ranged in age from 4 to 6 years. Besides this, a considerable percentage of children did not follow a linear trajectory into primary grades and switched between pre-primary and primary grades when changing institutions (Alcott, Banerji, Bhattacharjea, Nanda, & Ramanujan, 2018). This makes Grade 1 classrooms even more heterogeneous with respect to children's age. For instance, as per ASER (2016), nationally, about two of every five children in Grade 1 were of age 6, while one out of five children were of age 5 and age 7 each. A small percentage of children were 8 years old (8%), while the remaining 5% were 9 years old or above. In this context, it is important to take note of research in neuroscience which provides strong evidence between biological age and brain development.

The pace of development of the brain is most rapid in the early years of life with 90% of the human brain developing by the age of 3 years (Purves, 1994). These early years relate to the development of motor skills, emotional regulation, and attachment and provide the foundation for future cognitive and emotional functioning (Sander, 1987). The increase in the brain's size, however, does not occur through addition of brain cells but through changes in cell size and maturity (Epstein, 1979). Changes in brain plasticity are dependent on environmental influences and the timing of such an experience is also considered important in preventing and fine-tuning the effects of deprivation. Understandably, the lack of good quality experience has a detrimental effect on brain development (Solso 1999; Tierney & Nelson, 2009).

A continuous interaction between biological maturation and experience has been acknowledged in India's policy documents related to early childhood education

(GoI, 2013). The importance of play-based, developmentally appropriate learning and the risks of exposure to early instruction have been well documented (Kaul, 1997; NCERT, 2006).

Studies have also shown that younger children might be at a disadvantage when compared with older children due to differences in brain maturation which in turn is related to important functions such as planning and verbal fluency – these two are important for successful school performance (Romine & Reynolds, 2005). Differences in brain maturation are also related to differences in cognitive development and physical maturity along with development of social skills leading to lowered self-esteem and in turn lowered performance of younger as compared to older children in school (Martin, Foels, Clanton, & Moon, 2004; Morrison, Griffith, & Alberts, 1997). From a maturation perspective, research suggests that older or more mature children fare better in the classroom than younger ones and those who are emotionally mature do better in school (Shepard and Smith, 1986; Uphoff & Gilmore, 1986). Uphoff and Gilmore (1986) found that "the less bright but older and developmentally more mature pupils were able to do more with the ability they had than their brighter, younger students" (p. 13).

Moving beyond purely neurological evidence, a handful of studies from the developed countries indicate that being older has advantages in the classroom, while a few studies suggest that these advantages are limited and/or fade away as children grow older. Sakic, Burusic, and Babarovic (2013) found that when older students start school they do slightly better, at least up to Grade 3. The authors add that "differences in brain maturation can be related to differences in functions important for successful performance in school" (p. 658) and suggest that younger children may not be developmentally ready to begin schooling. Another strand of literature argues that maturity, school readiness, and cognitive development are influenced by environment and school experiences (Vygotsky, 1978). According to this view, starting school younger might be beneficial for the growth of children for whom the school environment is more stimulating than the home environment.

Bedard and Dhuey (2006) provide cross-country evidence to show that differences in initial maturity have long-lasting effects on student performance in OECD countries and the oldest pupils in a cohort outperformed their younger peers on a wide range of cognitive outcomes. The results are suggestive of a long run impact of relative age in many countries. The study also showed that the youngest students scored substantially lower than the oldest students in Grades 4 and 8 though the effect was stronger in the fourth grade.

The effects of age have been examined by comparing children of different ages in the same classroom, with age distributed evenly over 12 months as well as by comparing children of the same age in different grades (Stipek, 2002). Findings from these studies vary, where some report differences mainly in early grades of starting school favoring older children (Cameron & Wilson, 1990; Crosser, 1991), while others report that differences between the older and younger groups fade away as children progress to Grade 8 (Stipek, 2002).

Rodriguez (2016) examined the impact of chronological age differences on performance of students in Grade 1 and showed that overall younger children per-

formed poorly and needed more teacher support than older children. Dividing children within a 19-month age range into two groups based on their birth dates, the results showed that younger children seemed to struggle more with mathematics, while older children seemed to struggle more with reading tasks.

Studies have found that late entry into formal education positively influenced academic measures (Barua and Lang, 2009; Cromwell, 1998; West, Anne, & David, 2000) though the differences between older and younger pupils in the same cohort tended to fade away by the end of primary grades (Bickel, Zigmond, & Strayhorn, 1991; Crawford, Dearden, & Meghir 2007; Stipek and Byler, 2001). A significant fraction of American children defer school entry by a year making them the oldest in the cohort. This concept of delaying entry, called "redshirting," is a common practice in US that rests on the assumption that older children enjoy some advantages such as a steeper test score trajectory as compared to younger students in the same cohort (Datar, 2006). However, literature is not conclusive about the effects of redshirting on long term academic success. In fact, the only advantage that older and delayed entry children face as compared to the younger cohort is a lower likelihood of being retained in the same grade (Lincove & Painter, 2006). Crawford, Dearden, and Greaves (2014) show the effect of differences in birth month on learning achievements and the four main potential drivers of such differences in outcomes for children in England. As per their study, these potential drivers are age at starting school; absolute age or the age at test; relative age; and the length of schooling.[3] The study is unique since it eliminates the effect of difference in age at the time of assessment by assessing children when they have reached a specific age in months. The results from the study point to the significance of differences in maturity and development in terms of abilities, skills, and behavior and inappropriateness of curriculum among children in the same classroom. It also shows that there are no significant differences between younger and older children when they are given the test at the same age. In other words, "age at test" is the most important driver of differences in children's performance in terms of cognitive abilities among those who are the oldest and the youngest in their cohort.

As is clear from this discussion, most of the literature on effect of age on children's academic performance in school is set in developed countries. It is rather simplistic to assume that the results of these studies will hold in the context of developing countries like India. Several contextual nuances complicate a straightforward application (Alcott et al., 2018; Kaul et al., 2017; Sood, 2003). For one, the education system has a strict cut-off date for entry to primary school in developed countries. Thus, the age spread in the same grade can be reasonably assumed to be evenly distributed over 12 months (Lincove & Painter, 2006; Stipek,

[3] Absolute age implies that some children might be a year younger than the others when they sit for a test. The age of starting school implies that there might be students born just before the cutoff date for the admission month and might be at a disadvantage since they started school when they were considerably younger than their peers. Relative age refers to age relative to the classroom. Length of schooling refers to the fact that depending on the admission system, some children who are born toward the end of the academic calendar may have attended school for fewer periods before taking the test than others.

2002). In India, on the other hand, not only do children often enter Grade 1 before the official age of entry, there is also heterogeneity in terms of age within the classroom as indicated in the previous section. Second, younger siblings often accompany their older siblings to Grade 1 and informally participate in the system. This means that there is underage participation of children in grade 1 and that the age distribution may not be spread uniformly over 12 months. Third, in developed countries, once in the system, children usually follow a linear trajectory while progressing through grades. In contrast, children in India do not always follow a linear trajectory of preschool to school. Rather it may be the case that their trajectory is nonlinear such that they may start their educational journey by joining Grade 1 before the official age of entry and then move back to preschool and then again to Grade 1 (see Chap. 11 in this volume). Additionally, enrolment is not synonymous with attendance. That is, while children are enrolled in an institution, their attendance can be irregular (Bhattacharjea et al., 2011). There are three sets of enrolments available in schools: "first, the number of students whose names are written in the class register, second those who are marked present and third those who are physically present" (Mehta, 2002, p. 557).

Using data from the IECEI study,[4] we study the impact of age on children's school readiness levels and early grade learning levels. While many of the limitations discussed earlier are not overcome in the IECEI data, it has its advantages. It is a longitudinal dataset that tracks the educational trajectory of children during their early years of education and it records background information on the individual and household characteristics of sampled children, which allows us to examine the effect of age using a multivariate framework.

Association Between Age and Learning Levels of 5- and 6-Year-Olds: Evidence from the IECEI Study

Sampling of children for the IECEI study was done using the ICDS birth roster. Since the ICDS birth roster is maintained by anganwadis, as a first step this involved visiting all the anganwadis in a village. If there was more than one anganwadi in a village, this entailed dividing the sample target (50 children) equally among the anganwadis. Within an anganwadi, children born between March 2007 and February 2008 were listed, and the sample target was randomly selected.

Learning levels were assessed using the school readiness instrument (SRI) which was administered to the children twice, once at the beginning of the study in 2011 and a second time in 2012. Although school readiness is a multidimensional concept spanning young children's physical, cognitive, social, and emotional development, the learning levels presented here are based on children's performance in cognitive, preliteracy, and prenumeracy tasks. The school readiness tool used for measuring this was developed by the World Bank and standardized on an Indian sample. Within each of the broad assessment domains, the tool tested a range of competencies from sequential

[4] We did not carry out a similar analysis using ASER data because of small sample sizes at the district level.

thinking and following instructions to sentence making and number and object matching. Subsequently, at ages 6, 7, and 8, children were administered early grade learning assessments. Given that the length and nature of children's exposure to pre-primary and primary grades varied enormously, the early grade assessments were designed to be "age" rather than "grade" specific. While including some school readiness concepts, it also assessed children on slightly complex and formal concepts of cognitive abilities; reading readiness and language; emergent math and numeracy; as well as English.

Given that the sampled children in the IECEI study were born between March 2007- February 2008, they can be divided into three groups based on their age at the baseline visit (2011) – those between 3.5 and 4 years, those more than 4 years but less than or equal to 4.5 years, and those more than 4.5 years but less than 5 years. The number of children in each of these age brackets in the three study states is given in Table 3.4. Is it the case that children in the youngest age group (between 3.5 and 4 years) are disadvantaged in terms of learning outcomes as compared to older children? Table 3.4, which presents uncontrolled mean scores in the learning assessments administered to children, helps answer this question. It indicates that the differences in mean scores between the youngest group of children and the other two older groups of children were significant for all the learning assessments in Rajasthan and Telangana. Assam is an exception as here the differences do not appear significant for any of the learning assessments.

A further nuanced analysis requires moving beyond these "uncontrolled" differences. The IECEI report (Kaul et al., 2017) indicated that the study sample was heterogeneous in terms of background household characteristics (like mother's education, asset ownership, and caste), as well as in terms of their participation characteristics (e.g., number of visits during which they were observed to be participating in a preschool or a school, current grade, and the type of institution – government or private that they attended) and baseline school readiness. Therefore, it needs to be examined if the differences in mean scores remain significant (as in the case of Rajasthan and Telangana) or not (as in the case of Assam) when these multiple variables are taken into account. That is, if we consider two children whose household characteristics (such as gender, mother's education, and ownership of consumer durables), participation characteristics (exposure to a preschool and management type of institution attended), and prior learning levels are the same but they differ in terms of their age group, then is it the case that the learning level of the younger child is worse off than the older child?

Regression analysis helps in taking these diverse ground realities of young children into account. One of Kaul et al.'s (2017) key findings is the positive difference that preschool attendance makes with respect to school readiness and early grade learning outcomes.[5] However, for our purposes, the regression model needs to be

[5] This is confirmed by the results of both Strand A and Strand B in the IECEI study. For example, results based on the larger sample of Strand A children found that each additional exposure to preschool was associated with a 3.8 percentage point increase in school readiness scores. School readiness also impacted early grade learning – the higher the school readiness at age 5, the higher the scores in early grade assessments at ages 6 and 7. The relationship is significant at age 8 only for Assam. Strand B corroborates these results.

Table 3.4 "Uncontrolled" mean scores by age categories and by study states

	Youngest age group (>=3.5 and <=4 years)	Older age group (> 4 years and <=4.5 years)	Oldest age group (>4.5 years and <=5 years)
	Assam		
N	**590**	**865**	**241**
Mean SR scores at age 4	32.6	33.18	33.54
Mean SR scores at age 5	46.58	45.86	47.53
Mean EGA scores at age 6	49.63	49.51	49.05
Mean EGA scores at age 7	51.21	50.66	50.95
Mean EGA scores at age 8	58.49	57.2	57.84
	Rajasthan		
N	**760**	**1536**	**330**
Mean SR scores at age 4	18.47	21.46***	25.2***
Mean SR scores at age 5	34.95	38.78***	42.55***
Mean EGA scores at age 6	41.31	47.5***	52.45***
Mean EGA scores at age 7	48.88	55.27***	59.39***
Mean EGA scores at age 8	60.09	64.86***	68.23***
	Telangana		
N	**481**	**856**	**256**
Mean SR scores at age 4	29.89	31.98**	37.65***
Mean SR scores at age 5	43.26	45.86***	47.45***
Mean EGA scores at age 6	56.61	61.11***	64.00***
Mean EGA scores at age 7	61.68	67.38***	70.45***
Mean EGA scores at age 8	73.46	76.79***	79.07***

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

fine-tuned because while age is one of the control variables in these regression models which has a positive association with learning outcomes, it is not enough because it does not allow us to examine if there are significant differences in learning levels between the youngest and oldest age groups.

This gap is addressed in the regression results presented here.[6] Children were administered different assessments at different points during the study period. We therefore have a set of four regressions corresponding to the different assessments: (end line) school readiness assessment administered between August and December 2012 or when children were on average age 5; early grade assessment administered between August and December 2013 (average age 6 years); between August and December 2014 (average age 7 years); and finally, between August and December 2015 (average age 8 years). The results of the multivariate analysis are presented in Table 3.5. They broadly confirm the bivariate results in Table 3.4. In the case of Assam, the differences in mean scores between age groups are not significant for any of the assessment rounds. In the case of Rajasthan, in a multivariate framework, the differences in mean scores are significant for the initial rounds of assessment – the school readiness scores in the assessment administered between August and December 2012 and early grade assessment scores in the assessment administered between August and December 2013. The differences are not significant in assessments administered between August and December 2014 and August and December 2015. Telangana presents a scenario wherein the scores between the younger and two older age groups are significant in a bivariate framework for all the assessment rounds but not in a multivariate framework. In summary, these results do not provide strong evidence of differences in mean scores between younger and older children. Overall, in most of the instances, the differences in mean scores between the youngest and two older age groups are not significant. Even when they are significant as in the case of Rajasthan for assessments administered between August-December 2012 and August-December 2013, the difference in scores is not substantial at around 1.5 (between the younger and older age groups) or 2.5 (between younger and oldest age groups) percentage points.

However, it must be noted that the context here is of overall low mean scores. The IECEI report (Figure 6.5 and Table 7.2 in Kaul et al., 2017 p. 68 and p. 83) indicated low mean scores in the various assessments administered to study children. The lack of significant differences in mean scores between the age groups may be because of the overall low scores. Because one of the properties of mean is that it is influenced by outliers, a few low scoring children bring down the total mean in a group of children in a case where the overall mean score is otherwise high and vice versa where a few high scoring children pull up the mean in a situation where the overall mean is low (Figure 3.1).

Let us also take a specific look at the distribution of early grade assessment scores in August-December 2015 in Telangana. There are outliers in the older and oldest age groups at the lower end of the distribution. These outliers bring down overall mean scores. On the other hand, a few outliers at the upper end of the distribution as in the end line school readiness scores for Rajasthan for the youngest and

[6] Details pertaining to the regression analysis are presented in Annexure.

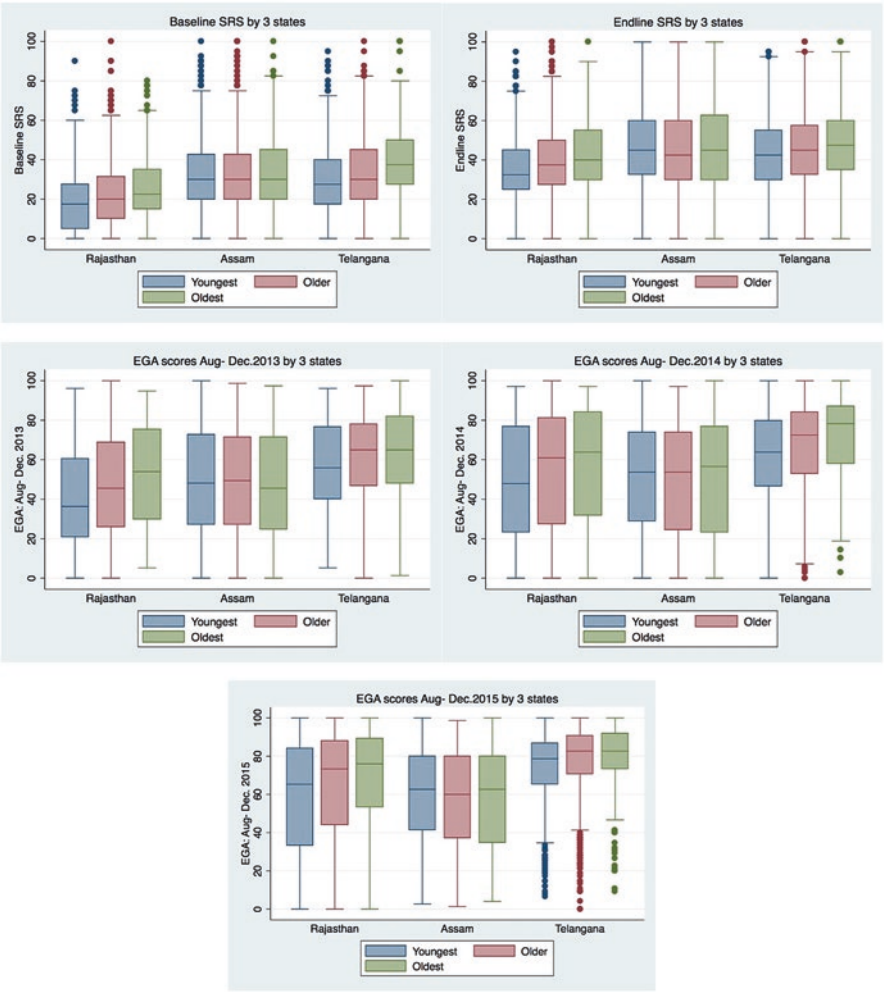

Fig. 3.1 State-wise distribution of school readiness (SRS) and early Grade (EGA) scores

older groups is pulling up the mean scores. Overall, the box plots indicate that the distributions are skewed toward the right.

Figure 3.2 presents the percentage of children from each of the three age groups in the top quartile of the score distribution. If there were no differences in score distributions across age groups, each group would have approximately 25% of the children in the topmost quartile of the score distribution. Only in Assam do we find a similar percentage of children in all the three age groups in the top quartile of the

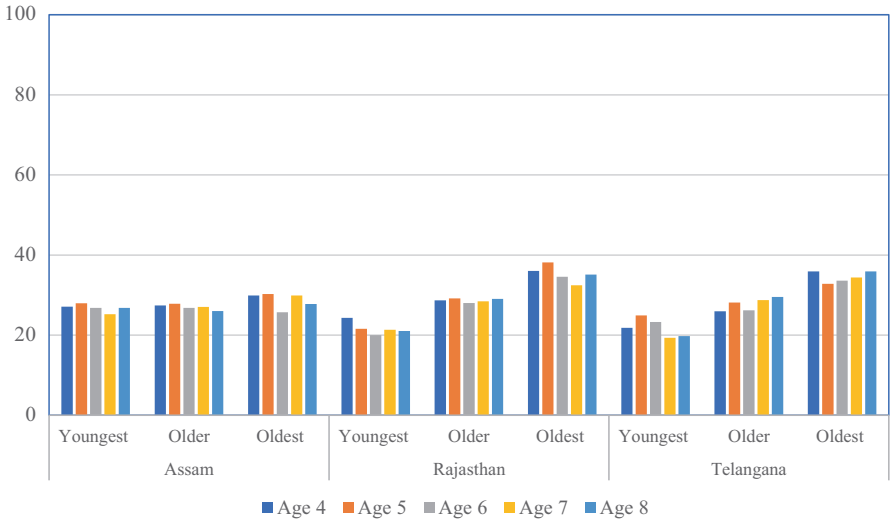

Fig. 3.2 Percentage of children in the top quartile in all assessments (2011–2015)

score distribution at around 25%. In Rajasthan and Telangana, the lowest percentage of children in the top quartile is from the youngest age group, followed by children in the older age group. The highest percentage of children in the top quartile is in the oldest age group. This confirms that low scoring children in the two older age groups are bringing down their respective means leading to a situation wherein there are no significant differences in mean scores between the age groups (Table 3.6).

Further, our regression analysis is limited. There is scope for further refinement of the research design to incorporate various additional factors that prior research indicates as having a bearing on the effect that age has on learning outcomes such as the (exact) age of entry to school, age at test, and length of preschooling and schooling.

Unpacking Total Scores

Although the total scores help understand the differences in learning levels, they hide children's performance across different domains such as mathematics, language, cognitive, and English. Studies have shown a difference in the impact of age when measured for math and language. In his study examining the impact of chronological age on performance of students in Grade 1, Rodriguez (2016) shows that younger

children in the cohort seemed to struggle with math while older children struggled with reading tasks. Thoren, Heinig, and Brunner (2016) studied the effects of relative age on two important academic domains – mathematics and reading. Although the main aim of their study was investigating achievements related to relative age effects for and their generalizability across different subgroups of students with and without an immigrant background in Germany, they also considered effects across time for different school entrant cohorts. They divided the cohorts into young, intermediate, and old groups and their results show the largest effect of age between young and old students and the smallest between intermediate and old students in both reading and mathematics in Grade 2. In Grade 3, the effects in reading and mathematics between the young and old are smaller than that in Grade 2, and in Grade 8 the relative age effects disappear and in fact favor the younger children in reading.

Box plots in Fig. 3.3 show the state-wise distribution of scores for each age group in math and language domains in early grade assessments administered in 2013, 2014, and 2015.

The box plot for Assam shows that the median score for the oldest children in the math domain is lower than those for younger children. While the scores of the language domain show similar median scores for all the three categories, there are more variations in the 2015 assessment scores for the oldest children as compared to the youngest children. This indicates that younger children might be better in math, but the three groups are equal in the case of language. Hence, the overall impact might be that there is no significant difference across age groups.

In Rajasthan, we see similar median scores for the three groups and the spread of scores is also similar. However, in the language domain, there are huge variations across the age groups in median scores and the spread of scores. It can be concluded that in Rajasthan the language domain is causing the overall performance to vary among the age groups. The differences in score spreads reduce over the years suggesting that the age effect fades away. For Telangana, the median scores in 2013 were almost similar in the math and language domains. However, a lot of low scoring outliers in both these domains pushed the scores down for the "older" and "oldest" children. Hence, this made the score differences between the three age groups insignificant in Telangana.

Conclusion

The annual ASER surveys indicate an increasing trend of preschool enrolments among 5-year-olds. But a substantial percentage of children are also in Grade 1 (ASER Centre, 2017). This lack of a universal pattern of enrolment begs the question: What is the effect of age on children's learning outcomes in the early grades? Notwithstanding data limitations that should have been overcome in an ideal study designed to study the effect of age on learning levels such as age at test and length of schooling, the results using IECEI data suggest that the "age effect" is not significant. However, this lack of significance may not be as much because of the absence

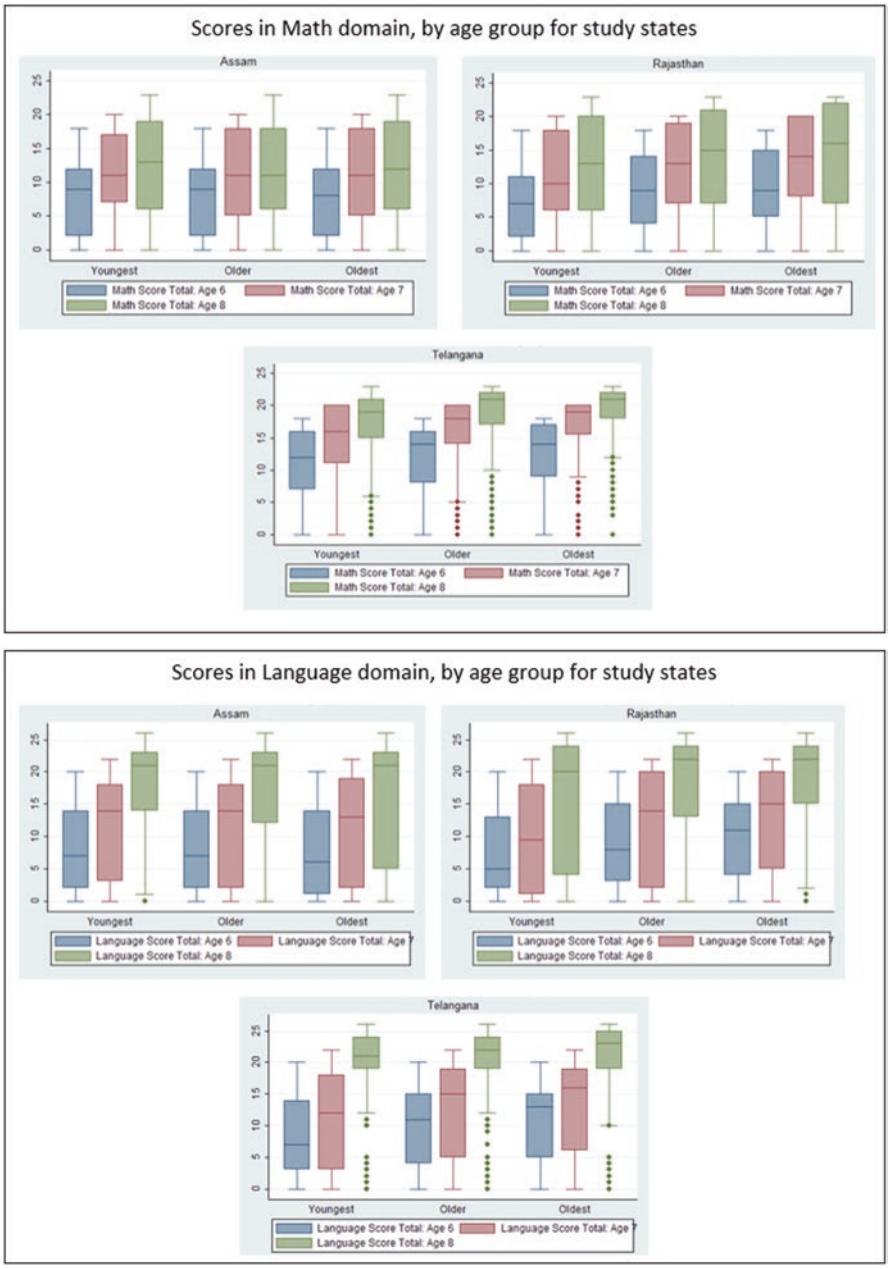

Fig. 3.3 State-wise distribution of scores in math and language domains

of a "real" difference between the younger and the older children in learning levels as much as due to the overall low scoring context in which these children are located.

Irrespective of this limitation, the findings have implications for policy since skills gained in early years are necessary for later learning (Cunha, Heckman, Lochner, & Masterov, 2006; Kaul et al., 2017). While advocating the need for providing preschools for young children before they enter primary schooling and uniform age of entry to preschool and school, it is important to recognize the age heterogeneity in the classroom in which teachers in rural India function. Teachers need to be trained in a way that they recognize and acknowledge age-related differences in their teaching methods. This is important considering that teachers in developing countries often tend to teach to high-potential students in the classroom because they score well (Duflo, Dupas, & Kremer, 2011). The age effect may mean that most of the "high-potential" students are *also* older than the younger children.

Second, policymakers should address the present discrepancy between national and state policies on appropriate age of entry into school. Studies specifically designed to understand the impact of age on children's cognitive and noncognitive abilities are needed for this. Once the discrepancy around age at entry to Grade 1 is resolved, a uniform policy needs to be enforced strictly across the country. In this respect, parents too need to be educated about the pitfalls of early (and delayed) entry to school.

Thirdly, the unpacking of total scores into language and mathematics domains and the resulting differences in age effects on learning outcomes point in the direction of how language and math skills are acquired by children before they enter formal schools. While children might have some exposure to language in and around their home environment making older children better off than their younger peers when they enter formal schools, this might not be the same for mathematics where the school might be playing a more important role. However, further research exploring such age effects on children's learning outcomes in different domains is required for identifying the sources and timings through which children acquire these skills. This might have an impact on age-appropriate curriculum development for children in early years in school.

In conclusion, while the effect of the "age" variable seems to fade away as children grow older, it is important to note the effect of outliers bringing down the scores of "older" and "oldest" children and leading to ambiguous results from our analysis done using total scores. The differences revealed after unpacking these total scores point toward some differences that may exist between younger and older children, thus also validating the need for resolving the issue of age of entry to school in India.

Annexure

We run a simple linear regression model where the outcome variables are the scores in learning assessments administered to sampled children. The main variable of interest is age, which is a categorical variable. Children were assigned to one of the following three categories based on their age during the baseline visit – between 3.5 and 4 years, more than 4 years but less than or equal to 4.5 years, and more than 4.5 years but less than 5 years. The reference category is the youngest age group – those between 3.5 and 4 years.

Control variables in the regression models are prior scores in learning assessments administered as part of the IECEI study (e.g., when the outcome variable is score in early grade assessment administered between August and December 2013, prior learning scores are baseline and end-line school readiness scores), "participation" characteristics that account for "exposure" to preschool and primary school (as in number of times the sampled child was reported to be in preschool and primary school during the course of the study) and observed attendance, management type of the current institution, gender and current grade of the child, and household characteristics (mother's education, caste, ownership of consumer durables, home language, and availability of reading materials).

Two sets of variables in the regression model are particularly designed to capture the nuances of early child education in India – the "participation" variables and observed attendance. One of the realities of early child learning is the children's nonlinear trajectory. In other words, children do not follow a linear trajectory from preschool to school. Instead, there is a considerable amount of back and forth movement between different types of institutions. For example, a child could be in preschool in the first survey visit, in Grade 1 in the second survey visit, and again in preschool in the third survey visit even though these visits are in the same academic year and the child should have been in preschool. In such instances, where a linear trajectory is not followed, it is difficult to assign whether the sampled child is in preschool or in Grade 1. We overcame this problem by taking into consideration the number of exposures to preschool and primary school. This is a simple count of the number of times the sampled child "participated" in preschool or primary school from the start of the survey to the relevant assessment rounds. In this hypothetical case, the sampled child has had two exposures to preschool and one exposure to school. Participation characteristics also include the square of the number of exposures to preschool. Children are expected to transition to primary school after a certain age. Prolonged exposure to preschool cannot be expected to yield the same results as when children transition to primary school at an appropriate age and this can, in fact, be detrimental. The square of the number of exposures to preschool captures this diminishing return to preschool exposure.

Observed attendance is a count from survey wave 3 to the relevant assessment rounds. The IECEI survey had a total of 12 waves. School readiness assessments

Table 3.5 Results of the multivariate analysis

	Outcome variable: SRS at age 5			Outcome variable: EGA at age 6			Outcome variable: EGA at age 7			Outcome variable: EGA at age 8		
	AS	**TG**	**RJ**	**AS**	**TG**	**RJ**	**AS**	**TG**	**RJ**	**AS**	**TG**	**RJ**
Age categories (Reference category, children in ages 3.5 –4 years)												
Children > 4 years and <= 4.5 years	–0.559 (1.263)	0.721 (1.149)	1.564** (0.759)	–0.627 (1.247)	1.153 (1.136)	1.474** (0.657)	–0.990 (0.826)	1.098 (1.182)	0.977 (0.627)	–1.030 (0.919)	0.219 (0.771)	0.0250 (0.634)
Children > 4.5 years and < 5 years	1.242 (1.796)	0.609 (2.016)	2.452** (1.227)	–2.979* (1.646)	1.532 (1.597)	2.554** (1.063)	–0.724 (1.392)	1.107 (1.361)	0.651 (1.081)	0.348 (1.399)	0.184 (1.089)	0.386 (1.053)
Scores												
Early grade assessment score-age 7										0.360*** (0.0387)	0.465*** (0.0371)	0.711*** (0.0260)

Early grade assessment score- age 6							0.266*** (0.0398)	0.425*** (0.0389)	0.781** (0.0252)	0.111*** (0.0278)	0.133*** (0.0291)	0.0896*** (0.0258)
SRS - End line score age- 5				0.288*** (0.0391)	0.0951** (0.0371)	0.616*** (0.0290)	0.152*** (0.0336)	0.0322 (0.0296)	0.0793*** (0.0275)	0.0516* (0.0264)	0.0167 (0.0268)	–0.00431 (0.0204)
SRS- Baseline score- age 4	0.143*** (0.0420)	0.0674 (0.0435)	0.297*** (0.0365)	0.0973*** (0.0322)	0.0669** (0.0303)	0.107*** (0.0333)	0.0338 (0.0289)	0.110*** (0.0268)	–0.0454* (0.0272)	0.0339 (0.0318)	0.0124 (0.0209)	–0.0581*** (0.0215)
Participation characteristics												
Number of exposures to preschool classes	2.350 (10.22)	–1.028 (3.861)	2.671** (1.125)	1.996 (5.144)	6.976 (5.144)	1.326* (0.696)	7.923*** (2.260)	–3.544 (2.633)	1.139* (0.591)	4.754* (2.521)	–4.939** (1.994)	–0.300 (0.455)
Number of exposures to preschool classes squared	–0.706 (1.649)	0.173 (0.353)	–0.180 (0.221)	–0.308 (0.637)	–0.109 (0.181)	0.122 (0.105)	–0.371** (0.149)	–0.179* (0.104)	–0.0429 (0.0564)	–0.0201 (0.111)	0.0264 (0.0669)	0.00408 (0.0444)

(continued)

Table 3.5 (continued)

Number of exposures to primary school	–9.095** (3.692)	0.351 (3.601)	2.675*** (0.592)	2.310 (2.584)	7.729 (5.156)	2.064*** (0.537)	4.847** (2.050)	–5.072* (2.620)	0.913** (0.433)	4.856*** (1.841)	–5.609*** (1.909)	0.139 (0.331)
Observed attendance				3.665*** (0.847)	1.855** (0.716)	1.362*** (0.353)	–0.0793 (0.369)	0.467 (0.542)	1.248*** (0.209)	0.0303 (0.410)	0.330 (0.355)	0.663*** (0.172)
School/ ECE center management type of the 12th, 10th, 7th, or 4th visits respectively (Reference category, government)												
Private	13.49*** (2.716)	11.01*** (1.844)	9.247*** (1.041)	8.202*** (2.115)	20.05*** (2.526)	15.33*** (0.954)	10.67*** (2.289)	7.466*** (2.031)	6.362** (1.149)	8.236*** (1.768)	4.425*** (1.448)	5.134*** (0.868)
Other	22.83*** (4.528)		9.734*** (2.968)	–8.337*** (1.858)		11.32*** (3.295)			4.615* (2.566)		–40.10*** (2.827)	2.533*** (0.837)

Child characteristics												
Gender (Reference category: Boys)	0.900 (1.107)	0.807 (0.944)	–1.789*** (0.633)	–0.110 (1.055)	1.795* (0.995)	-0.295 (0.753)	–2.377** (1.006)	2.026** (0.954)	0.223 (0.608)	–0.812 (0.972)	0.785 (0.775)	0.422 (0.479)
Current grade	24.09*** (4.597)	9.987*** (1.837)	5.114*** (1.028)	6.079*** (1.991)	10.58*** (1.471)	5.256*** (0.764)	9.281*** (0.956)	7.045*** (1.150)	1.150** (0.517)	5.882*** (0.992)	1.779** (0.810)	–0.351 (0.440)
Household characteristics												
Mother's education	0.337*** (0.126)	0.0349 (0.0929)	0.659*** (0.188)	0.319** (0.127)	0.270*** (0.0791)	0.743*** (0.172)	0.291*** (0.110)	0.0836 (0.0735)	0.304** (0.127)	0.0257 (0.0862)	0.106** (0.0424)	0.0665 (0.0498)
Caste (Reference category: Scheduled Caste)												
Scheduled Tribe	–4.269 (4.050)	–1.350 (2.324)	–0.461 (1.710)	4.607 (3.049)	–6.373** (2.708)	–0.0215 (1.913)	4.353 (2.640)	–6.894*** (2.440)	–0.996 (1.478)	–1.143 (2.424)	–0.623 (2.557)	1.100 (1.155)

(continued)

Table 3.5 (continued)

Other Backward Caste	–7.767* (4.390)	1.660 (1.299)	0.396 (1.023)	3.559 (2.978)	–0.463 (1.433)	–0.106 (0.940)	1.165 (2.521)	–1.873 (1.169)	–1.158 (0.906)	–3.132 (2.520)	–0.612 (0.944)	–0.702 (0.725)
General caste	–1.769 (4.299)	0.524 (2.712)	0.801 (1.351)	6.932** (2.952)	–1.346 (3.012)	–0.721 (1.526)	7.451*** (2.580)	–3.929 (2.894)	1.062 (1.296)	3.124 (2.522)	–0.266 (2.171)	0.841 (0.800)
Affluence as per ownership of consumer durable index (Reference category: Low)												
Medium	0.129 (1.667)	–3.634* (2.091)	0.596 (0.964)	3.943*** (1.441)	3.041 (1.956)	0.593 (1.107)	3.179** (1.471)	–0.757 (1.412)	0.256 (0.915)	1.939 (1.321)	2.136 (1.489)	1.432* (0.862)
High	0.178 (2.170)	–2.676 (2.297)	3.317*** (1.091)	8.567*** (2.136)	4.005 (2.420)	3.556*** (1.301)	7.369*** (1.962)	–0.892 (1.785)	1.456 (1.143)	2.452 (1.512)	3.119* (1.692)	1.291 (0.965)
Learning environment												
Household reading materials (Reference category: None)	1.177 (2.145)	1.074 (2.164)	1.387 (0.847)	2.207 (1.788)	1.382 (2.082)	0.280 (1.005)	4.611*** (1.427)	3.629** (1.691)	0.144 (0.762)	3.327* (1.867)	1.791 (1.325)	0.421 (0.667)
Observations	**1,480**	**1,458**	**2,241**	**1,480**	**1,458**	**2,289**	**1,482**	**1,458**	**2,333**	**1,491**	**1,458**	**2,364**

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3.6 Percentage of children in top quartile in all assessments (2011–2015)

	Youngest age group (>=3.5 and <=4 years)	Older age group (> 4 years and <=4.5 years)	Oldest age group (>4.5 years and <=5 years)
	Assam		
N	**590**	**865**	**241**
Percentage in top quartile at age 4 (>=42.5 & <= 100)	27.12	27.40	29.88
Percentage in top quartile at age 5 (>=60 & <=100)	27.97	27.86	30.29
Percentage in top quartile at age 6 (>=67.5 & <=100)	26.78	26.82	25.73
Percentage in top quartile at age 7 (>=73 & <=100)	25.25	27.05	29.88
Percentage in top quartile at age 8 (>=80 & <=100)	26.78	26.01	27.80
	Rajasthan		
N	**760**	**1536**	**330**
Percentage in top quartile at age 4 (>=30 & <= 100)	24.34	28.71	36.06
Percentage in top quartile at age 5 (>=47.5 & <=100)	21.58	29.17	38.18
Percentage in top quartile at age 6 (>=71 & <=100)	20.00	27.99	34.55
Percentage in top quartile at age 7 (>=79 & <=100)	21.32	28.45	32.42
Percentage in top quartile at age 8 (>=86 & <=100)	21.05	29.04	35.15
	Telangana		
N	**481**	**856**	**256**
Percentage in top quartile at base line (>=45 & <=100)	21.83	25.93	35.94
Percentage in top quartile at end line (>=47.5 & <=100)	24.95	28.15	32.81

(continued)

Table 3.6 (continued)

	Youngest age group (>=3.5 and <=4 years)	Older age group (> 4 years and <=4.5 years)	Oldest age group (>4.5 years and <=5 years)
Percentage in top quartile at v7 (>=77 & <=100)	23.28	26.17	33.59
Percentage in top quartile at v10 (>=79 & <=100)	19.33	28.74	34.38
Percentage in top quartile at v12 (>=89 & <=100)	19.75	29.56	35.94

were administered at the baseline (wave 1) and end-line (wave 4). Early grade assessments were administered respectively in survey wave 7 (when children were on average about 6 years old), at wave 10 (age 7) and wave 12 (age 8). Thus, observed attendance from survey wave 3 to survey wave 7 could range from 0 to 4; wave 3 to wave 10 (from 0 to 7) and wave 3 to wave 12 or EGA at age 8 (from 0 to 9). Observed attendance is not included in the regression models when the outcome variable is SRS at age 5 because the first two visits (October 2011–December 2011 and February–March 2013) had many missing values. Overall the correlation between participation and attendance though significant is not strong.

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Chapter 4
Positioning Psycho-social Development Within the Construct of School Readiness: Challenges and Opportunities

Meenakshi Dogra and Aparajita Bhargarh Chaudhary

Abstract This chapter focuses on the scope and significance of psycho-social development as a key domain for assessing young children's school readiness. Given the diversity of social contexts, it reflects on its scope in terms of sub-domains and its significance for learning and development and examines the key challenges associated with its measurement in a young child and ease of use of existing measures. In this context, it cites our longitudinal research as a case in point based on which we derive implications for improving the effectiveness of psycho-social measures in the field and implications for future development of instruments to assess this domain in the context of school readiness. The chapter concludes with some suggestions for the way forward.

Keywords Early childhood · School readiness · Psycho-social development · Measuring psycho-social development

Introduction

When the transition from home to an early childhood education (ECE) program and then to a formal primary school is smooth, children do better in their primary school years (Raver, 2003). Some of the necessary requirements of this smooth transition are cognitive and linguistic abilities and psycho-social preparedness, which help later in school adjustments (Eisenberg, Sadovsky, & Spinrad, 2005; Kaul et al., 2017). India's recent commitment to the 2030 agenda for the Sustainable Development Goals (UN, 2015) reaffirms this focus. Broadly, a significant focus on school readiness has been laid out through SDG 4 on education for promoting

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lifelong learning opportunities for all. Specifically, Target 4.2 of the SDGs includes early childhood development as an outcome. This is expressed in the concept of school readiness which covers physical, social/emotional, and language/cognitive domains (UNESCO, 2016).

In addition to this, psycho-social skills, especially compassion and collaboration, have also been referred to as a key component of twenty-first-century employability skills (Trilling & Fadel, 2010) because they are considered increasingly crucial not only for children's learning but also for their mental and emotional health and future success (NAS, 2012). Building on the framework of existing research and commitments, the following sections explore the concept of school readiness, its underlying constructs, and where children's psycho-social development fits within this concept.

The Construct of School Readiness UNICEF (2012) defines school readiness from an interactionist perspective which includes three dimensions—children's readiness for school, schools' readiness for children, and families' and communities' readiness for school (as cited in Kaul et al., 2017). This perspective has been a significant reference point while conceptualizing the construct of school readiness for the Indian Early Childhood Education (IECEI) study, which brings the "social" and the "developing individual" together within an interactive frame (Kaul et al., 2017).

The concept of school readiness includes skills and competencies related to cognitive, language, physical, and socio-emotional development. Each of these plays a substantial role in helping children succeed in school and also later in their lives (UNICEF, 2012). However, comparatively more attention has been paid to concepts related to cognitive and language skills as being important in helping children to be ready for school and less to the concept of psycho-social development. This chapter focuses on this poorly explored psycho-social aspect of "children's readiness for school" as one of the key domains of school readiness.

Psycho-social Development as a Concept When building on the concept of the psycho-social domain, it is important to see and understand it within the framework of school readiness in an integrated manner so that a complete and successful transition from home to preschool to formal school can be ensured for children.

Psycho-social development involves processes through which children acquire the skills necessary for understanding and managing emotions, setting and achieving positive goals, feeling and showing empathy for others, establishing and maintaining positive relationships, and so on (CASEL, 2013). These skills include the ability to communicate, listen, help others, control emotions, help themselves, and make a child socially and emotionally ready for life. There are numerous definitions available to explain this domain. However, unpacking the concept of the psycho-social domain has always been challenging due to lack of consensus on what actually constitutes psycho-social development, especially since it is significantly influenced by the social context. Nevertheless, if we look at the more readily cited descriptions, it mainly includes three key sub-components—emotional, social, and behavioral. Each of these constructs has its own distinct set of definitions and skills.

Campbell et al. (2016) highlight three basic skills which are considered general skills within the social competence domain—skills that are important regardless of context (1) developing positive relationships with others, (2) coordinating and communicating actions and feelings with social partners, and (3) recognizing and regulating emotions and actions in social settings and interactions. However, mastery of these general skills may be demonstrated differently depending on the context (pp. 19–41).

Positioning Psycho-social Development Within the Construct of School Readiness Numerous research studies have confirmed the importance of psycho-social development not only for making a child ready for school but also for life (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger 2011; Sanson, Hemphill, & Smart, 2004; Wentzel & Asher, 1995). Supporting evidence shows that children with better socio-emotional skills have more chances of early school success than children who experience difficulties in this area (Raver, 2003). Children, who have difficulty in paying attention, following directions, getting along with others, and controlling negative emotions of anger and distress, do less well in school (Arnold et al., 1999).

Raver (2003, p.1) acknowledges:

> Psychologists find that children who act in antisocial ways are less likely to be accepted by classmates and teachers (Kupersmidt & Coie, 1990; Shores & Wehby, 1999). They participate less frequently in classroom activities and do more poorly in school than their more emotionally positive, prosocial counterparts, even after one controls for the effects of children's pre-existing cognitive skills and family backgrounds. (Ladd et al., 1999)

In addition, a research study by the National Institute of Child Health and Human Development Early Child Care Research Network (2003) showed that self-regulation at 54 months of age is positively related to achievements in reading and math as well as linguistic abilities. In another study, attention span and perseverance on task were important predictors of reading achievements among preschoolers (Howse, Lange, Farran, & Boyles, 2003). Consistent with an association between children's psycho-social and academic competence, Eisenberg et al. (2005) quote Welsh et al. (2001) who found that young school children's positive (prosocial) behavior, social competence, and academic competence (i.e., math and language grades and reported work habits) were reciprocally related.

In other words, although there is evidence demonstrating that children's psycho-social development is linked to their academic success in school (Graziano, Reavis, Keane, & Calkins, 2007), the present emphasis on children's cognitive and linguistic abilities continues to overshadow the importance of children's psycho-social development for school readiness. The next section delves deeper into the concept of psycho-social development to explore and understand its significance and the factors associated with it which pose major challenges.

Unpacking Psycho-social Development Psycho-social competence undergoes dramatic changes within the first 5 years of life and provides a critical foundation for the development of a range of skills which are important for supporting a child's

development and learning for school adjustment (Denham, Caverly, Schmidt, & Blair, 2002; Jones & Bouffard, 2012). "Adjustment" in this context means moving from dependent to independent behavior which facilitates a child to perform in a particular setting, interact with his/her peer group freely, adjust to new settings, stay without the family for a certain period of time or manage separation anxiety, comprehend language used commonly and follow basic instructions, attend to teachers/peers, and so on (Kaul et al., 2017; McClelland, Morrison, & Holmes, 2000; Raver, 2004). All these skills contribute to children's overall well-being and improved academic performance.

Measuring Psycho-social Development: Key Challenges

Given the importance of school readiness including psycho-social development, there is a need for comprehensive framework, for measurement to assess individually from a diagnostic perspective, and for research to further delve into interrelationships and to assess readiness levels systemically. In addition, it is also important to have measurements within the country to track children's status and to make subnational comparisons across states/districts from a policy and provisioning perspective.

However, measuring the concepts of psycho-social development is more challenging than measuring cognitive and language development because of lack of consensus on what constructs and measurement approaches should be used for capturing children's development under this domain (Halle & Darling-Churchill, 2016). In addition to general issues around assessing psycho-social development among young children, there are several challenges specific to assessing socio-emotional competence that also need to be considered (Table 4.1).

International Initiatives for Measuring Psycho-social Development

Various initiatives have been taken to develop valid and reliable tools for measuring psycho-social development. Some of the tools which are available for measuring school readiness outcomes including psycho-social development are presented in Table 4.2. While developing some of these measures, validation studies were conducted across various countries.

For measuring psycho-social development, we also need to consider using and adapting the tools relevant to the context. This can be done by encouraging research

Table 4.1 Differences between cognitive and psycho-social measurements

Specifics	Cognitive and language assessment	Psycho-social assessment
Nature of the tools	Cognitive and language concepts can be easily converted into items for conducting one-to-one assessment with a child. It involves minimal subjectivity as compared to PSD, which can only be taken care of by providing rigorous training to the assessor	The subjective nature of the psycho-social domain makes it difficult to quantify and measure socio-emotional behaviors of young children (Squires & Bricker, 2007)
Contextuality	Measuring the cognitive and language aspects involves less context-specific variations	Context and environment constantly and rapidly influence a child's psycho-social development. Barbett and Malloney (2010) emphasize the complexity of assessing psycho-social development— "By the time children enter school, their social and emotional wellbeing has been influenced by immediate environment and their context. As development and growth is not uniform, and knowledge and skills are socially framed, decisions about what social competence looks like are problematic." (p. 14)
Observer's expertise	For assessing cognitive and language development, an observer can be trained rigorously to administer instruments or interact with the individual child	In assessing young children's psycho-social development, it is essential to have investigators who are highly qualified and have the relevant professional background to understand the area of psycho-social competence. Also, to assess psycho-social development, adequate familiarity with a child and an opportunity to observe the child in a wide range of situations over an optimal duration is critical

and validation studies to develop local tools within a global framework based on priorities identified in specific contexts (Dogra and Kaul, 2018).[1]

[1] In India, the Centre for Early Childhood Education and Development (CECED), Ambedkar University, Delhi (AUD), has developed and validated Early Learning and Development Standards (ELDS) for 3–6-year-olds with UNICEF. The ELDS framework has socio-emotional development as one of the significant domains. The set of standards relevant to this domain need to be converted into a measure to capture psycho-social development among young children. In addition, the existing tools and those in the process of being developed need to take cognizance of ELDS. For instance, the work on standardization of the tools for assessing the school readiness instrument (SRI) has been initiated by CECED and AUD in partnership with UNICEF, the World Bank, and the Center Square Foundation. SRI was originally developed by the World Bank and adapted by

Table 4.2 Tools available for measuring school readiness outcomes including psycho-social development

Tool	Description	Domains
ASQ (Ages and Stages Questionnaire)	An assessment used by parents, teachers, or caregivers for children aged 3 months to 5 years. It is a parent-teacher self-report with the assessments being administered in children's natural environments	Socio-emotional, motor, and cognitive development
Bayley Scales of Infant and Toddler Development	A direct assessment that requires a trained enumerator to administer it	Motor, language, and socio-emotional development
EDI (Early Development Instrument)	A checklist of approximately 100 items completed by educators applicable for 4–7-year-olds developed to facilitate a population-based assessment	Health and well-being, language and cognitive skills, and socio-emotional development
East Asia-Pacific Early Child Development Scales (EAP-ECDS)	Aims to assess the holistic development of children aged 3–5 years	Cognitive development; socio-emotional development; motor development; language and emergent literacy; health, hygiene, and safety; cultural knowledge and participation; and approaches to learning
IDELA (International Development and Early Learning Assessment)	Direct child assessment that measures early learning and development for children aged 3.5–6 years with an accompanying questionnaire to assess the home learning environment	Motor skills, early language and literacy, early numeracy/problem-solving socio-emotional development, and approaches to learning

Source: World Bank (2016)

The IECEI Study: A Case in Point

Tools used in the study: The longitudinal IECEI study aimed to assess the impact of preschool experience on children's school readiness levels when they entered Grade 1 and the medium-term impact on primary-level learning and behavioral outcomes. The study aimed at assessing children's school readiness levels from a holistic perspective including language, cognitive, psycho-social, and behavioral aspects. In the absence of an appropriate measure for assessing the psycho-social aspect of school readiness, a tool was developed for the purpose of the study by the Center for Early Childhood Education and Development (CECED) through consultations with researchers and academicians on the lines of the Vineland Social Maturity Scale and

CECED to be used for the IECEI study for assessing the cognitive and language outcomes at the beginning of primary schooling. The instrument is in the process of standardization. In the process of SRI's revision, ELDS was used to map out child development outcomes so that the tool could be developed for assessing children's school readiness levels across different domains of development including psycho-social development.

its Indian adaptations.[2] The tool, the "Adaptive Behavior Scale" (ABS), was conceptualized to assess school readiness in 5–6-year-olds and was restricted to four domains: communication, socialization, self-help (including eating and dressing), and emotional regulation. It was developed as a three-point rating scale administered with the parents/primary caregivers of the children to estimate their psycho-social and behavioral characteristics. Parents were presented with 20 different situations to understand how their children behaved in similar situations. The tool therefore does not lend itself to direct observations of the children but is based on reporting by a caregiver. The behavioral indicators on which the children were assessed are listed in Table 4.3.

The longitudinal study further aimed at assessing the behavioral impact of preschool experience and school readiness levels at the primary school stage between 6- and 8-year-old children within a medium-term frame. As the previous tool was restricted to the home situation which parents could respond to, at the primary stage, the aim was also to see adaptability in a classroom situation. Therefore, a separate tool was developed to assess children's behavioral outcomes in a school setting.

For 6- to 8-year-old children, psycho-social development was conceptualized in terms of five sub-domains: socialization, self-help, self-regulation, communication, and participation in classroom activities. Like the Adaptive Behavior Scale, this tool was also a rating scale but was used for direct observation of children. The scale followed the time sampling observation technique, where the children were observed in two-time slots of 15 min each, separated by a gap of 1 h. While using this tool, researchers followed nonparticipatory observation techniques and kept detailed records of a child's activities, interactions, and behavior. Children were observed in the school environment, but not always in a class environment with the teacher. The attempt was to observe them in varied settings to the extent possible, given the need to conform to the prescribed time slots (Table 4.4).

In addition to the researcher's observations, class teachers were asked to rate children on certain behaviors based on a Teacher's Observation Scale using indicators related to regularity, participation, and behavior in the school setting (Table 4.5). The idea was to triangulate information from two sources instead of limiting it to one or the other. Both rating scales assessed the extent to which children were adjusted to the school environment. On both the scales, the scores range from 1 to 5 where 1 is least desirable and the 5 is most desirable. In certain cases, where the children's behavior could not be observed on an indicator and rated due to lack of opportunity, the indicator was not scored in the rating scale.

[2] The Vineland Social Maturity Scale developed by Edgar Arnold Doll (Indian adaption was done by A. J. Malin) is a psychometric tool for assessing social competency. The tool addresses different domains of social competence such as communication skills, general self-help ability, locomotion skills, occupation skills, self-direction, self-help eating, self-help dressing, and socialization skills.

Table 4.3 List of indicators included in the Adaptive Behavior Scale

S. No	Competency	Indicators
I.	Socialisation	1. Does she play with other children?
		2. Does she share things such as food/clothes/toys/books/any other thing with sister/brother/friends?
		3. When you go over to your relative's or friend's house (whom you visit often) is she happy being on her own with them or does she cling to you?
		4. Does she address elders such as teachers, parents, grandparents, neighbours in the same way as with her peer group? Or differently?
		5. Does she help in the chores at home on her own?
II.	Self-help skills	6. When she goes out to play or to school with some of her belongings does she bring them back?
		7. Does she go to the toilet (in the daytime) on her own?
		8. Is she able to wear clothes on her own?
		9. Does she wash her hands before and after meals?
		10. Does she return from school/temple/shop (any nearby space) on her own?
III.	Communication skill	11. When somebody comes to your house and asks her for you, is she comfortable talking to him/ her or is she hesitant and shy?
		12. Does she share with you or someone else at home about what she has done in school or with friends?
		13. If you have to send a message to someone in the family at home or in the neighbourhood, do you send her?
		14. What is the reaction when somebody snatches something from her hand? How does she express anger or disappointment?
		15. Does she communicate anecdotes or stories in right order?
		16. Does she interrupt you when you are engaged in conversation with her?
IV.	Self-regulation	17. Does she recognize emotions of anger, sadness and anxiety on your face?
		18. What does she do when you refuse her unreasonable demand?
		19. Suppose you ask her to draw/write/colour/arrange her clothes or toys (any other work) does she complete the task or leave it half way?
		20. When she is playing with siblings or children from neighbourhood, does she wait for her turn?

Table 4.4 List of indicators for psycho-social assessment for researcher's observations

S. No	Competency	Indicators
I.	Socialisation	1. Is the child looking for opportunity to interact with other children?
		2. Has the child given any indication of wanting to share, help or work with other children?
II.	Communication	3. Has the child been listening to the teacher attentively?
		4. Does the child respond to the teacher confidently?
III.	Self-regulation	5. Is the child cheerful/quiet/restless most of the time in the class?
		6. Does the child look for teacher's attention?
		7. Does the child show his/her feelings by crying or getting into a fight when provoked by negative behaviour from the teacher/children or is he/she able to control his/her emotions well?
		8. Is the child able to finish the work given to him/her without looking for others' support?
IV.	Self-help	9. Does the child look after his/her belongings properly?
		10. Does the child keep his/her surroundings clean?
V.	Class participation	11. Is the child participating in classroom activities?
		12. Does the child give anyindication of wanting to take initiative in class?

Table 4.5 List of indicators for psycho-social assessment for teacher's ratings

S. No	Competency	Indicators
I.	Socialisation	1. Has friends
		2. Does not create problems for other children
II.	Communication	3. Follows instructions
III.	Self-regulation	4. Can control emotions, like crying
IV.	Class participation	5. Regularity in class
		6. Level of participation in class activities

Evidence Collected by the IECEI Study Based on the Tools

Evidence on adaptive ABS based on parents' reporting: As a part of Strand B of the IECEI study, ABS was used to assess the children's psycho-social behavior for the baseline and end line of the study when children were 3–4 years old and 4–5 years old. In all, 2,779 children were assessed on ABS at the time of the baseline and 2282 during the end line.

Figure 4.1 shows the average scores of the sampled children across the sub-domains in ABS for 3–4-year-old children during the baseline and the gains made by them during the end line across different sample states.

In terms of readiness for school, the sub-domains that clearly stand out as positive in the psycho-social sphere are self-help, communication, and socialization skills. On the other hand, the self-regulation domain has a lower average score. Overall, the gains in ratings on psycho-social skills were not very striking since the baseline scores were already fairly high. The difference at the end line appears to be mainly in terms of enhancement of children's autonomy and self-reliance since the children were older and more mature.

Evidence on Tools Based on the Researchers' and Teacher's Reporting During the next phase of the study, the sampled children were assessed on psycho-social behavior through nonparticipatory observations by trained researchers and via a rating scale by teachers. A total of 2093, 5–6-year-olds were assessed using these tools. The findings are discussed in Figs. 4.2, 4.3, 4.4, 4.5, and 4.6 which represent teachers' and researchers' ratings of the sampled children in different domains.

The teachers' ratings are positively skewed in favor of demonstration of pro-social behavior by most children with a few outliers. This may well be a subjective response since teachers do not like to associate unruly behavior with their class due to disciplining issues. This also indicates that according to their ratings, most chil-

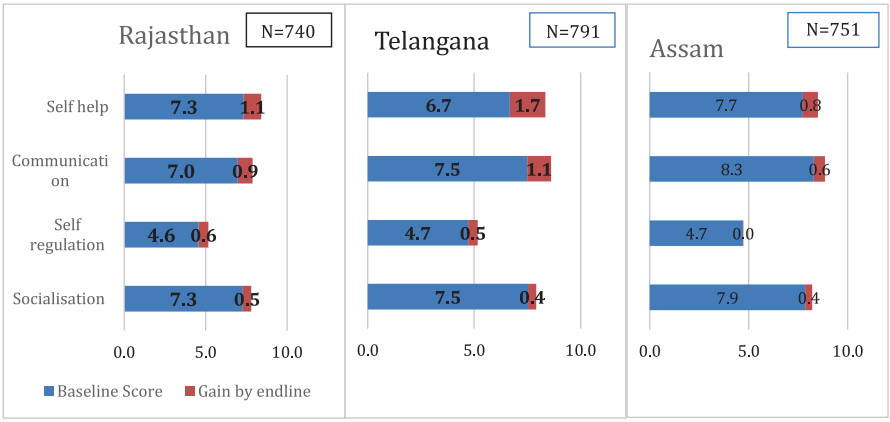

Fig. 4.1 Mean scores of sampled children ($N = 2282$) on ABS

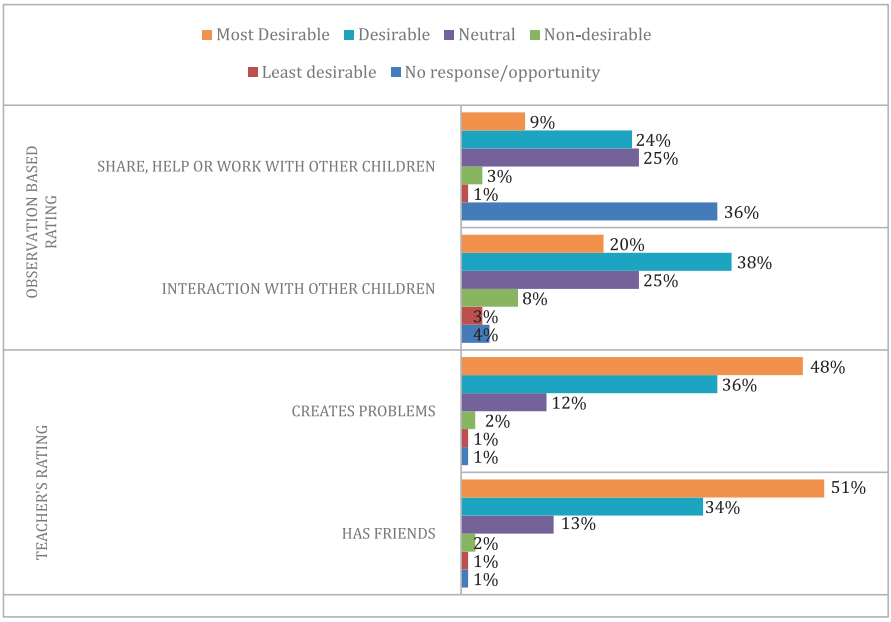

Fig. 4.2 Children's ratings on different socialization indicators

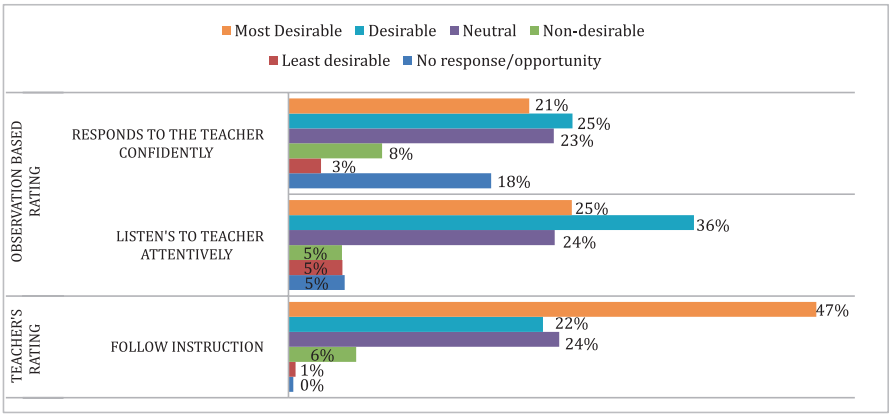

Fig. 4.3 Children's ratings on different communication indicators

dren fell in the category of "desirable social behavior," that is, they had friends, did not create problems for other children, did not get into fights or display aggressive behavior, and followed the instructions given to them. Only a few children were reported to be quiet and withdrawn with few or no friends. According to the teachers, 5–6-year-olds were mostly comfortable and confident in class, and about 50 percent of the sample did tend to cry when in a negative situation.

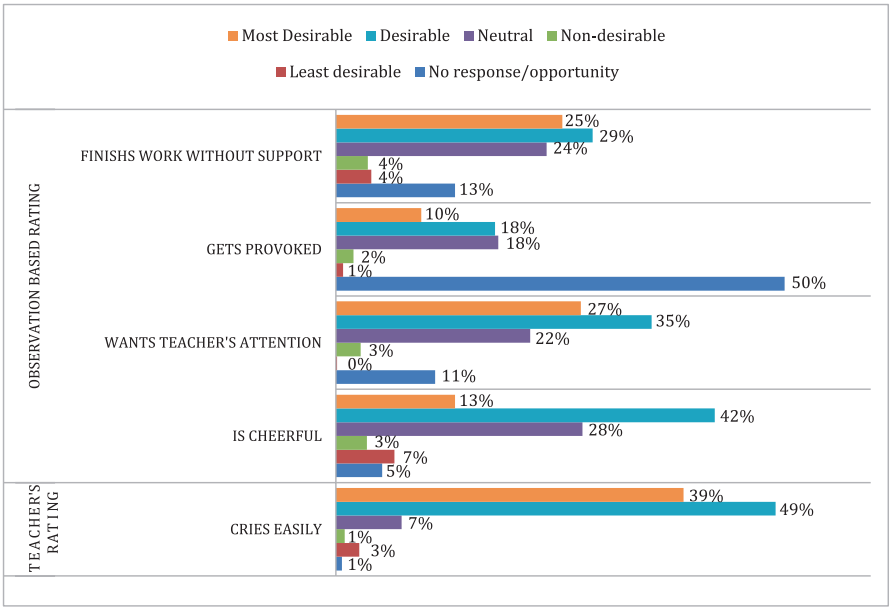

Fig. 4.4 Children's ratings on different self-regulation indicators

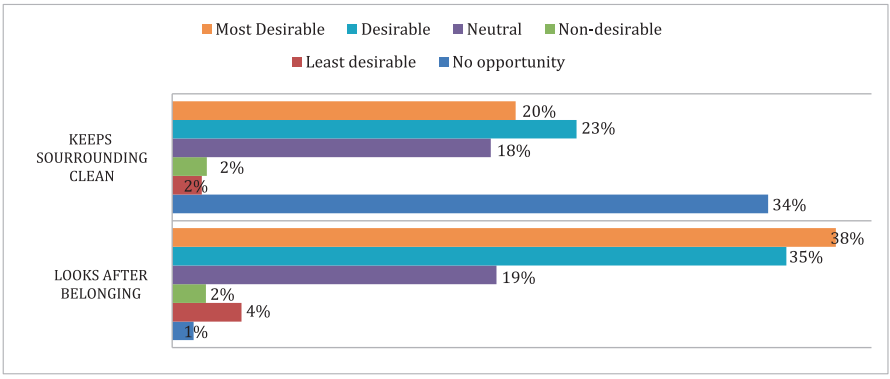

Fig. 4.5 Children's ratings on different self-help indicators

The researchers' ratings substantiate the teachers' ratings in terms of social interaction among children. However, they also indicate that more than one-third of the children did not get the opportunity to share or work with their peer group. Qualitative observations indicate that most class environments were very formal and structured in nature, and children were kept in whole class arrangements throughout with little scope for interaction. However, while sharing, helping, and

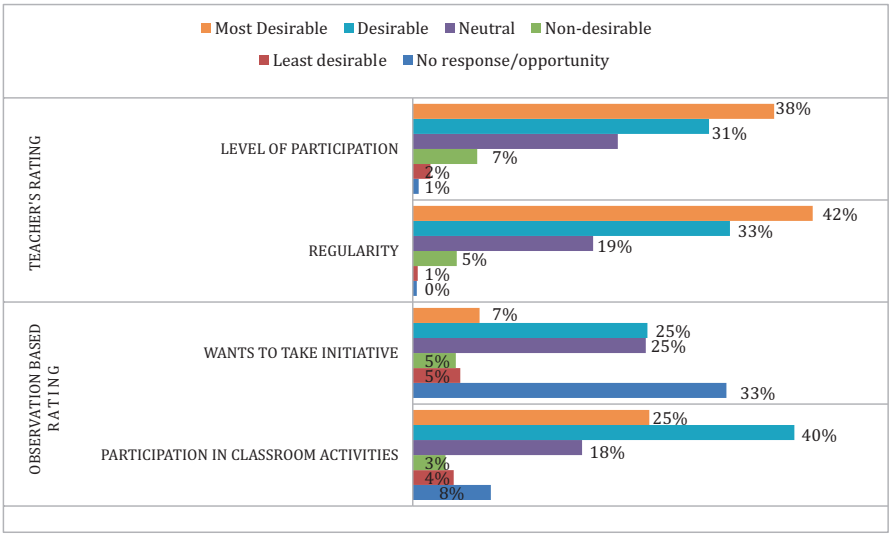

Fig. 4.6 Children's ratings on different classroom participation indicators

working with each other were not part of the planned classroom processes, the children were observed sharing and helping each other in the absence of the teacher or when there was an opportunity. Even in formal structured setups, children were seen interacting among themselves through gestures and other modes. According to the researchers' observations, children were not very comfortable within the classroom setting as most of them were quiet in class and did not interact much with the other children except when the interaction was initiated by others. According to researchers' ratings, around 13 percent of the sample was cheerful in the classroom, and about one-fourth of the cohort demonstrated active participation in all activities. Most children gave evidence of participation either through compliance or coercion. When observed on whether children could finish their work without any help, only 25 percent of the children demonstrated confidence in working on their own without any help from the teacher or the other children. Children's emotional regulation was also assessed on indicators like how would they react if they were provoked by other children. Half of the sample did not give the researchers any opportunity to observe this behavior. Among the other half, there was an equal divide with about 50% demonstrating regulated behavior and the other half demonstrating negative reactions when provoked by others through behavior such as snatching and taking away the observed child's possessions. In such situations, these children tended to react emotionally and lost their cool and broke into a fight; in most cases, however, they were pacified when somebody else mediated.

Measurement-Related Challenges that Emerged from the Study

ABS was developed based on adaptive behavior-related skills that a child needs for making her/him ready for school. However, many challenges were faced while using this tool across three states in terms of contextual and cultural variations and lack of a rigorous method of assessment while using the tool.

Socio-cultural Variations While Using the Tool While developing ABS' items, socio-cultural or geographical difference were not considered. When the tool was used across three distinct geographies (Assam, Rajasthan, and Telangana), it was realized that cultural differences led children's scores to vary substantially across the states. For example, one of the indicators used for assessing self-help behavior was children knowing their way to familiar places (anganwadi, school, shop) in the village. Stark state differences emerged in children's behavior patterns as Assam has a very difficult terrain as compared to the other two states. As a consequence, a higher proportion of children in Assam did not know their way around the village as they were not allowed to go outside their homes alone and were accompanied by parents or elder siblings to familiar places, whereas in the other two states, the children were found moving around in the village alone.

Need for a Rigorous and Conceptually Strong Assessment Method There are several challenges associated with this aspect in terms of trained and qualified researchers, mechanisms used for collecting the data, and mode of data collection which have been reported by several earlier studies. In the case of the IECEI study, the caregiver, teacher, and researcher reporting were used for gathering data. However, there were several challenges faced while collecting and analyzing the data. One key issue which was faced while using ABS with primary caregivers was change in the respondents for ABS in the baseline and end line of the study and self-biasness/subjectivity during their reporting.

However, researchers' nonparticipatory observations formed a solution for the reporting bias, but due to the scale of the study, these observations were restricted to two-time slots in a day which seemed inadequate. Similarly, most of the indicators were based on children's participation in classroom activities, but in many cases the researchers did not have an opportunity to observe this since either the teacher was not in class at the time of the observation or no interaction was allowed in the classroom. In such cases, the responses were categorized as not applicable, and the overall picture that emerged was positive due to limited variance.

As one day's observations were considered inadequate for assessing children's psycho-social behavior in a classroom setting, a teacher's rating scale was added under the assumption that teachers would know the children well and would be able to share reliable data. However, the data seems biased in the positive direction.

Lack of correspondence among rating by the parents and teachers and also differences in the consistency of data collected from parents versus teachers versus direct observations made the data collection and analysis more challenging.

Moving Forward

Looking at the technical inputs that went into developing ABS and the wealth of data collected on this important aspect of school readiness, we carried out a further analysis. The main aim of this was to see if the data collected as part of the IECEI study could be used for refining the tool. A factor analysis was done on the data collected for 4–5-year-olds (end line) as the children were expected to achieve the competencies only around the age when they entered primary school. The factor analysis helped in refining ABS and reducing the 20-indicator tool to an 11-indicator version.[3] The revised ABS is given in Table 4.6.

To understand the factors that influence psycho-social behavior, a multivariate regression analysis was carried out where the scores of 4–5-year-old children (end line score) on the revised ABS were taken as a dependent variable. On the other side, indicators such as baseline scores using the revised ABS, SRI, and factors related to the age, gender, and participation of the child in an ECE program were used as independent variables along with the household factors related to the socio-economic status of the family, mother's educational status, print environment at home, family support in learning, and the state. The regression analysis shows a significant and positive association of children's psycho-social behavior with their psycho-social behavior during the baseline, school readiness level, participation in an ECE program, gender, and the state where they lived.

In other words, children's school readiness levels in terms of cognitive and language (as measured by SRI) skills and psycho-social behavior (as measured by ABS) have a positive association. A child doing well in cognitive skills will have better behavioral skills and vice versa.

In addition, after controlling for all the other factors including the school readiness score, it was interesting to see that participation in an ECE program was an important contributor to children's psycho-social behavior. Gender did not emerge as a significant factor for school readiness, but it was significant for psycho-social behavior, that is, a female child had better scores on ABS as compared to a male child with the same characteristics. State also made a difference to how a child fared in the ABS assessment as the indicators assessed were very cultural in nature.

[3] A factor analysis helps in reducing a large number of indicators to a smaller number statistically looking at the variance available in the sample.

Table 4.6 ABS: Revised list of indicators after the factor analysis

S. No	Competency	Indicators
I.	Socialization	1. Does she share things such as food/clothes/toys/books/any other thing with sister/brother/friends?
		2. Does she help in the chores at home on her own?
II.	Self-help skills	3. When she goes out to play or to school with some of her belongings does she bring them back?
		4. Is she able to wear clothes on her own?
		5. Does she wash her hands before and after meals?
III.	Communication skills	6. When somebody comes to your house and asks her for you, is she comfortable talking to him/ her or is she hesitant and shy?
		7. Does she share with you or someone else at home about what she has done in school or with friends?
		8. If you have to send a message to someone in the family at home or in the neighbourhood, do you send her?
		9. Does she communicate anecdotes or stories in the right order?
IV.	Self-regulation	10. Does she recognize emotions of anger, sadness and anxiety on your face?
		11. Suppose you ask her to draw/write/colour/arrange her clothes or toys (any other work), does she complete the task or leave it half way?

Conclusion: New Directions for the Way Forward

Acknowledging psycho-social development's significant role in school readiness is a noteworthy research finding in the Indian context. However, the comprehensive nature of the domain presents several challenges. In this section, we present some thoughts on the way forward to enhance the effectiveness of psycho-social measures in the field.

Common Framework of Understanding To bridge the gaps in understanding psycho-social development among different stakeholders (researchers, educators, practitioners, and policymakers), there is a need to build collective understanding about how such an assessment can be useful, a plan for using the assessment, and

criteria for selecting from the existing tools. This can be done by developing a common framework with clearly defined sub-domains and constructs of psycho-social development as it is important to see psycho-social development among children within the framework of school readiness.

Developing Culturally Relevant, Reliable, and Valid Measures Psychometrically robust, reliable, and valid measures for psycho-social development are very much needed, particularly measures that are sensitive to cultural variations and accurately capture the cultural and linguistic diversity of children's developing competencies (Darling-Churchill & Lippman, 2016). In this context, using a large and diverse norming sample is one way of ensuring a measure's appropriateness for use with a diverse child population (Halle & Darling-Churchill, 2016). For example, normative data for measures must be obtained for diverse samples representing the demographics of India with cultural sensitivity regarding the norms for diverse cultures. For instance, CECED in partnership with UNICEF has developed ELDS and validate these; these should form the basis of identifying indicators for psycho-social assessment since these would be contextually more relevant.

Linking Assessment Formatively to Achieving Outcomes Assessment data should be used for informing age-appropriate psycho-social development goals and practices for young children. Information use should be based on the purpose of the assessment (Yates et al., 2008). For example, if in an assessment, it came out that a 4-year-old was having difficulties regulating her emotions, then this information can be used to support the child in identifying her feelings, which in turn will help to regulate her emotions. Yates et al. (2008) quote Raver (2003) that "without linking assessment and interventions, the outcomes will not be meaningful in supporting children's psycho-social competencies."

Building Research Evidence There are very limited research studies on psycho-social development, especially in the South Asian context. There is a need to prioritize appropriate research studies to better understand this domain and to explore the domain's impact in different contexts.

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Chapter 5
Does Participation in Preschool Help Children's Early Grade Learning?

Wilima Wadhwa, Suman Bhattacharjea, and Manjistha Banerji

Abstract Data from 10 years of ASER (Annual Status of Education Report) surveys in India reveal two clear trends. First, a steady increase in private school enrollment is visible across rural India. Second, children's ability to read simple text and do basic arithmetic is extremely poor and has not improved over time. ASER data show that the learning gap is widening between government and private schools but that a larger proportion of this gap is attributable to household factors rather than to private schools themselves. This means that the most disadvantaged children, those who study in government schools, are falling further behind. Data from the India Early Childhood Education Impact (IECEI) study also suggests that although the majority of children in the IECEI study spent between 1 and 2 years in an early childhood education program prior to entering primary school, the impact of this participation on their school readiness and subsequent early grade learning is attributable more to their family background than to the institutions that they attended, which varied very little within a given state in terms of quality. However, variations across states suggest that uptake of developmentally appropriate policies and programs at the state level is likely to influence not only government but also private providers of early childhood services.

Keywords Early childhood education · School readiness · Early grade learning

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Introduction

A growing body of evidence from around the world points to the fact that despite substantial expansion in enrollment levels, children in school are not acquiring the skills and knowledge prescribed by school curricula.[1] The shift from the earlier enrollment-focused Millennium Development Goals (MDGs) for education to the new set of Sustainable Development Goals (SDGs), which propose goals and targets for both access and learning, is a welcome reflection of this recognition.[2] Evidence also shows that in many countries, disenchantment with public education systems is leading to steadily expanding proportions of children shifting from public to private schools, suggesting that more affluent households are turning to the private sector in search of better quality education for their children. This in turn has generated debate on issues of equitable access to *learning* (as opposed to schooling) among the student population.[3]

A separate body of literature has examined the impact of participation in preschool programs on a range of short-, medium-, and long-term outcomes for children. Increasing empirical evidence not only points to the importance of quality ECCE in improving cognitive development and school readiness levels of children (for India see Kaul et al., 2017) but also establishes long-term effects on improving life outcomes, particularly for children from socially and economically disadvantaged families (Cunha, Heckman, Lochner, & Masterov, 2005; Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010). However, little of this evidence comes from developing countries. In India, for example, prior to the India Early Childhood Education Impact Study (IECEI), there was little empirical evidence available on scale regarding the types of preschool facilities available for young children, children's participation in these facilities, the quality of these programs, or the impact of such exposure on children's development.[4]

In India, recent years have seen significant shifts in education policy both with respect to early childhood care and education as well as in the sphere of primary education. Although an overall policy framework covering all children up to the age of 18 is laid out in the Government of India's National Policy for Children (2013a), policy goals and their implementation via government programs have been designed and developed separately for children below 6 years of age and those who are age 6 and above, with the former the responsibility of the Ministry of Women and Child Development (MWCD) and the latter that of the Ministry of Human Resource

[1] UNESCO's Global Monitoring Report estimates that 250 million children around the world are not learning the basics, of whom about 50% have spent at least 4 years in school (UNESCO, 2015).

[2] See https://sustainabledevelopment.un.org/sdgs for information on specific goals and targets.

[3] See Ashley et al. (2014) for a comprehensive review of the role and impact of private schooling in developing countries.

[4] According to Census 2011, India has 158.7 million children in the age group 0–6 years of which about 48% of children are covered under the government's Integrated Child Development Services (ICDS) scheme. There is also a burgeoning private ECCE sector which remains largely unregulated, for which no reliable estimates exist of either number or coverage.

Development (MHRD). Having different ministries independently responsible for policies pertaining to different stages of children's lives generates the possibility that the goals and mechanisms prescribed do not mesh together in a continuum within which early childhood programs prepare children for the next phase of their lives in the formal education system.

With respect to children below age 6, several national policies in India address the importance of care and education in the early years. Both the constitutional provisions through Article 45 of the Constitution (Eighty Sixth Amendment) Act, 2002, and thereafter, the Right to Free and Compulsory Education (RTE) Act, 2009, acknowledge the importance of the early years in preparing young children for primary school and beyond and recommend that governments make appropriate arrangements to provide preschool education to children below 6 years of age. The National Early Childhood Care and Education Policy, 2013b, provided fresh impetus to the policy environment by aiming to "promote inclusive, equitable and contextualized opportunities for promoting optimal development and active learning capacity of all children below 6 years of age." The ECCE curriculum framework prepared alongside is intended to be a flexible, holistic pedagogical tool that can be utilized to offer age- and developmentally appropriate curricula to young children.

At the same time, policies within the elementary education sector have seen a shift from a focus on access and enrollment toward the explicit pursuit of educational quality and the achievement of learning outcomes for children. India's XII Five Year Plan, covering the period 2012–2017, emphasized the need to "improve learning outcomes that are measured, monitored and reported independently at all levels of school education" (GoI, 2013c). Currently all states in the country are expected to conduct annual learning assessments in order to generate robust, large-scale data that can aid in decision making for the sector. Recently, the National Council for Educational Research and Training (NCERT) released learning outcome indicators for each elementary grade and subject (NCERT, 2017).

This paper uses available large-scale data sets to explore the relationship between preschool participation, school readiness, and early grade learning in India. Given that one explicit objective of ECE programs in India and elsewhere is to prepare children to enter primary school, to what extent do these programs build school readiness among children, and how does school readiness relate to children's early grade learning?

Data Sources

The analyses presented in this paper draw on two sources of data:

The *Annual Status of Education Report* (ASER) is a national household-based survey of children's schooling status and their ability to read and do simple arithmetic. Conducted every year since 2005, the assessment reaches more than 600,000 children aged 5–16 in almost every rural district of India. The highest level of

reading assessed is equivalent to what children are expected to be able to transact in Grade 2; the highest level of arithmetic assessed is children's ability to solve a three-digit by one-digit division sum, usually taught in Grade 3 or 4 (depending on the state). ASER estimates are representative at district, state, and national levels.[5]

The *India Early Childhood Education Impact study* (IECEI) was a 4-year longitudinal study that examined young children's participation in ECE programs and the impact of this participation on their school readiness and subsequent early grade learning. This paper draws on the first 2 years of data generated by one strand of the study, which tracked a cohort of approximately 12,000 4-year-old children in three major states of India (Assam, Telangana, and Rajasthan). During these 2 years (2011–2013), a total of six rounds of data collection were conducted in order to collect information on children's participation status as well as their learning outcomes, first with respect to school readiness and subsequently with respect to early grade learning in language and arithmetic.[6]

Are Children in School and Learning?

To begin with, we present a brief overview of children's schooling and learning status over the decade (2005–2014) in rural India. Two trends are clearly visible from an examination of 10 years of ASER data.[7] First, throughout this period the vast majority of children in rural India have been enrolled in school, but they are far behind grade-level expectations with respect to learning outcomes, which are low and slow to change. Between 2006 and 2010, learning levels were stagnant at best. Between 2010 and 2013, a clear declining trend is visible, which seems to stabilize in 2014 (Banerji & Bhattacharjea, 2018) (Table 5.1). For example, in 2014, although 97% of all children in the 6–14 age group were enrolled in school, only 48% of all children in Grade 5 could read a Grade 2 level text and just 26% could solve a simple division problem.

The conclusion that learning outcomes are alarmingly low is corroborated by other data sources. Mukerji and Walton (2013) provide an overview of a range of studies and assessments, conducted by different organizations using different assessment tools, all of which point to "a dismal quality of basic learning, in all states, in urban and rural areas, and in government and private schools" (p. 4).

[5] For more information on how ASER is designed and implemented as well as on its findings, see www.asercentre.org.

[6] For more information on the IECEI study, see Kaul et al. (2017) and Chapter 2 in this volume.

[7] ASER is currently the only source of annual data on learning outcomes available on scale in India.

Table 5.1 Percentage of children who can read Grade 2 level text

Year	Grade 3	Grade 5	Grade 8
2006	20.0	53.1	83.8
2008	22.2	56.2	84.8
2010	19.5	53.7	83.5
2012	21.4	46.8	76.4
2014	23.6	48	74.6

Source: Annual Status of Education Report, various years

Do Private Schools Provide Better Quality Education?

A second major trend visible in ASER data is that more and more rural households are opting to send their children to private school. The percentage of children enrolled in private schools in rural India increased from 18.7% in 2006 to 30.8% in 2014. This trend has been fueled by increased affluence among families in rural India, thanks to a decade of reasonable economic growth. Increasing affluence is reflected in the fact that, for example, across the more than 300,000 rural households sampled each year for the ASER survey, the proportion of households with a "pukka" roof increased from about a third in 2010 to almost half in 2014.

An examination of trends in learning outcomes by school management type makes it is clear that the decline in learning levels observed between 2010 and 2013 is mostly coming from government schools. Learning levels in private schools, though low, hold steady during the same period. As a result, the gap in learning levels between government and private schools has been rising over time (Table 5.2).

Traditionally, the focus of Indian policymakers has been higher education. The launch of the District Primary Education Programme (DPEP) in the mid-1990s and, in 2001, the Indian government's ambitious flagship primary education program, Sarva Shiksha Abhiyan (SSA), ensured a shift in attention toward the primary education sector. In 2009, the government launched a similar initiative for middle and secondary schooling; and in 2010 the Right of Children to Free and Compulsory Education (RTE) Act came into effect, guaranteeing schooling for all children in the 6–14 age group. Given a policy background that guarantees free public education to all children in the country, the deteriorating outcomes in the public schools is particularly alarming.

But do the relatively better outcomes for private schools reflect differences in school characteristics across management types? Wadhwa (2011, 2015) analyzes the learning gap between government and private schools for primary classes (Grades 1 through 5 in most states). She finds that a large proportion of the observed gap is attributable to factors other than the school environment—in other words, to child, family, and household characteristics. This is not a surprising result, as the importance of household and parents' characteristics for learning outcomes is well established in general and especially so with respect to the choice of private schooling. What is noteworthy is that over time the importance of these factors has grown. In 2009, two-thirds of the learning gap could be attributed to these other factors. By

Table 5.2 Percentage of Grade 5 children at different learning levels by school management type

Year	Can read Grade 2 level text		Can solve 3 digit by 1 digit division	
	Govt	Pvt	Govt	Pvt
2006	51.4	60.8		
2007	56.7	69.0	41.0	49.4
2008	53.1	67.9	34.4	47.1
2009	50.3	63.1	36.1	46.2
2010	50.7	64.2	33.9	44.2
2011	43.8	62.7	24.5	37.7
2012	41.7	61.2	20.3	37.8
2013	41.1	63.3	20.8	38.9
2014	42.2	62.6	20.7	39.3

Source: ASER 2006–2014

2014, this proportion had grown to 72%.[8] What this suggests is that the self-selection problem associated with private schools seems to be getting exacerbated over time. The newer cohorts of government school children are coming from increasingly disadvantaged backgrounds, with obvious consequences for learning levels in these schools.

Does Preschool Participation Improve Early Grade Learning?

We now turn to the question of whether participation in preschool education has an impact on children's early grade learning. We begin by examining ASER data for trends that throw light on the relationship between children's preschool participation and their ability to do simple arithmetic. We look first at data from ASER 2009 and subsequently compare these results with those obtained from ASER 2013 data since data is available for the latter year from both ASER and from the IECEI study. Although ASER records current enrollment information for children aged 5–16, it does not collect information on children's prior exposure to preschool. This means that findings obtained from ASER data are suggestive rather than conclusive. In a final section, therefore, we present data from the longitudinal IECEI study that

[8] These numbers refer to basic reading in primary grades.

Table 5.3 Proportion of children by math level and grade (2009)

	Grade 1		Grade 3		Grade 5	
	Ability to at least recognize numbers		Ability to do at least subtraction		Ability to do at least subtraction	
	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Govt schools	0.66		0.37		0.70	
Private schools	0.81		0.51		0.80	
Gap	0.14	0.08	0.14	0.08	0.10	0.05
% gap attributable to other factors	45.39		46.43		46.39	

Source: ASER 2009

enables us to see whether these data confirm the trends observed in ASER regarding links between preschool participation and early grade learning.

Disaggregating ASER data by grade provides a first cut at examining whether the learning gap between government and private schools is consistent across grades or whether newly entering children (in Grade 1) have specific advantages or disadvantages that may be associated with prior exposure to ECE programs.

Looking first at the ASER 2009 data set, we focus the analysis on learning levels of children in Grades 1, 3, and 5. For Grade 1 we consider children's ability to recognize numbers or more and for children in Grades 3 and 5 their ability to subtract or more. The gap in learning levels between students in government and private schools is identical in Grades 1 and 3 and diminishes somewhat in Grade 5 (refer to figures in the columns titled "Uncontrolled" in Table 5.3).

Although these data appear to support the argument that private schools provide better quality education, one cannot attribute the entire learning gap to a better teaching-learning environment in private schools. The relationship between learning outcomes and the child's home learning environment, the education level and income of her parents, and other home characteristics is well established. Further, the fact that private schools draw their students from richer households that also tend to have characteristics that positively impact learning (like better educated parents who can provide better learning opportunities for their children) needs to be taken into account. Once we control for these other factors, close to half of the learning gap between government and private schools disappears (refer to figures in the columns titled "Controlled" in Table 5.3). The contribution of these other factors to children's learning outcomes is more or less the same across the three grades.[9]

[9] The "controlled" estimates are obtained from a regression that controls for the child's age, gender, and whether she gets any supplementary help in the form of private tuition; her parents' education level; her household characteristics that proxy for affluence like type of house, presence of a TV, mobile, etc., as well as those that proxy for her home learning environment like presence of reading materials in the home; and characteristics of the village she lives in.

Table 5.4 Proportion of children by math level and grade (2013)

	Grade 1		Grade 3		Grade 5	
	Ability to recognize numbers or more		Ability to subtract or more		Ability to subtract or more	
	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Govt schools	0.49		0.18		0.46	
Private schools	0.80		0.46		0.70	
Gap	0.32	0.17	0.28	0.15	0.24	0.10
% gap attributable to other factors	46.98		45.39		59.92	

Source: ASER 2013

Turning now to a similar analysis using data collected 4 years later in ASER 2013, we find a very different situation. In every grade, the gap in learning levels of government and private schools is much greater than was the case in 2009. Further, the gap is largest when children enter school in Grade 1 (Table 5.4). In 2013, only 49% of the children in Grade 1 of rural government schools could recognize numbers or more as compared to 80% in rural private schools. By Grade 3, the advantage of private school children in terms of their ability to subtract is slightly lower at 28 percentage points. By Grade 5, the proportion of children in government schools who can subtract is similar to the corresponding proportion of children in Grade 3 in private schools, though the gap between government and private schools narrows further.

Two observations stand out from the figures presented in Table 5.4. First, even after controlling for family and other characteristics, the learning advantage of private schools is largest in Grade 1 and diminishes steadily in higher grades. Second, in Grade 1 the contribution of family background is similar to the proportion observed in 2009. But unlike 4 years earlier, in 2013 the contribution of family characteristics to children's learning grows as students progress through primary school, from 47% in Grade 1 to 60% in Grade 5.

Both these observations can be explained if children with little or no home support dropout of school, and indeed this seems to be the case. In the age group of 6–10 years, the proportion of out-of-school children in rural India is only 1.8%. But when we disaggregate this by the type of home they live in, the differences are quite stark.[10] For more affluent households (those in "pukka" homes), the proportion of

[10]ASER collects information on various household assets. Among these is the type of home the child lives in. Following other large-scale surveys, like DHS, ASER classifies the house type into three categories: "kutcha," "semi-pukka," and "pukka," A "pukka" house is one which has walls made of burnt bricks, stones (packed with lime or cement), cement, concrete, timber, etc. and roof made of tiles, GCI (galvanized corrugated iron) sheets, asbestos cement sheet, RBC (reinforced brick concrete), RCC (reinforced cement concrete), timber, etc. A "kutcha house has walls and/or roof made of material other than those mentioned above, such as unburnt bricks, bamboos, mud,

out-of-school children is about 1% compared to 2.8% for children living in the poorest households (those living in "kutcha" homes).

Comparing the figures for 2009 and 2013 (Tables 5.3 and 5.4), we see that while learning levels in private schools are virtually unchanged between 2009 and 2013, there is a huge drop in government schools. For instance, in 2009, 66% of the entering Grade 1 cohort in government schools was able to recognize single-digit numbers, as compared to only 49% in 2013. Second, even though private schools had a smaller advantage in Grade 1, they were able to maintain it till Grade 3 in 2009. In 2013, on the other hand, we see the gap narrowing even in Grade 3; and by Grade 5, private schools have lost even more ground with the majority of the learning gap being explained by household characteristics of the child. This self-selection into private schools is also evident when we look at the distribution of children by the type of home they live in. In 2009, only 27% of children going to government schools lived in "pukka" homes, compared to 52% of private school children. This gap has widened over time—in 2013, the corresponding numbers are 31% and 62%, respectively. Therefore, although it appears that performance in private schools has not deteriorated in the last 5 years, the credit for this goes more to families rather than to schools themselves.

To summarize, these data suggest that while private schools seem to be getting the more advantaged children from among the school entering cohort, they are not able to improve or even maintain this advantage through primary grades. For children who remain in school, the learning gap between public and private schools falls, and the contribution of parents and home environment rises. However, what differentiates first graders from older cohorts is that they have no prior schooling. Therefore, whatever learning advantage they have, over and above what can be attributed to their family backgrounds, must be coming from their preschool experience rather than from any value addition that is happening in school. While there is no direct evidence linking prior preschool participation to learning outcomes in ASER, the fact that the private school advantage is greatest and the impact of home factors is lowest in Grade 1 suggests the possibility that participation in early childhood education programs may explain these trends. We turn now to an exploration of this hypothesis.

As mentioned earlier, ASER assesses children in the age group of 5–16 years. Although the Right to Education Act (RTE), 2009, specifies age six as the age of entry into primary school, many states in India allow children to enter Grade 1 at age 5. Nationally, therefore, among the 5- and 6-year-olds in the ASER data set, there are children enrolled in primary school, others who are enrolled in preschool, and still others who are not attending any institution. Further, for children enrolled in preschools, ASER also records what type of institution they are enrolled in—whether it is a private preschool or a government Anganwadi center. Since all chil-

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grass, reeds, thatch, loosely packed stones, etc. A "semi-pukka" house has fixed walls made up of pukka material, but the roof is made up of the material other than those used for pukka house. This variable works as a good proxy for wealth with poor households being classified as those living in "kutcha" houses.

Table 5.5 School distribution by age, 2013

	Age 5	Age 6
Govt. ECE	21.47	5.96
Private ECE	12.87	7.14
Govt school	35.43	56.44
Private school	19.59	24.4
Other schools	0.99	1.02
Not attending anywhere	9.65	5.05

Source: ASER 2013

dren are administered the same learning assessment, regardless of age or grade, another way to tease out the effect of early childhood programs is to compare the learning levels of these two groups.

The distribution of 5- and 6-year-olds, given in Table 5.5, shows that in 2013, more than half of all children (56%) were already in school at age 5, and about a third were in preschool. The proportion of 5-year-olds enrolled in school has been high for some years now—even in 2009, 54.6% of 5-year-olds were enrolled in school. One of the goals of RTE is age-grade mainstreaming, with children entering school at age 6 and proceeding linearly through the system. However, ASER shows that the ground reality is very different—there are huge variations in the age distribution across grade and states with both underage as well as overage children in all grades.[11] There is anecdotal evidence of older children sitting at the back of the class, being ignored by the teacher, with obvious consequences for learning outcomes and retention. However, the same can be said for younger children as well. The evidence from ASER points toward a nonlinear relationship between age and learning outcomes. Performance improves with age up to a point, after which diminishing returns set in. This may be due to a variety of reasons: for example, young children may simply not have the capability to engage with the curriculum; overage children, on the other hand, can often be out of place, especially if they are unable to keep up with their younger peers in the classroom. If the age distribution in government schools is skewed toward underage and overage children, that could be another reason behind low learning outcomes in these schools.

The stark differences in the learning outcomes of young children in different kinds of schools are clearly evident in Table 5.6. While more than half of 5-year-olds in private preschools could recognize single-digit numbers, only a fifth of 5-year-olds could do so in government Anganwadis. In fact, 5-year-olds in private preschools performed better on these tasks than the first graders in government schools and were on par with children a year older in government schools. The differences are even larger for 6-year-olds in private preschools. If these children are more likely to continue their education in private primary schools, then the learning gap observed in Grade 1 and discussed in a previous section is entirely explainable.

[11] See also Chapters 3, 10, and 11 in this volume for different perspectives on the relationship between age and grade in Indian preschools and primary schools.

Table 5.6 Learning levels by age and institution type, 2013

	Ability to at least recognize numbers		
	Age 5	Age 6	Grade 1
Govt ECE	22.18	30.87	
Private ECE	54.77	68.78	
Govt school	39.5	57.03	48.87
Private school	65.74	80.92	79.83

Source: ASER 2013

However, since ASER is a repeated cross section and not a longitudinal survey, it cannot be used to track children from preschool to primary school. While this evidence from ASER is suggestive of the importance of early childhood education, it is only speculative in nature. We now turn to our second source of data—the longitudinal India Early Childhood Education Impact study (IECEI)—to study the transition from preschool to school in more detail.

Are Children in Private Preschools More Likely to Continue in Private Schools?

The IECEI study is the first longitudinal study of early childhood education in India and fills some of the gaps in our understanding of young children's participation in early childhood programs. We use data from this study to further explore questions pertaining to transition and learning outcomes during the early years.[12] Table 5.7 presents the distribution of primary school children by the type of last ECE center they attended. We see that it is indeed the case that children in government schools are more likely to come from government preschools and those in private schools from private preschools. In case of government-to-government transition, this likelihood is greater than 80%, while in the case of private to government transition, the likelihood is about 80%.

[12] It is instructive to look at both sources of data – ASER and IECEI. ASER is nationally representative but cross-sectional in nature and given its rapid assessment architecture is lean on explanatory variables. However, it useful to look at broad trends and set up hypotheses. IECEI, on the other hand, is longitudinal and has far more detailed information on young children. However, it was conducted in only three states and is not nationally representative. But given the wealth of information available in the study, the data can be used to answer more detailed and interesting questions. In this section, we report results based on the first six visits of the study.

Table 5.7 Primary school distribution by type of last ECE center attended

	Management type for last ECE		
Type of primary school	Government	Private	Total
Government	85.62	14.38	100
Private	20.58	79.42	100

Source: IECEI study

Participation Trends from Age 4 to Age 6

Since IECEI tracked children from age 4 to 8, it can be used to directly explore the relationship between "participation"[13] in ECE and learning outcomes in primary school. However, before doing so we present some broad participation trends from the first 2 years of the study in Table 5.8. Most children in these states were already attending some institution—Anganwadi center (government ECE), other ECE facility, or primary school.[14]

At age 4, more than three-quarters of sampled children were at an ECE center, and of these 2 out of every 3 were in government Anganwadi centers. More importantly, almost 1 in 10 were already in school, well before the official school age. By age 5, a third of the children were enrolled in school and by age 6, close to 60% were in school.[15]

However, children's "participation" is often irregular and informal, and they take many different "pathways" through ECE and/or primary school: they attend different types of ECE and for different lengths of time, transition to primary school at different times, return to from primary grades to ECE, and so on (see Chapter 11 of this volume for a detailed exploration of this issue). This nonlinear progression makes exposure to ECE difficult to define.

Table 5.9 presents a picture of these exposures for all children tracked over the first six rounds of the study. A very small proportion of children were not observed in either school or ECE center over this period. About two out of five children had "partial" exposure—they were observed in school/ECE in at least one of the visits, with a quarter being observed in four to five out of the six visits. The remaining three out of five children were observed in school/ECE in all six visits—what we referred to as "full participation." However, even here a variety of combinations are visible. For instance, 17% of these children were observed only in ECE centers and

[13] As discussed in Chapter 3 of this volume and the IECEI study report (Kaul et al., 2017, p. 30), the IECEI study used a broader definition of "participation" that goes beyond enrollment to capture the extent of children's actual exposure to ECE, whether formal or informal.

[14] Provision of ECE centers was universal with a government Anganwadi center in every sampled village and about half of all sampled villages also having a private ECE center.

[15] The figures presented Table 5.8 are not comparable with those in Table 5.5. In the IECEI study the focus is on participation, while in ASER children's enrolment is recorded.

Table 5.8 Sampled children's ECE participation between age 4 and 6, by age and institution type

	Age 4	Age 5	Age 6
Participation in ECE	77.35	61.59	23.24
Anganwadi	51.15	30.58	13.2
Private ECE	16.1	30.64	9.84
Other	10.1	0.37	0.2
Participating in school	8.29	31.96	59.74
Government school		24.09	38.34
Private school		7.55	21.02
Other		0.32	0.38
Not participating	14.36	6.45	7.02
Total	100	100	100

Source: IECEI study

4% only in school. Of the remaining children, a number of ECE-school combinations were observed.[16]

Since our objective is to study the relationship between ECE exposure and early grade outcomes and how it differs across government and private schools, looking at both children coming from government as well as from private preschools, we need an indicator of ECE and school participation as well as the management type of the institution. The latter is straightforward to define. But given the complex, nonlinear transitions through ECE as reflected in Table 5.9, it is not immediately clear how ECE exposure should be defined.

For purposes of the analysis that follows, we define exposure to ECE as a continuum and measure it as the number of times a child was tracked to an ECE center over the course of the first six rounds of data collection. The difference between government and private ECE exposure is captured by a restricted sample of children who participated only in government preschools (usually Anganwadi centers) before transitioning to primary schools.

[16] Table 5.9 does not differentiate between government and private schools and ECE centers. However, disaggregating these data further by management type reveals a fair amount of movement between government and private ECE centers as well.

Table 5.9 Participation trends for children tracked from age 4 to age 6 (six rounds)

Participation category	%
Non- participating across all visits	0.7
Partial participation	37.2
Participating on 1-3 visits	12.5
Participating on 4-5 visits	24.7
Full participation (6 visits)	62.2
ECE only	16.8
Primary school only	4.2
Mixed ECE and primary school	41.2

Source: IECEI Strand A

Does ECE Participation Result in Better Learning Outcomes in Primary School?

In the sixth round of the IECEI survey (October–December 2013), when sampled children were an average of 6 years old, they were administered an early grade assessment, and it is the scores on this assessment that we first model.[17] Table 5.10 presents the results of this exercise. We present results for two sets of models where the dependent variable is the early grade assessment score. The first model is based on the entire sample, while the second model is restricted to only those children who have attended only government Anganwadis before moving on to primary school. For each model, we present least squares regression estimation results as well as a regression that included state fixed effects. The latter is to account for any differences in the state policy environment.

The main variable of interest is participation in an ECE center, which we capture by the number of times the child was tracked to an ECE center prior to assessment. Since the early grade assessment was administered at visit 6, a child could have participated in an ECE center up to six times.[18] To account for possible diminishing returns to ECE participation (the early grade assessment was administered in October–December 2013 by which time children were old enough to be in school and should no longer have been in an early childhood education center), we also include a squared ECE participation term in the model. There are additional controls in the models to account for factors that could potentially influence early grade

[17] The assessment examined children's foundational cognitive, language, and arithmetic abilities that children age 6 were expected to have achieved. See Kaul et al. (2017) for details.

[18] Therefore, children with six ECE center participations were still in an ECE center when the early grade assessment was administered.

scores such as observed attendance at the time of survey visits, ECE quality indices (pertaining to infrastructure, display environment, and classroom activity),[19] previous scores in school readiness tests,[20] individual characteristics like age and gender, household characteristics like affluence (measured in terms of possession of consumer durable indices), caste, and home language.

Model 1 indicates that even after controlling for other factors and state-level variations, participation in ECE matters for early grade outcomes. ECE participation, however, has diminishing returns as indicated by the negative sign of the squared term. In other words, there is an optimal exposure to ECE which is intuitively appealing.[21] As expected, greater exposure to primary school is positively correlated with learning outcomes as measured by the early grade learning assessment, and children in private schools have better outcomes.

While we are controlling for current private school participation, given the varied pathways children take through ECE and school transitions, it is difficult to isolate the effect of past private ECE and/or school exposure. The observed effect of past ECE participation could be simply be coming from private ECE centers, with government Anganwadis adding little or no value. Therefore, in Model 2 we restrict the sample to children who have only attended government Anganwadis. Here, while the ECE effect is still visible, it is smaller in magnitude. However, the effect is marginally significant once we control for state-level fixed effects, meaning that the variation in learning outcomes being captured by Anganwadis is between states rather than within a state. This is important from a policy perspective, if one is trying to identify best practices in Anganwadis that lead to better learning outcomes.

The impact of other variables in the model is along expected lines. Mother's education has a beneficial impact on learning outcomes, as does the affluence level of the household (as measured by ownership of consumer durables). In contrast, caste and gender have no significant impact on learning outcomes; this is perhaps not surprising since children may be too young for caste and gender effects to be visible. School readiness scores matter as well. Interestingly, the impact of the ECE quality indices used in this analysis on learning outcomes is limited.[22] ECE infra-

[19] Unlike the more detailed indicators used in the smaller Strand B of the study, the ECE quality indices used in this analysis were based on a rapid institutional assessment that was conducted in all ECE centers attended by children in the larger Strand A of the IECEI study. This survey format aimed to collect data on key aspects of each institution, such as infrastructure, staff and student enrollment and attendance, and selected elements of classroom processes. The quality index for each sampled child is an average based on all ECE centers she attended. Details of the quality indices are provided in Table 5.12.

[20] These tests were administered twice—at the beginning of the study (September–December 2011) and at the end of the first year of the study (October–December 2012).

[21] The IECEI study report (Kaul et al., 2017) indicates that four rounds of ECE participation is optimal (Table 6.4). If children continue to participate beyond an optimal number of visits, the returns are negative.

[22] See Table 5.12 for the indicators used to construct these indices. As mentioned earlier, these were collected during a rapid assessment of each facility, entirely separate from the much longer and more detailed quality assessments done in the smaller Strand B of the study.

structure and display environment do not matter or are negatively correlated with learning outcomes. Class activity is positively correlated but variation is between states rather than within states. While there is an overall positive association between learning outcomes and classroom activity, this relationship is significant only when the comparison is with other states. When regression models take into account state-level fixed effects, the relationship is no longer significant. This again is a useful result in terms of identifying practices and/or variables that can be influenced by policy to improve learning outcomes.

When Does the Private ECE Effect Set In?

Is the differential impact of government and private ECE also visible in terms of school readiness scores, administered to children at early childhood education stage before they join primary school? Table 5.11 presents regression results that attempt to answer this question. The question is important, because a large proportion of these children are already in primary school. Therefore, an outcome that we are attributing to ECE could in fact be due to exposure to primary school. Indeed, as results in the previous table show, exposure to primary school improves early grade scores.

We run a version of the previous model (Table 5.10) in which the dependent variable is the end line school readiness score[23] and the main variable of interest is ECE participation.[24] All other controls are the same as in the previous model. The sample is restricted to children who attended only preschool centers; any child who was enrolled in a primary school is dropped from the sample. This ensures that the results are not contaminated with a primary school effect. We present results for both an OLS and state-level FE model for the entire sample (i.e., all children who have attended only preschool centers) and restricted sample (i.e., children who have attended only Anganwadis).

In this analysis, the results are slightly different. We find, first, that ECE participation matters; and second, that this effect is far more important for private ECE centers with the effect being only marginally significant for the government preschool sample. In addition, when we control for state-level variations, the effect of ECE participation becomes insignificant for pure government preschool participation and is only marginally significant for the full sample. This result too points to the importance of the larger state context for the functioning of government educational institutions. Chapter 5 of the IECEI study report (Kaul et al., 2017) highlights that the quality of Anganwadi centers in Telangana is better than either in Assam or

[23] The school readiness assessment tested children's preliteracy, prenumeracy, and cognitive abilities at age 4 and again at age 5. For more details see Kaul et al. (2017).

[24] The first year of the study comprised a baseline survey, which included the baseline administration of the school readiness test, two rounds of tracking visits, and an end line administration of the school readiness test.

Rajasthan, while there is little variation within states. In addition, it also suggests that the larger state context may be important not just for the functioning of the government educational institutions in the state but also for that of private schools and preschools.

Among the other variables, baseline school readiness scores are consistently significant. Interestingly, in this analysis caste seems to matter for school readiness scores with children in the general category doing better. Mother's education also matters but the affluence coefficient for sample of Anganwadi children is not significant. Since it is the poor who are most likely to send their children to Anganwadis, there might be insufficient variation with respect to affluence for the coefficient to be significant.

Summary and Conclusions

To summarize our findings: first, ECE participation leads to better early grade learning outcomes. However, some participation in a private ECE center results in a larger impact on these outcomes as compared to participation solely in government Anganwadis. Further, the impact of ECE on learning outcomes of children who have had exposure to only Anganwadis can be accounted for by mostly interstate variations. Second, since it is possible that the advantage that we are attributing to private ECE centers is really due to prior exposure to the Grade 1 curriculum, we next looked at the impact of ECE participation on school readiness scores of children who had not yet entered primary school. Here, the results are a little murky. While some ECE participation in private centers has an impact on school readiness scores, the impact of Anganwadi participation is less clear. Finally, both these effects, especially the Anganwadi effect, can be accounted for by variation between, rather than within, states.

These results are perhaps not surprising given the preschool landscape in India. Government Anganwadis are not structured to provide children with a developmentally appropriate educational curriculum. On the other hand, private ECE centers are far more geared toward mechanical rote learning of the academic content taught in primary school. While this chapter has focused on the overall impact of children's institutional participation on their school readiness and early grade learning between age 4 and age 6, Chapter 7 in this volume presents a comprehensive analysis of the specific characteristics, benefits, and limitations of these institutional environments and the effects on children's cognitive and concept development. However, a clear takeaway from the present analysis is that state government uptake of developmentally appropriate policies and practices can impact not only the children attending government-run programs but also the growing number of those attending the burgeoning private ECE sector in the country.

Appendix

Table 5.10 Cumulative effect of ECE participation and quality characteristics on visit 7 early grade scores (OLS versus state-level FE, with robust SE) for full and restricted sample

	Full sample		Restricted sample	
	OLS	FE	OLS	FE
Number of times "participated" in an ECE	7.923***	6.786***	6.598***	3.748*
	(1.274)	(1.270)	(2.035)	(1.976)
Number of times "participated" in an ECE squared	–0.731***	–0.703***	–0.820***	–0.729***
	(0.161)	(0.161)	(0.265)	(0.259)
Number of exposures to primary school	5.605***	5.073***	4.619***	4.086***
	(0.499)	(0.452)	(0.695)	(0.633)
Observed attendance	1.806***	1.840***	2.223***	2.008***
	(0.274)	(0.272)	(0.352)	(0.369)
Management type of current institution (reference category: government)				
Private	10.87***	11.90***	4.888**	4.182*
	(0.958)	(1.006)	(2.162)	(2.348)
Other	10.18***	11.71***		
	(2.540)	(2.984)		
ECE quality indices				
Infrastructure index	–0.382	0.557	–2.058***	–0.891*
	(0.408)	(0.420)	(0.522)	(0.539)

(continued)

Table 5.10 (continued)

Display environment	–0.420	–0.761***	0.310	–0.0250
	(0.263)	(0.265)	(0.403)	(0.428)
Class activity	1.326***	0.597	2.040***	0.683
	(0.478)	(0.486)	(0.735)	(0.686)
School readiness scores				
SRS–endline score	0.344***	0.332***	0.301***	0.256***
	(0.0250)	(0.0260)	(0.0293)	(0.0292)
SRS–baseline score	0.108***	0.0948***	0.0996***	0.0817***
	(0.0202)	(0.0196)	(0.0284)	(0.0265)
Gender				
(reference category: boys)	0.254	0.319	0.524	0.826
	(0.551)	(0.544)	(0.883)	(0.866)
Age	3.962***	3.860***	1.962	1.287
	(1.031)	(1.022)	(1.459)	(1.447)
Mother's education	0.462***	0.435***	0.448***	0.363***
	(0.0715)	(0.0703)	(0.0975)	(0.0894)
Caste				
(reference category: scheduled caste)				
Scheduled tribe	–2.101	–2.623	–1.509	–2.387
	(1.606)	(1.626)	(2.046)	(2.049)
Other Backward caste	–0.809	–0.557	–1.024	–1.915
	(0.982)	(0.980)	(1.458)	(1.519)
General caste	1.954	2.056	5.350**	3.673*
	(1.488)	(1.509)	(2.133)	(2.130)

(continued)

Table 5.10 (continued)

Affluence as per ownership of consumer durable index (reference category: low)				
Medium	2.699***	2.774***	1.117	2.391**
	(0.847)	(0.834)	(1.101)	(1.054)
High	5.431***	6.123***	1.360	3.291**
	(1.005)	(1.035)	(1.530)	(1.558)
Home language (reference: languages other than Hindi in RJ, Assamese in AS and Telgu in TG)	7.362***	4.843***	8.383***	6.306***
	(1.041)	(1.045)	(1.483)	(1.531)
Observations	5,522	5,522	2,307	2,307

Robust standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$
Note: **Restricted sample consists of all children who have been to only Anganwadis

Table 5.11 Cumulative average effect of ECE participation and quality characteristics on visit 4 school readiness scores (OLS versus state-level FE, with robust SE) for full and restricted sample

	OLS	FE	OLS	FE
Number of times "participated" in an ECE	14.68***	8.435*	14.27*	9.906
	(5.028)	(4.561)	(7.708)	(6.993)
Number of time "participated" in an ECE squared	–2.016**	–1.275	–2.017	–1.776
	(0.903)	(0.807)	(1.425)	(1.296)
Observed attendance	–0.0245	1.024**	1.058*	1.905***
	(0.387)	(0.413)	(0.552)	(0.626)
Management type of current institution (reference category: government)				
Private	9.963***	13.92***		
	(1.289)	(1.315)		
Other	6.022	11.14***		
	(4.169)	(3.383)		
ECE quality indices				
Infrastructure index	–1.679***	–0.225	–0.660	0.579
	(0.533)	(0.550)	(0.978)	(0.989)
Display environment	0.682	0.288	1.248*	0.973
	(0.465)	(0.432)	(0.695)	(0.699)
Class activity	2.138***	1.514**	1.484	1.098
	(0.745)	(0.706)	(1.006)	(1.055)
SRS–baseline score	0.179***	0.149***	0.124***	0.104***
	(0.0267)	(0.0258)	(0.0394)	(0.0386)
Gender (reference category: boys)	–0.593	–0.719	–0.366	–0.323
	(0.643)	(0.624)	(0.911)	(0.901)

(continued)

Table 5.11 (continued)

Age	2.969**	2.304*	3.921**	2.715
	(1.209)	(1.197)	(1.727)	(1.772)
Mother's education	0.306***	0.204***	0.305***	0.190**
	(0.0868)	(0.0698)	(0.114)	(0.0910)
Caste				
(Reference category: Scheduled caste)				
Scheduled tribe	4.471**	3.174	3.715	2.348
	(2.164)	(2.027)	(2.825)	(2.680)
Other backward caste	–0.331	–1.262	–1.507	–3.677
	(1.658)	(1.479)	(2.976)	(2.839)
General caste	5.987***	2.406	7.050**	3.374
	(2.199)	(1.987)	(3.500)	(3.601)
Affluence as per ownership of consumer				
durable index				
(reference category: low)				
Medium	–2.861***	–0.505	–2.540*	–0.173
	(1.029)	(1.002)	(1.391)	(1.316)
High	–0.996	1.990*	–5.587***	–1.465
	(1.281)	(1.182)	(1.932)	(1.644)
Home language				
(reference: languages other than Hindi in				
RJ, Assamese in AS, and Telgu in TG)	3.429**	2.523*	3.225*	3.018
Observations	3414	3414	1429	1429

Robust standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$
Note: Full sample consists of all children who have been only to preschool centers, with no exposure to primary schooling, up to the first four rounds of data collection
**Restricted sample consists of all children who have been to only Anganwadis up to the first four rounds of data collection

Table 5.12 Details of the components of the ECE quality index (Strand A)

Infrastructure	Classroom environment	Classroom activity
Building—pukka, 1; semi-pukka, 0.66; kutcha, 0.33	Children's art work displayed? 1 point, if yes	A staff member teaching children? 1 point, if yes
Toilet—0.5 point, if yes	Alphabet or number charts displayed? 1 point, if yes	A staff member playing with children? 1 point, if yes
Toilet and usable—1 point, if yes	Other posters for children displayed? 1 point, if yes	Children using books/charts/play materials? 1 point, if yes
Water—0.5 point, if yes	Any type of play materials (e.g., board games)? 1 point, if yes	Children talking or playing together? 1 point, if yes
Water and potable—1 point, if yes	Any books with pictures or stories? 1 point, if yes	Children eating a hot cooked meal? 1 point, if yes
Boundary wall—1 point, if yes	Alphabet/barakhadi/number books? 1 point, if yes	
Playground—1 point, if yes	Sports equipment (e.g., bat, ball)? 1 point, if yes	
Kitchen—1 point, if yes	Other materials for children? 1 point, if yes	
Total: 7 points	**Total: 8 points**	**Total: 5 points**

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Part III
Schools Ready for Children

Chapter 6
Where Do Young Children Go? Provisioning in Early Childhood Education

Purnima Ramanujan and Nayan Dave

Abstract Parents are increasingly choosing fee-paying private school education over free government school education for their children, and there is evidence of similar shifts in enrolment trends for young children at the preschool stage. This chapter consolidates evidence on early childhood education (ECE) provisioning in India from multiple sources. Specifically, it examines associations between village-level characteristics and private preschool provisioning using data from the India Early Childhood Education Impact (IECEI) study. Our results indicate that significant and positive associations exist between certain infrastructural and demographic characteristics of villages and private preschool provisioning. In the context of increasing privatization of education, identifying supply-side factors associated with private preschools is important for disentangling issues of access and supply from the demand for private preschools.

Keywords Early childhood education · Private preschool provisioning · India

Introduction

Over the last two decades, there has been rapid proliferation of private schools across rural India with a consequent increase in the share of private school enrolments (Srivastava, Noronha, & Fennell, 2013). More and more families are choosing fee-paying private schools for their children over free, government education; in states as diverse as Uttar Pradesh and Manipur, well over half of all the children in the elementary school-going age (6–14 years) in rural India are enrolled in private schools (ASER Centre, 2017).

These trends are in no way limited to just the elementary school space but are also increasingly visible in data for young children in their early childhood years.

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According to the Annual Status of Education Report (ASER), the proportion of children aged 4 enrolled in private preschools in India increased from 16.6% in 2009 to 22.5% in 2016 (ASER Centre 2010, 2017). There are also major variations across states both in the provisioning of private early childhood education (ECE) facilities and in how young children participate in different types of ECE (Kaul et al., 2017). However, despite a detailed regulatory framework for private ECE services (NCPCR, 2017), there is no reliable or comprehensive data on ECE provisioning in India. Understanding the true extent of private ECE provisioning in the country is crucial for implementing policies for improving service provision in the sector.

While Chap. 11 of this volume helps deconstruct decision-making and demand for ECE, this chapter attempts to disentangle the supply-side factors that determine the presence and availability of private preschools in rural villages across India. For instance, is it the case that villages with better infrastructure and government services are more likely to have private preschools? Or, are private preschools available equally across villages?

The rest of this chapter is organized as follows. The next section begins with a description of current enrolment and provisioning trends in ECE using various primary and secondary sources. The aim is to consolidate our understanding of government and private ECE provisioning in rural India and highlight contradictions and gaps in the available data. The next section deals with the central question of this chapter, that of associations between village-level characteristics and ECE provisioning with a focus on private preschools. This begins with a literature review followed by a description of data, the methods used, and the findings. The last section discusses some issues emanating from the analysis and their implications for ECE policy in India.

Current Trends in ECE: Preschool Enrolment and Provisioning in India

Preschool provisioning in India includes a variety of government, private, and non-government programs referred to by nomenclatures such as Anganwadis, Balwadis, preschools, preparatory, pre-primary, LKG, UKG (or kindergarten), nursery, play centers, crèches, and Bal Vatikas (Ali, 2015; CSF, 2016; GoI, 2013a).

Although public ECE services in India have traditionally been under the Ministry of Women and Child Development (MWCD), the Ministry of Human Resource Development (MHRD) through the Department of School Education and Literacy also organizes preschool education, albeit in a limited manner. Among these, Anganwadis (AWCs) or "courtyard" centers under the MWCD's Integrated Child Development Services (1975) Scheme are the most widely available government ECE facility for children with provisioning norms mandating that AWCs cover all

Table 6.1 Number and distribution of pre-primary institutions in India (as of September 2009)

Type of preschool institution	Area	Total number of institutions	Proportion of institutions as a share of total
Anganwadi	Rural	550,127	91.0
	Urban	41,505	81.2
	Total	591,632	90.3
Balwadi	Rural	27,470	4.5
	Urban	2964	5.8
	Total	30,434	4.6
ECCE Center	Rural	13,946	2.3
	Urban	1978	3.9
	Total	15,924	2.4
Pre-primary school having LKG and UKG[a] or nursery classes	Rural	7104	1.2
	Urban	3133	6.1
	Total	10,237	1.6
Unrecognized school having pre-primary classes	Rural	5748	1.0
	Urban	1518	3.0
	Total	7266	1.1
All India	Rural	604,395	100.0
	Urban	51,098	100.0
	Total	655,493	100.0

Source: 8th All India School Education Survey (8th AISES)
[a]Kindergarten in India very often includes lower and upper kindergarten classes, commonly referred to as LKG and UKG

habitations in rural and urban areas with a focus on backward and disadvantaged social groups and minorities (GoI, 2016–2017).

According to data from the 8th All India School Education Survey (Table 6.1) in 2009, nine out of every ten preschools in the country were an Anganwadi, with greater provisioning in rural India (91%) than in urban settlements (81%). As per Kaul et al. (2017) as well, not only did nearly all the sampled villages in the IECEI study have at least one AWC, but about seven in every ten preschools listed across sampled villages at the baseline were an AWC.

However, despite ubiquitous provisioning, early childhood education under ICDS has not been a priority (Ali, 2015; Planning Commission, 2011) with the program suffering from several lacunae like a shortage of trained staff and infrastructure. The government too acknowledges that the preschool program is "particularly deficient in quality" in some parts of the country (GoI 2013b, p. 16). In other words, there has been greater prioritization of health and nutrition for children under ICDS, rather than providing quality early learning opportunities. Nationally, although over half of all children aged 4 were in government preschools[1] in 2014,

[1]ASER collects and reports data on percentage of children enrolled in Balwadis and Anganwadis together. The lack of disaggregated data does not allow for specific reporting of enrolments in Anganwadis.

this proportion has declined by over 10 percentage points since 2009 (ASER Centre, 2010, 2015).

Envisaged as an interim measure until the universalization of Anganwadis (GoI, 2013a), ECE through elementary educational programs like the Sarva Shiksha Abhiyan and the National Program for Education of Girls at the Elementary Level (NPEGEL) is organized through preschool classes or sections attached to existing government primary schools. Since the operationalizing of the Samagra Shiksha Abhiyan in 2018, there has been renewed focus and attention on this policy through the Integrated Scheme on School Education that aims to treat school education "holistically without segmentation from pre-nursery to Class 12" (GoI, 2018). This scheme aims for greater coordination and convergence with the Ministry of Women and Child Development to focus on preschool education for children aged 4–6 years. Moreover, it is also in conjunction with Section 11 of the Right of Children to Free and Compulsory Education Act (2009), which recommends that appropriate governments arrange for providing ECE to children between 3 and 6 years to prepare them for elementary education.

Although this policy has been in place for several years, in 2014–2015, only 15.5% of the government schools in India offered pre-primary classes (DISE 2014–2015 as reported in Central Square Foundation, 2016). There are also major variations across states' efforts to boost non-ICDS preschool education. In states like West Bengal, 88.5% government schools offered pre-primary classes (CSF, 2016), possibly as a consequence of such classes being made mandatory in all schools affiliated to the state board of education (*Times of India*, 2012), while in other states like Punjab, similar measures have only been adopted more recently (*Hindustan Times*, 2017). The IECEI study found that although 15% of the preschools in the sampled villages in Assam were *Ka Shrenis*—a pre-primary class attached to government primary schools—the participation of sampled children in these institutions was very low at age 4 (Kaul et al., 2017, pp. 31–32). However, it is undeniable that this is a crucial policy measure with important implications for advancing preschool access among young children as well as linking preschool and primary school education more intrinsically. The impact and success of this policy will be clearer in the years to come as states begin to take up implementation more earnestly.

Aside from the public sector provisioning, ECE within the private sector is offered through a plethora of playschools, nurseries, and lower and/or upper kindergarten classes. Thus, any discussion on ECE provisioning in India is incomplete without acknowledging the growing number of and increasing enrolment in private preschools. Table 6.2 compares preschool enrolment trends for 4-year-olds in rural India from ASER data in 2009 and 2014 (ASER Centre 2010, 2015). In 2014, close to a fifth of all children aged 4 in rural India were in private preschools compared to 16.6% in 2009. The proportion of 4-year-olds in private preschools increased in 22 out of the 26 states, with some states seeing a 20-percentage point increase over the same period. In states like Haryana, Himachal Pradesh, and Punjab (North); Sikkim, Manipur, Meghalaya, and Nagaland (North East); and Kerala (South), well over half of all 4-year-old children attended private preschools in 2014.

Table 6.2 Proportion of children aged 4 enrolled in preschools (by management type)

State	ASER 2009		ASER 2014	
	In Anganwadi or Balwadi	In LKG/ UKG	In Anganwadi or Balwadi	In LKG/ UKG
Andhra Pradesh	63.7	26.2	61.1	30.7
Arunachal Pradesh	33.9	22.6	23.9	49.7
Assam	70.3	8.1	70.3	14.8
Bihar	65.8	6.0	60.8	6.7
Chhattisgarh	82.5	8.7	71.3	17.5
Gujarat	93.6	3.0	78.1	10.6
Haryana	46.7	31.1	24.7	58.5
Himachal Pradesh	65.8	31.0	42.1	50.2
Jammu and Kashmir	21.4	21.2	31.2	41.6
Jharkhand	71.6	6.1	66.9	10.2
Karnataka	82.3	12.6	78.6	21.2
Kerala	47.7	46.8	27.5	62.0
Madhya Pradesh	81.7	8.5	64.6	19.8
Maharashtra	91.9	6.3	74.9	18.9
Manipur	32.2	47.6	7.7	72.0
Meghalaya	33.9	35.0	20.5	63.8
Mizoram	63.6	29.2	76.1	20.8
Nagaland	13.4	64.3	13.0	62.1
Odisha	79.4	6.3	84.5	9.6
Punjab	42.9	47.4	20.7	63.3
Rajasthan	42.8	28.6	19.8	29.0
Sikkim	29.0	58.8	31.0	67.9
Tamil Nadu	53.8	42.4	37.1	49.7
Telangana	*		47.5	39.0
Tripura	32.7	48.0	84.4	12.0
Uttarakhand	67.0	21.5	49.6	37.8
Uttar Pradesh	44.4	14.9	25.5	27.2
West Bengal	51.6	26.2	67.4	14.2
India	64.6	16.6	52.8	23.8

Source: ASER 2009 and 2014
Note: *Data not available

According to a Central Square Foundation report (2016) based on U-DISE data, over 40% of private schools in India offered pre-primary classes or sections compared to only 15% of government schools. Further, in 30 (out of 36) states and union territories, this proportion was well over half of all private schools, suggesting that the provisioning of preschool classes in private schools is a common practice, often allowing for the capture of market share early through young children (Woodhead & Streuli, 2013). There is also some evidence to indicate that composite schools may be preferred by parents (FSG, 2015; Kaul et al., 2017) while also

potentially reducing the likelihood of dropping out, particularly between elementary and secondary levels (Ramanujan & Deshpande, 2018). Given these variations between states, what are the factors at the state, district, and village level that determine the variations in private ECE provisioning and consequently enrolment trends? Why is it that some states have higher private provisioning compared to others?

Prior Evidence

Studies have attributed increasing private school enrolments to a number of interrelated factors including the declining quality of education in government schools (Baird 2009; Drèze & Kingdon, 2001; Muralidharan & Kremer, 2006); and the availability of better facilities, infrastructure, higher pupil-teacher ratios, and low teacher absenteeism in private schools (Baird 2009; Tooley, Dixon, & Gomathi, 2007). The promise of an "English-medium" education is also a major reason for families preferring private schools (Singh & Bangay, 2014; Streuli, Vennam, & Woodhead, 2011).

Other studies point to the fact that access to private schools remains inequitable across several indicators. Private schools are more likely to have more children from well-off families (Chudgar & Quin, 2012; Harma, 2009; Woodhead, Frost, & James 2013), and there is a systematic preference for enrolling male children in private schools (De, Majumdar, Noronha, & Samson, 2002; Mehrotra & Panchamukhi, 2006; Rangaraju, Tooley, & Dixon, 2012) corroborating descriptive trends from the ASER reports. For instance, in her study of 250 households in Uttar Pradesh, Harma (2009) found that low-fee private schools were unaffordable for most of the children from lower caste and Muslim families. The IECEI study also observed gendered trends in ECE participation; in all the states covered by the study, a higher proportion of boys than girls participated in private preschools (ASER Centre, 2014).

But, what factors determine whether a particular hamlet, village, or district has private schools? A body of literature indicates that just as private school choice is not random, that is, such decisions are influenced by factors like gender, household wealth, and parental education, the location of private schools is also determined by several factors. In their nationally representative, 20-state study Muralidharan and Kremer (2006) found large variations in private school prevalence across India. While villages in states like Gujarat and Maharashtra had almost no private schools, in other states like Rajasthan, Bihar, Uttar Pradesh, Punjab, and Haryana, over 50% of the villages had a private school in the same village. The authors found that villages with larger populations and higher teacher absenteeism in public schools were significantly more likely to have a private school and villages in states with higher per capita income were less likely to have a private school.

Triangulating her analysis using school, household and village-level data from the PROBE survey in five north Indian states, Pal (2010) found that private schools were more likely to be in villages with higher teacher attendance in government schools. Further, after controlling for other factors, villages with a higher "develop-

ment index," that is, access to public infrastructure such as electricity, piped water, and phone and postal services and with greater proximity to a *pucca* road and the district headquarters, were more likely to have private schools. The author posits that access to government infrastructure and services in villages help private school entrepreneurs minimize investments making such villages preferred locations for setting up operations.

Using data from ASER (2009), Chudgar (2012) also found evidence to support the claim that establishment of private schools may be a supply-side phenomenon. She found that villages with private schools had significantly more government services like access to infrastructure and well-resourced government schools, close to one standard deviation more compared to villages without private schools. Using data from the India Human Development Survey Round 1, Chudgar and Creed (2014) found that at both the primary and upper primary levels, private schools were more likely to be in villages with more households, a greater proportion of educated males, government girls' schools, government upper-primary schools, and better infrastructure (such as motorable roads and public health clinics). Interestingly, the authors also found that average female education and the presence of a women's group were negatively associated with the presence of a private school in the village.

While these studies are largely rural, an urban study in the city of Patna, Bihar, by Rangaraju et al. (2012) suggests that cities may have denser provisioning of private schools. Through a detailed mapping of private schools, the researchers approximated that for each government school in the city, there were about ten private schools operating within a 1 km radius. Although the authors did not analyze the factors associated with this pattern, it is clear that the presence of private schools in urban areas in India is guided by another set of factors that offer students and families many more private options to choose from.

A study in Pakistan also highlights similar associations between village characteristics and private school presence as seen in the India-centric studies. Andrabi, Das, and Khwaja (2008) found that private schools were more likely to be in villages with larger populations and better infrastructure. Importantly, villages with a government secondary school for girls were thrice as likely to have a private school compared to those without a girls' secondary school. The authors infer this to be indicative of the propensity of private schools to be established in villages with prior public investments in secondary education for girls, resulting in a potential pool of relatively educated and inexpensive labor for private schools.

While there is a large degree of consensus in literature on village-level factors associated with private school provisioning, these studies primarily focus on the school education sector, with almost none exploring whether these findings also hold true for private preschool provisioning. This chapter attempts to fill this gap, as there is a need to understand the growth and expansion of private ECE providers in India, given increasing enrollments in private preschools and efforts to harmonize services across all ECE providers through a comprehensive regulatory framework (GoI, 2013a; NCPCR, 2017). Gaining a clearer picture of the ECE provisioning

landscape, particularly the extent of private providers, is an essential step in implementing policies aimed at improving service provision in the sector.

Data

We used data from the IECEI study to explore village-level characteristics associated with private preschool provisioning in rural India. Specifically, we used data from the village survey conducted in sampled villages[2] along with data from a listing of all preschools (government and private) in these villages (for more details on sampling for the IECEI study, refer to Kaul et al., 2017, pp. 17–18). Additionally, since the sampling for the study used Census 2001 as a frame, we used select population indicators from the Village Directory of Census 2001 to examine possible associations of specific demographic features at the village level with private preschool provisioning.

The village infrastructure survey in the IECEI study (conducted at baseline, September–December 2011) included dichotomous questions, coded "Yes" or "No," like "Is there a *pucca* road leading to the village?," "Is there a Government Ration Shop in the village?," and "Is there a government secondary school in the village?". Further, enumerators listed preschools situated within village boundaries by adding the names of these institutions to a roster and coding them as either "Government," "Private," "Balwadi/NGO," or "Other." These lists were updated in all survey waves to account for the inclusion of new preschools in the sampled villages. For the purposes of this chapter, we combined listing data from the first and the last wave of the survey (September–December 2015).

The final dataset comprises information on 366 sampled villages across 3 states in the IECEI study, with a variable on whether the village has a private preschool; the total number and proportion of government and private preschools respectively; observed infrastructure and facilities from the village survey; and select population variables from Census 2001. We first used descriptive statistics and then a multivariate analysis to examine the factors associated with variations in private ECE provisioning.

Findings

Table 6.3 presents descriptive data of the sample villages in the study. Among the three states, over 95% villages in Rajasthan had at least one private ECE, followed by Assam and Telangana, respectively. Sampled villages in Rajasthan also have, on average, a higher number of private preschools compared to those in Telangana and Assam.

[2] Larger villages, with populations of 2000 or more, were selected for sampling in the study.

Table 6.3 Description of infrastructure and educational facilities (by state)

Variable	Rajasthan (n = 122)	Telangana (n = 122)	Assam (n = 122)	Total (N = 366)
% villages with a private preschool	96.7	46.7	49.2	64.2
% villages with electricity connection	96.7	100.0	83.6	93.4
% villages with a tarred road	96.7	98.4	42.6	79.2
% villages with a government ration or PDS shop	89.3	99.2	83.6	90.7
% villages with a post office	79.5	91.0	27.9	66.1
% villages with a government primary or sub-health center	83.6	58.2	47.5	63.1
% villages with a private health clinic	68.9	93.4	27.1	63.1
% villages with a STD booth	59.8	95.1	22.1	59.0
% villages with a bank	38.5	18.9	15.6	24.3
% villages with internet café or computer center	15.6	4.9	10.7	10.4
% villages with a government primary school	70.5	88.5	82.0	80.3
% villages with a government middle school	59.8	38.5	45.1	47.8
% villages with a government secondary school	75.4	61.5	30.3	55.7
% villages with a private school	88.7	40.1	50.4	59.6
Average number of hamlets per village	3	2	6	4
Average number of private preschools	3	2	2	2

With respect to village infrastructure, while over 80% villages had access to electricity, there were major differences with respect to connectivity in the villages. Only about one in every four sampled villages in Assam had tarred road connectivity compared to well over 90% sampled villages in Rajasthan and Telangana. In terms of other public services, 90% of the sampled villages had a government ration shop, and two-thirds had a post office with the lowest proportion of such villages in Assam (27.9%). Sampled villages in Rajasthan had the most government healthcare facilities, while those in Assam had the least. Villages in Assam also had the lowest availability of private health clinics as compared to the other two states. About half of all the villages had a long-distance phone booth; about one-fourth had a bank, while only a tenth of all sampled villages had a computer or internet center.

In terms of the availability of government schools, overall, about 80% of the sampled villages had a government primary school, and fewer than half had a government middle school, while, interestingly, a little over 50% of the villages had government secondary schools. Private school availability also varied across the

Table 6.4 Comparison of villages with and without private preschools

	Villages without private preschools			Villages with private preschools			Range	
Variable	N	Mean	StdDev	N	Mean	StdDev	Min	Max
Tarred road*	124	0.71	0.04	229	0.87	0.02	0	1
Electricity connection*	123	0.93	0.02	229	0.98	0.007	0	1
Post office*	118	0.61	0.04	227	0.74	0.02	0	1
STD booth *	121	0.61	0.04	225	0.63	0.03	0	1
Bank	122	0.11	0.02	224	0.33	0.03	0	1
Government ration or PDS shop	124	0.92	0.02	227	0.95	0.01	0	1
Government primary or sub-health center*	123	0.54	0.04	223	0.73	0.02	0	1
Private health clinic*	123	0.58	0.04	221	0.71	0.03	0	1
Government primary school	124	0.81	0.03	227	0.84	0.02	0	1
Government middle school	121	0.48	0.04	215	0.53	0.03	0	1
Government secondary school*	118	0.42	0.04	221	0.69	0.03	0	1
Private school*	123	0.19	0.03	223	0.82	0.02	0	1

Note: * Variables are significantly different at 5%

states, resembling the trends for availability of private preschools. We also find that sampled villages in Assam had many more hamlets (or enclaves) on average than those in Rajasthan and Telangana.

Table 6.4 provides a comparison of village characteristics for two groups of villages—those with a private preschool and those without. These data indicate that villages with and without private preschools are statistically and significantly different with respect to several of the studied characteristics. Specifically, villages without private preschools have significantly lower availability of tarred roads, electricity connection, a post office, a bank, a government or private health center, a government secondary school and a private school.

While these data confirm the findings from literature, it is important to analyze this further in a multivariate framework. Table 6.5 presents the regression results. In Model 1, we examine village-level characteristics associated with the availability of private preschools (1 = available and 0 = not available). In other words, what are the factors at the village level that are associated with the likelihood that the village will have a private ECE? In Model 2, we restrict our analysis to those villages with at least one private preschool to examine factors associated with variations in private preschool provisioning. Once a village has a private preschool, what factors determine whether there would be a greater or lesser number of private preschools in the village? For both the models, we run an OLS regression with state fixed effects to control for factors that we cannot directly measure or observe.

Table 6.5 Regression results

Variable	Model 1 Presence of private preschool in the village	Model 2 Extent of private preschool provisioning in the village
Proportion of SC population in the village	0.00703**	0.00760
	(0.002)	(0.005)
Proportion of ST population in the village	0.000529	0.00684
	(0.001)	(0.005)
No. of households in the village	0.0000144	0.00109**
	(0.000)	(0.000)
No. of hamlets (or enclaves) in the village	0.0159***	0.00650
	(0.004)	(0.012)
Tarred road	−0.00993	−0.431
	(0.078)	(0.267)
Electricity connection	0.233**	0.256
	(0.082)	(0.247)
Post office	−0.0851	0.201
	(0.062)	(0.215)
STD booth	−0.0358	−0.0879
	(0.047)	(0.194)
Bank	−0.0470	0.117
	(0.046)	(0.191)
Government ration or PDS shop	0.0930	−0.306
	(0.104)	(0.304)
Government primary or sub-health center	0.0676	-0.00216
	(0.047)	(0.191)
Private health clinic	0.0234	0.0323
	(0.061)	(0.198)
Computer or internet center	−0.0959	0.313
	(0.068)	(0.252)
Government primary school	0.119**	0.170
	(0.045)	(0.203)
Government middle school	0.0487	0.362*
	(0.040)	(0.147)
Government secondary school	0.00285	0.253
	(0.056)	(0.173)
Private school	0.229**	0.309
	(0.074)	(0.235)
Proportion of government preschools in the village	−0.0174***	−0.0507***
	(0.002)	(0.014)
Observations	212	133

Note: (1) Robust standard errors in parentheses; (2) * $p<0.05$, ** $p<0.01$, *** $p<0.001$; (3) Both the regression models controlled for states

We first examine the results for Model 1 exploring factors associated with private preschool availability in the village. Interestingly, and perhaps counter-intuitively, we find a significant positive association between the proportion of Schedule Caste population in the village and the availability of a private preschool.[3] However, there is no association between the proportion of Schedule Tribe population in the village and the availability of private preschools. While these associations are unclear and deserve a more nuanced examination, prima facie, this suggests that private preschool entrepreneurs may not be averse to setting up schools in villages with greater proportions of traditionally socially and economically deprived communities, thereby increasing potential access to private education for such groups.

Contrary to most of the literature, we do not find any associations between the number of households in the village and the availability of private preschools. In other words, it is not the case that private preschools are more likely to be available in larger villages with more households. On the other hand, the size of the village and its consequent effect on private preschool provisioning may be captured through other variables like the number of hamlets (or enclaves) in a village. Rural villages in India can have one or more hamlets based on geography and/or the socioeconomic composition of the population, and hamlets can often be a useful category for planning the provisioning of services across different parts of a single village. For instance, an earlier report based on the IECEI study observed that most of the villages in Rajasthan had at least one Anganwadi per hamlet while those in Assam had the fewest (ASER Centre, 2012). We find that the number of hamlets in a village is significantly and positively associated with the availability of private preschools, although importantly, there is no correlation between the size of the village (number of households) and the number of hamlets in the village. That is, it is not the case that bigger sampled villages with more households were more likely to have a greater number of hamlets. Thus, the presence of more hamlets may imply greater opportunity for private ECE providers with increased access to families and young children in different parts of the village.

Among all infrastructure variables, only the availability of electricity in the village is significantly and positively associated with private preschool provisioning. In terms of education provisioning in a village, we found that the presence of a government primary school, but not a government middle or secondary school to be positively and significantly associated with the availability of a private preschool. This is perhaps also indicative of closer linkages between preschool and primary school education. Not surprisingly, villages with existing private schools were more likely to have a private preschool. This to some extent corroborates other anecdotal and empirical observations that private education proprietors often provide preschool in conjunction with school services at the same location (ASER Centre, 2012, p. 11), thereby attracting potential families early in their children's educational trajectories (Woodhead & Streuli, 2013). Last, our analysis also reveals an inverse association

[3] As per Census 2011, the proportion of SC population in the sampled states is Rajasthan, 17.8%; Telangana, 15.4%; and Assam, 7.2%. The proportion of ST population in the states is 13.5% in Rajasthan, 9.3% in Telangana, and 12.4% in Assam.

between government and private preschool provisioning, that is, sampled villages with a higher proportion of government preschools were less likely to have a private preschool. Although the mere availability or greater provisioning of government preschools is not indicative of quality, previous literature suggests that there may be less incentive to establish private schools in areas with a strong and robust public education system (Chudgar, 2012; Muralidharan & Kremer 2006).

In Model 2, we examine the associations between the same set of village-level characteristics and the extent of private preschool provisioning in the village for a restricted sample of villages with at least one private ECE. Here, we find no associations for all but three attributes. First, the size of the village, in terms of the number of households emerges as significantly and positively associated with higher private ECE availability. This can be understood as the relationship between the number of families that may be potential customers of private ECE in the village, and as such, villages with at least one private preschool and more households are also more likely to have a higher number of private preschools. We also observe a significant and positive association between the availability of a government middle school in a village and higher private preschool provisioning, although the reasons for this association are unclear and require further examination. In this model too, there is a significant and negative association between high government ECE provisioning and greater private preschool provisioning. In other words, villages with at least one private preschool and a higher proportion of government ECEs were less likely to have a higher number of private ECEs compared to villages where the difference between private and public preschool provisioning was less.

To summarize, our analysis shows that the availability of private preschools is significantly and positively associated with higher Schedule Caste populations; greater number of hamlets; the availability of electricity connection; a government primary school and a private school in the village. Further, we find that villages with at least one private preschool are more likely to have additional private preschools if they are bigger villages with a greater number of households, and have a government middle school. On the other hand, not only are villages with a higher proportion of government preschools less likely to have a private preschool, but in the case that they had at least one private preschool to begin with, they are also less likely to have more private preschools come up in the village.

Implications and Discussion

Before discussing the implications of these findings, it is important to highlight some limitations of this research. The IECEI study was not designed to explore factors associated with private preschool provisioning. Further, limited sample size, variables for study and missing data do not lend themselves to a detailed examination of inter-state variations in the availability and extent of private preschool provisioning. This is an important aspect to investigate considering the heterogeneity across states in India. A national level dataset comprising comprehensive

information on village and household characteristics would provide greater nuance in understanding of such patterns at the district and state level.

Nevertheless, this study contributes to the literature on private provisioning and builds partial understanding of village-level factors conducive for the growth of private preschools. As such, our findings on the associations between village-level infrastructure, public education provisioning, and availability of a private school and government ECE with private preschool presence are in the expected direction. In villages with existing government primary schools, a private preschool can offer a lucrative and promising "head start" to children whose families may otherwise not be able to afford private education through the school years. When combined with a private school, such institutions may become preferred alternatives to the available public education. Further, the association between private preschool presence and a greater proportion of Schedule Caste population in the village, although less clear and deserving of deeper investigation in future research, suggests that private education institutions can offer increased access and inclusion to children from socially and economically backward communities.

It is undeniable that concomitant efforts will be required to ensure that all preschools, both government and private, provide quality age and developmentally appropriate ECE to children as envisaged in the National Early Childhood Care and Education (ECCE) Policy (2013). Our results indicate that higher government ECE provisioning is inversely associated with private preschool establishment and expansion. This is an important finding and highlights the opportunity to improve the quality of public ECE provisioning in the country. Improvements in infrastructure and public services across the country along with greater penetration of private school institutions are likely to lead to a higher number of private preschools across villages in rural India. However, if efforts to consolidate and improve ECE services under the Samagra Shiksha Abhiyan and the National ECCE Policy are successful, parental perceptions of government ECE services can be positively influence, leading to changes in enrolment trends.

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Chapter 7
What Works for School Readiness? Understanding Quality in Preschool Education

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Abstract The IECEI (India Early Childhood Education Impact) study summarized in Chap. 2 demonstrates a positive association between developmentally appropriate curriculum in preschool education and overall school readiness levels of children at the point of school entry. The findings, while documenting very low levels of cognitive readiness in children, also indicate a wide gap between prescribed and actual field practice with the latter dominated by formal, teacher-centered teaching. This chapter moves beyond these findings to explore the association between the nature of the curriculum and school readiness in children through a further analysis of the IECEI data. It statistically probes the nature of the association between two kinds of curriculum, formal and developmentally appropriate, with scores on deconstructed school readiness indicators to gain deeper insights into this relationship. It also identifies a positive association between preschool type and school readiness and flags this as an area requiring further research.

Keywords Early childhood education · School readiness · Developmentally appropriate curriculum · Formal teaching · Play-based curriculum · School type

The Context

A recent policy brief posted by the International Institute of Educational Panning, UNESCO (2017b), on its Learning Portal raises a very pertinent issue in the context of the recent inclusion of early childhood development and preprimary education as part of Goal 4 of the international Sustainable Development Goals (2016):

> Education planners around the world must decide what kinds of early childhood programming to invest in. On the one hand, there is a concern with offering children play based

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> learning experiences that are seen as developmentally appropriate for this age group. On the other hand, the concern that young children be well prepared for primary school often leads to an emphasis on formal academic instruction. While these approaches are not mutually exclusive, in practice there is some controversy as to which early childhood education methods represent the best investment for education systems hoping to improve early foundations for learning (UNESCO, 2017a, p. 1).

The Government of India's National Policy on Early Childhood Care and Education (ECE) (GoI, 2013) articulates the government's view on this issue as: "The policy aims at nurturance and promotion of holistic development and active learning capacity of all children below 6 years of age" for which it states that "the government shall promote *developmentally appropriate practices* in ECCE" (p. 13). With the Integrated Child Development Services (ICDS) being the largest public sponsored provider of early childhood care and education, it is also pertinent to understand how the program translates the policy vision into action. An evaluation of India's ICDS sponsored programs by the Planning Commission of India in 2011 articulated the government's expectations from the preschool education component of the program as:

> Pre-School Education …is considered the most joyous daily activity of the ICDS programme, which is visibly sustained for 3 h a day. The activities which are undertaken as part of PSE include storytelling, counting numbers, free conversations to speak freely and apply their mind in order to organise small activities, painting, drawing, threading and matching colour related to fine muscle coordination and development, reading simple words, writing alphabets words, distinguish objects, recognise pictures etc. (Planning Commission, 2011, pp. 13–14)

Interestingly, this description reflects a blend of academic instruction and developmentally appropriate curricular content in the prescribed ICDS curriculum as it includes stories, songs, and art along with academic expectations of learning numbers, reading, and writing for 3- to 6-year-olds which it believes will ensure "necessary preparation of children for primary schooling." The issue that arises is: Does formal teaching of the three R's complement the benefits of a developmentally appropriate curriculum in terms of cognitive and language competencies that constitute school readiness levels in children? Or does it subtract from the value that developmentally appropriate curriculum brings to a child in terms of his/her foundational learning and school readiness?

To respond to these research questions, we revert to the IECEI (India Early Childhood Education Impact) longitudinal study's findings[1] (summarized in Chap. 2) which demonstrate that even 1 year of preschool participation leads to a significant gain in children's school readiness levels between the ages of 4 and 5 years as compared to nonparticipating children, after controlling for personal and socioeconomic factors. While this is a positive finding, a concern that emerges is that the overall levels of cognitive and language foundational skills are very low across the board when children come into schools at the age of 5+, despite their having participated in preschools (ICDS Anganwadi centers or private preschools) for over a year.

[1] For more details, please refer to the full report (Kaul et al., 2017).

These skills constitute some key cognitive dimensions of school readiness[2] such as phonemic awareness, sequential thinking, picture description/reading, and number concepts and may be responsible to a large extent for the learning crisis evident in primary schools currently.

Further statistical probing into the reasons for the low levels of cognitive readiness indicates that the quality of curriculum at the preschool stage is a significant factor, with higher scores on quality significantly associated with school readiness levels at age 5. Based on a regression analysis, the quality characteristics that emerged as significant in addition to the teacher and physical infrastructure include developmentally appropriate, play-based cognitive and language activities in the curriculum that are related to pre-mathematical and pre-reading skills.

Interestingly, a significant inverse statistical association was seen in a correlational analysis between the presence of these cognitive and language practices in the curriculum with the practice of formal teaching of academic skills, that is, the three R's – reading, writing, and arithmetic. This implies that one kind of curricular practice tends to preclude the use of the other. This can be logically explained (as experienced directly by the second author in her work with schools) by the fact that if we expect children to learn the three R's at the preschool stage through a didactic mode of teaching, they will need all the hours they have in the preschool to work on this since they are still not developmentally ready. This will leave very little time in their daily schedules for more developmentally appropriate practices such as storytelling, free play in activity corners, thematic conversations, and other guided language and cognitive activities which the study demonstrates enhance school readiness in children. This finding suggests the need for re-examining the view shared in both the UNESCO policy brief and ICDS' expectations that developmentally appropriate practices and formal teacher-centered instruction are not "mutually exclusive."

The time on task analysis carried out in the IECEI study further indicates that the dominant curricular practice across both private and government preschool centers was formal and teacher-controlled teaching of reading, writing, and number work with maximum time devoted to it in the daily routine thus tending to push out developmentally appropriate practices. This trend was more significant in private preschools as compared to Anganwadi centers. There were also some state differences (Figs. 7.1 and 7.2).

With formal teaching being practiced as the norm rather than the exception in the country, the emerging issue is: Can formal instruction of the three R's also be considered alongside developmentally appropriate practices as a sound alternative curricular practice? To answer this question, we asked a further question: How does formal teaching of the three R's influence school readiness levels of children at age 5? Does it contribute to school readiness in the same measure as developmentally appropriate classroom practices, controlling for household and personal factors? Is the nature of the association different for different school readiness indicators? Does this relationship also vary with school type? These are the primary questions that this chapter addresses.

[2] Refer to the EFA Global Monitoring Report (2007).

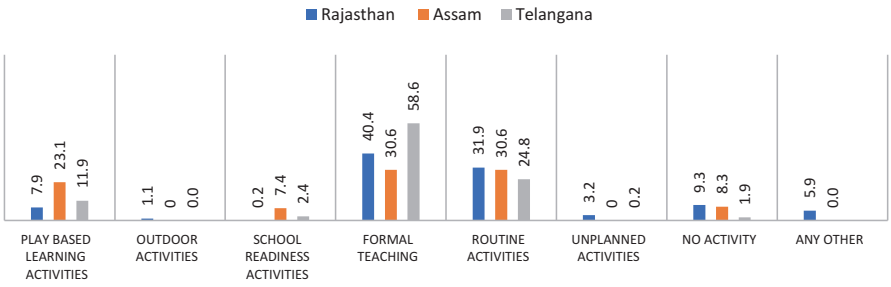

Fig. 7.1 Percentage time spent on different activities in private preschools (by state). (Source: Kaul et al. 2017).

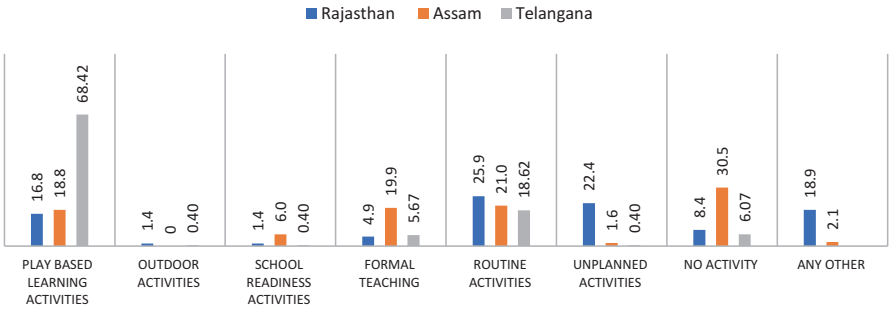

Fig. 7.2 Percentage time spent on different activities in Anganwadi centers (by state). (Source: Kaul et al. 2017)

Theoretical Perspective

It is pertinent to foreground this discussion with a clear definition of the scope and purpose of its enquiry. This chapter does not make any pretense of delving into the wider and deeper epistemological or ontological dimensions of quality in terms of the larger philosophical aims of education as prioritized by some educationists (Farquhar and White 2014). Nor does it examine or situate this discussion within the broader definition of a holistic early childhood care and education curriculum, as these aspects have been addressed to an extent in the IECEI study.

Its limited purpose and scope are examining the differential association with and contribution to children's cognitive and language readiness levels of the two major kinds of preschool curricula followed in preschools in India – the formal teaching of the three R's and play-based developmentally appropriate curricula. This issue is clearly pertinent for policy. Thus, our aim is also to contribute to an understanding of the construct of "preschool quality" in terms of the nature of the curriculum and pedagogy. This chapter also explores the "type of preschool" as a variable and how that impacts the relationship between quality and school readiness.

A developmentally appropriate practice (DAP) refers to planning for children that

> should be appropriate to children's age and developmental status, attuned to them as unique individuals, and responsive to the social and cultural contexts in which they live (NAEYC, 2009, p. 1).

This perspective derives its significance from cognitive theories, including Piaget and Vygotsky's works which contributed to the concept of constructivism and underline the agency of the child as critical for constructing his/her own knowledge (Gauvain & Perez, 2015). In contrast, formal teaching, which is considered developmentally inappropriate (DIP), may be described as a "rigidly academic and adult controlled learning experience" (Gestwicki, 1999, p. 20). A growing concern with regard to quality as reflected in literature is the "schoolification" of ECCE, wherein readiness for school is often positioned as a means of alleviating poverty and enhancing child's life chances, thus making a strong case for scaling up of ECCE (Kaga, 2017).

This trend raises some significant issues regarding the ECCE curriculum in terms of ECCE's objectives, how these relate to school level learning, and what children are therefore expected to learn at this stage. These pose some fundamental binaries like what is privileged in terms of the curriculum and pedagogy – basic skills as opposed to subject content, formal teaching versus holistic learning, and also whether young children need to be "ready" for school or whether schools should be kept ready to receive young children in contexts and with practices which are age and context appropriate (Kaga, 2017). While there is evidence of the positive impact of linking the two rather than taking a narrow view of school readiness, a key message that comes through from research is that "attempts to scale up ECCE through poor quality programmes and an untrained and unqualified workforce will not compensate for mediocre school systems and that children, especially poor children, will be the losers" (Dalli, Barbour, Cameron, & Miller, 2017, p. 607).

India's National Curriculum Framework for ECCE (NCFECCE) (GoI, 2014a, b), which is a policy document, is influenced by this conceptualization of DAP. It clearly states that the objective of the proposed curriculum is "to ensure that important learning areas are covered, taking care of all the developmental needs of the young child. It also facilitates adoption of a common pedagogical approach to ensure a certain level of quality and address the widespread diversity in the ECCE programmes available for the young children in India." In terms of content and pedagogy it asserts that "to ensure optimal development for all children, there is a need to create a planned curriculum framework, encompassing *developmentally appropriate knowledge and skills,* with flexibility for contextualization and diverse needs of young children" (p. 2).

Though informed by DAP's priorities, NCFECCE attempted to contextualize the curriculum framework to the Indian social and cultural ethos. In this process, it states that it is guided by some Indian thinkers like Gandhi, Tagore, Aurobindo, Gijubhai Badekha, and Tarabai Modak who were the first to conceptualize a child-centered approach for the care and education of young children (NCFECCE, 2014).

It does not favor a formal teaching of the three R's. The National Policy on Education (GoI, 1986) also states that "there should be no formal teaching of the 3 R's at this stage." But, as mentioned earlier, despite policy assertions, formal teaching continues to be the predominant and preferred practice in preschools, especially in the absence of any regulatory measures instituted in this field of ECCE in the country. This chapter explores how this dominant practice is affecting children's learning and cognitive readiness through a further analysis of the data generated by the IECEI study.

Methodology

The specific objectives of this chapter are (a) understanding the direction and comparative strength of the association of both developmentally appropriate practices and formal teaching with children's cognitive and language readiness levels and (b) further examining this association with specific cognitive and language indicators or competencies for a more nuanced understanding of this relationship.

Sample Size The IECEI study (Chap. 2) is a mixed method, multistrand research, with Strand A designed as a larger survey, Strand B as a quasi-experimental design on a smaller sample, and Strand C as the qualitative arm of the research. Strand B includes a comprehensive assessment of classroom quality from preschool to Grade 3 and reports on the positive association between DAP and school readiness levels. This analysis is based on the Strand B sample of the IECEI study.[3] Table 7.1 presents the sample for which this analysis was done.

Tools Classroom quality was assessed with the help of an "Early Childhood Education Quality Assessment Scale" (ECEQAS) developed by the Centre for Early Childhood Education and Development (CECED), Ambedkar University, Delhi. In addition to other structural and process parameters,[4] this tool also provided a comprehensive assessment of the curriculum content used in the classroom. This tool has a dual structure which includes a scale as well as an observation rating scale using the "Stallings snapshot technique" which yielded scores on time on task (i.e., time spent on each task/activity). School readiness was assessed through an individually administered instrument (SRI) developed and standardized by the World Bank in 2009 on an Indian sample. The instrument has ten competency-based activities which assess a child on cognitive and language readiness in terms of prenumber and number concepts, reading readiness, sequential thinking, classification, phonemic awareness, and picture description.

[3] For the sampling method and a description of the tools, see Kaul et al. (2017).

[4] Quality parameters included physical infrastructure and materials, class management and organization, content and process in terms of language and reasoning experiences (including pre-literacy and numeracy), creative activities, fine and gross motor activities, social development, formal teaching of the three R's, and teacher disposition.

Table 7.1 Distribution of ECE centers and children by state and type of program

State	Anganwadi centers		Private preschools		'Known4 Practice' centers		Government Primary School		Total Sample	
	Programs	Children	Programs	Children	Programs	Children	Programs	Children	Programs	Children
Assam	101	602	10	58	6	16			**117**	**676**
Telangana	54	257	54	402	13	91	6	26	**127**	**776**
Rajasthan	10	48	33	369	9	76	2	14	**54**	**507**
Total	**165**	**907**	**97**	**829**	**28**	**183**	**8**	**40**	**298**	**1959**

Source: Kaul et al. (2017)

[a]"Known practice" refers to programs which are well-known in the ECE sector but whose quality had not been looked at. The selected known practice programs vary in content and structure across the three states. In Telangana, the selected "known practice" is the balbadis (preschool centers) for children between 3 and 6 years who were a part of a state government-sponsored program for rural and tribal communities. In Rajasthan, the "known practice" program comprises community primary schools with preschool sections for disadvantaged children run by an NGO known for its innovative educational programs. In Assam, the known practice is an initiative of the Department of Education under its flagship program, the Sarva Shiksha Abhiyan (SSA), wherein a preschool class for 5- to 6-year-olds was attached to selected government primary schools as a preparatory class prior to Grade 1.

Analysis As mentioned earlier**,** the IECEI study demonstrates a significant, positive association between the quality of preschool experience and children's overall school readiness levels after controlling for socioeconomic factors;[5] child factors like age, gender, and participation in ECE programs; types of ECE programs; and school readiness scores at the baseline (Kaul et al., 2017). The study was also successful in identifying aspects/elements of quality which significantly impacted children's overall school readiness levels in a multivariate analysis framework after controlling for the independent factors mentioned earlier. One of the most important aspects of a preschool setting – learning and play material – was observed to have a negative association with children's overall school readiness levels. This was explained through low variance in the sample as the ECE programs attended by the children in the sample were not observed to have appropriate play and learning materials, and wherever available, they were seldom used.

The regression model employed in the IECEI study's analysis was retained for the present study to retain uniformity with what was presented in the larger study while allowing for a further analysis. But keeping in view the objectives of this

[5] Socioeconomic factors included caste, consumer durables, and mother's education level and learning environment available at home in terms of the print environment at home and family support in learning activities.

chapter, a multivariate analysis was done to explore the relationship between the disaggregated scores on the different competencies assessed as part of the school readiness instrument with the quality of children's preschool experience. Different competencies assessed as school readiness varied in complexity and hence had different maximum scores. The maximum score of the 10 items varied from 1 to 6 making it necessary to normalize the scores. The scores received by children were therefore converted from their original scores (scores varied from 0 to 6) to a maximum score of 10 for each of the competencies to make these comparable. These normalized scores for each of the competencies that constitute the total school readiness score (like prenumber competencies, phonemic awareness, picture description, classification, number concepts, pattern completion, and sequential thinking) were substituted as the dependent variables, controlling for children's individual, household, and other background characteristics like age and gender; mother's education, caste, and household affluence; reading material available in the household and learning support provided by family; and management type of the ECE program attended by the children. Formal teaching as a variable was additionally introduced for this analysis.

Figures 7.3 and 7.4 present the coefficients that represent an increase or decrease that may occur in the scores on school readiness competencies if preschool classrooms attended by the children include curricular activities pertaining to that particular domain of development, including formal teaching. This association is studied while controlling for other mediating factors such as child factors, household or SES factors, and type of program and infrastructure.

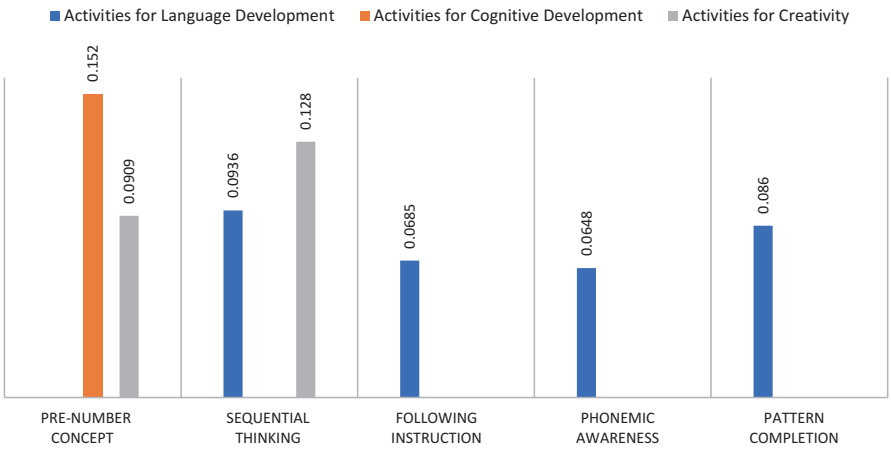

Fig. 7.3 Coefficients of developmentally appropriate curricular aspects having an impact on school readiness competencies. (Source: Kaul et al. 2017)

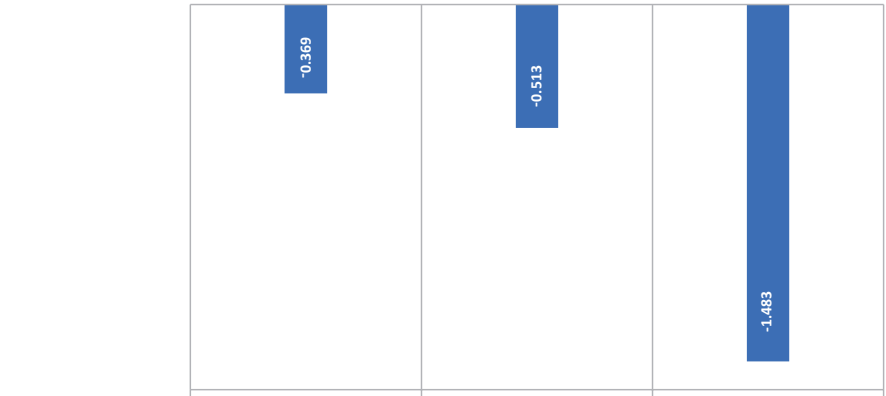

Fig. 7.4 Coefficients of the formal teaching of the three R's having an impact on school readiness competencies. (Source: Kaul et al. 2017)

Results of the Analysis

School Readiness and Its Association with Formal Teaching

The regression results[6] indicate that controlling for all the variables mentioned earlier, the association of total scores on school readiness as measured by the school readiness instrument with formal teaching as the classroom practice is not significant. However, in the disaggregated analysis (see Table 7.2 for details), a significant negative association is seen in three of the ten competencies assessed (Fig. 7.4). These three competencies are picture description, which assesses a child's picture reading ability and expressive language skills (in the home language), phonemic awareness (wherein a child is given a task to identify the beginning of sounds of words), and relative comparisons where a child is expected to differentiate between the cardinal values of a set of five numerals ranging from 1 to 8, by identifying a numeral with value lower than 5. All three items which involve basic language and cognitive skills and the concept of numbers are foundational for higher-order thinking. These are observed to have a significant negative association with formal teaching practices of the three R's in ECE classrooms.

[6]The significant coefficient of curricular aspects covered during an assessment of the quality of ECE programs is given against all competencies assessed as part of school readiness; these are plotted in Fig. 7.3. The coefficients plotted in Fig. 7.3 show by what proportion a child's score in different task/items of school readiness changed if activities for different domains of development were provided. The figure also represents a comparative association/impact of developmentally appropriate practices and formal teaching on different competencies assessed as part of the school readiness instrument.

Thus, we may interpret that, other conditions remaining the same, formal teaching in preschool classrooms reduces a child's score on phonemic awareness by 0.3 points, the score on picture description by 0.6 points, and on relative comparison by 1.48 points. There is no significant association with the other cognitive and language competencies assessed through the school readiness instrument. In other words, while the formal teaching of three R's does not add any positive value to the learning of other school readiness competencies that were assessed like prenumber concepts, classification skills, sequential thinking, pattern making, and following instructions, it clearly has a detrimental effect on the three competencies identified above. This may be attributable to the characteristics of formal teaching which involves rote and repetitive learning of the alphabet and numbers and does not provide much opportunity for a child to exercise his/her own agency and engage with or learn concepts experientially, as is possible through hands-on activities (Box 7.1).

Box 7.1: A Typical Day in Different Preschool Models

Anganwadi centers: An anganwadi center generally acts as a place where children come primarily to collect their mid-day meal and spend some time when their parents are away at work. Although there are significant state differences, it was observed that in many cases there was no planned ECE activity, and children could be found playing among themselves, while the anganwadi (community) worker did her own administrative work of completing register entries. When some activity did take place, it was in most cases recitation of poems, or rhymes, or learning of letters or numbers led by the anganwadi worker/helper/older child. Sometimes play materials appropriate for children were available, but not in appropriate numbers. The play material was rarely seen being taken out for children as the worker often feared it would get damaged.

Private preschools: Allowing for variations, typically it was observed that the day started with a prayer, generally recited/sung by a group of older children, while others repeated what was being sung. In class, preschoolers were generally taught formal subjects like mathematics, English, and a vernacular language, often with a different teacher for each subject. At times, different songs and rhymes were sung subject to teachers' interest; otherwise the subject period was used for getting notebooks checked by the teacher and copying what the teacher wrote on the blackboard. If children got distracted while copying from the board, the teacher asked the children by rotation to recite numbers, tables, or letters, and others in the class repeated these after him/her. Teachers were not observed planning for their classes ahead of time.

A "known practice" program included in the study: The day began with a "bal sabha" (assembly), where the children along with older classes sung prayers and were encouraged by the teacher to express themselves by sharing experiences. Afterward the children were given updates on the day's news by the teacher or an older child from a newspaper. They were also given some information about the current and historical affairs of the state. In the

(continued)

Box 7.1: (continued)
classroom, preschool-age children were divided into two sections based on their age, and the teacher carried out different activities with each group. The activities were a mix of individual and group activities in which children actively participated. Free play was organized by the teacher where children picked up the material of their choice and played and experimented with the material available and the teacher guided them through the process. Children were observed to be in the center for about 3 h; the teachers were required to stay back longer to plan for the next day.

(Kaul et al., 2017)

School Readiness and Its Association with Developmentally Appropriate Practice

If we explore the other side of the picture, that is, the use of developmentally appropriate content and pedagogy, the regression analysis indicates that after controlling for household, child, and program characteristics like physical infrastructure, teacher disposition, and classroom management and planning, developmentally appropriate activities for language development, cognitive development, and creative development have a positive and significant association with different school readiness competencies (Fig. 7.3).

Figures 7.3 and 7.4 represent the significant coefficients of different curricular aspects on different school readiness competencies. Figure 7.3 shows by what proportion a child's score on different task/items of school readiness changes if activities for different domains of development are added. The analysis indicates that activities for language and cognitive development have a significant and positive association with school readiness competencies, especially sequential thinking, following instructions, phonemic awareness, and pattern identification and completion. All these have a strong language and cognitive component and are foundational for higher-order cognitive skills. Programs with activities for creativity development like free play demonstrate a positive influence on understanding prenumber concepts and sequential thinking.

Figures 7.3 and 7.4 also represent the comparative association/impact of developmentally appropriate practices and formal teaching on different competencies assessed as part of the school readiness instrument. These findings confirm the desirability of promoting more developmentally appropriate practices, which in turn contribute positively to different developmental domains and competencies and thereby to school readiness. The results also clearly provide a strong endorsement of the understanding that formal, didactic teaching at this early childhood stage which clearly reduces if not erodes a child's agency in the learning process should be emphatically discouraged.

This finding is corroborated by the fact that the children using innovative practices in Rajasthan which had a dominance of development-oriented curriculum and pedagogy (Box 7.1) gained more from the program in 1 year (baseline to end line) than children attending any other program (Box 7.2). This is further borne out by a recent personal experience of the second author in an ongoing action research project in an English-medium school in Delhi in which she is guiding a shift from the English-only curriculum focused on the three R's to a bilingual developmentally appropriate curriculum. Teachers, with several years of experience in formal teaching, reported observing a major shift in their classrooms with much more engaged, active, and expressive children as compared to earlier and strongly endorsed the need for a developmentally appropriate, concept-based curriculum.

As UNESCO (2017a) state, "we now have decades of research that show very well that young children learn best when they are active learners – when they can have hands on experiences, when they can move around, when they can use their senses, when they can interact with children and adults in meaningful ways….In child centered or child guided activities, the kids are able to use their interests, to use their knowledge, and the teachers are listening to what children are interested in

Box 7.2: Does a Good Preschool Program Help in Reducing Social Equity Gaps? An Exploratory Analysis

The sampled children in Rajasthan were divided into two groups according to their affluence depending on their household characteristics like caste, asset index (estimated on availability of consumer durables), maternal education, and availability of reading material at home. The average scores at age 4 and 5 along with the gains made by these two groups in a year on the school readiness instrument showed that a quality preschool program can bridge the gap between the privileged and not-so-privileged children. Even though the children from not-so-affluent families had much lower scores at age 4 in comparison with children from better-off families, they caught up by age 5 if they attended better-quality preschools, in this situation, the practice centers.

(continued)

Box 7.2: (continued)

Household Characteristics	Type of preschool program attended by the children	Sample (N)	Average percentage scores at baseline	Average percentage scores at end line	Average gain from baseline to end line
Non-general caste; mothers with no schooling; low asset index based on consumer durables; and no reading material available at home	Anganwadi	24	21.25	27.39	6.14
	Private Preschool	103	30.43	44.22	13.78
	Known Practice	34	24.04	47.64	23.60
General caste; mothers with primary and above education; a high asset index based on consumer durables; and reading material available at home	Private Preschool	14	33.93	48.39	14.46

and what they are learning. In play-based curriculum we are focusing on the physical, socio-emotional and of course cognitive development as well" (p. 1).

Our results supported by experience indicate that formal, teacher-centered academic instruction negates all the principles that contribute to young children's learning and which make for an enriching and developmentally appropriate curriculum that in turn also promotes children's readiness for school learning. Given that the time spent on formal academic instruction and developmentally appropriate practices were also found to have an inverse relationship in the time on task study, since time spent on one reduces time on the other, this chapter makes a strong case for promoting a curriculum that is more developmentally appropriate (Fig. 7.5).

Anganwadi Centers Versus Composite Schools

An anomalous finding from the previous analysis carried out for the IECEI study indicates that private schools had a significantly higher incidence of formal teaching (Box 7.1) but still tended to depict higher scores on school readiness as compared to those from Anganwadi centers, controlling for household and individual child

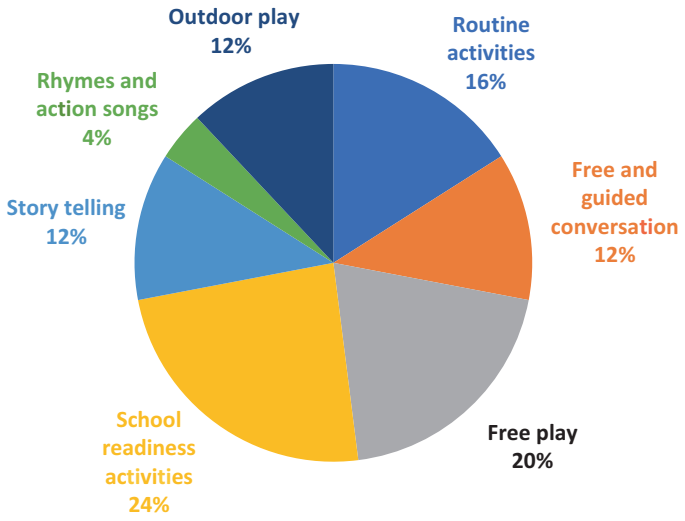

Fig. 7.5 A sample of a developmentally appropriate curriculum. (Source: UNICEF, 2017)

factors. The anomaly sets in when we consider that if formal teaching has a negative association with some important competencies of school readiness, logically private schools with higher incidence of formal teaching, should demonstrate lower and not higher levels of school readiness, controlling for mediating factors. That is not necessarily the case. What additionally makes a positive difference?

To pursue this strand of enquiry, the same regression model was used with *preschool type* included as a variable to explore and understand if it had any association with school readiness levels of children attending it (see Table 7.3 for detail regression results). After controlling for the household, child, and program quality related factors (as assessed by the quality assessment tool) we interestingly found that the program type did show a positive and significant association with disaggregated school readiness scores representing different kinds of competencies (Fig. 7.6).[7]

If we examine the coefficients given in Fig. 7.6 in greater detail, we find that with Anganwadi centers considered as the base category and the other factors controlled, each of the other three categories – private preschools, a known practice center (NGO-run community school with a preschool section), and government primary schools (some underage children attend primary grades, possibly along with older siblings) – shows a significantly better performance than Anganwadi centers on each of the cognitive and language competencies, though of different magnitudes.

[7] Figure 7.6 represents significant coefficients for different types of ECE programs attended by children where the base category is Anganwadi centers. It plots the possible increase in the children's scores in a particular competency if the child shifts from an Anganwadi center to any of the mentioned program types, keeping the other variables the same.

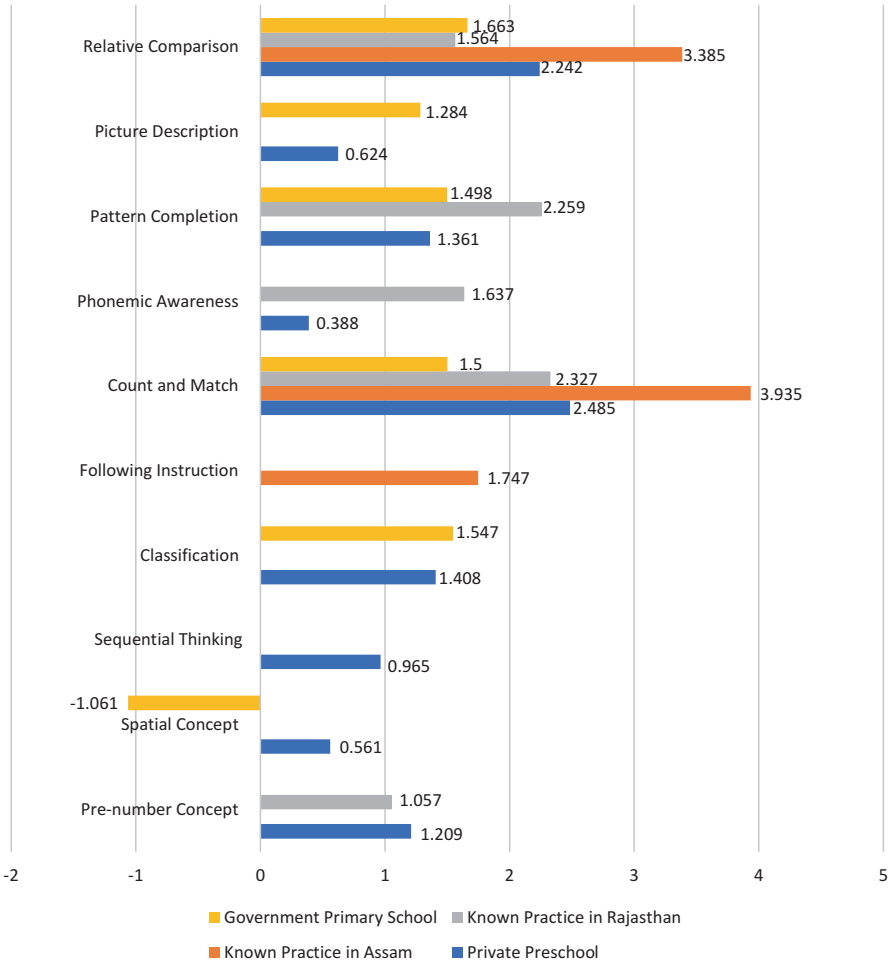

Fig. 7.6 Coefficients of different types of programs having an impact on school readiness competencies (base category Anganwadi centers). (Source: Kaul et al. 2017)

Given that this gain is evident in all the three categories, we try to unpack this preschool type as a factor by identifying what is common between these categories that is different from Anganwadi centers. Our observations indicate that the only characteristic that these models have in common to some extent is their structure, which in all cases is somewhat composite in nature, that is, types other than Anganwadi centers provide both preprimary and primary education within an organized system and in the same setting. Anganwadi centers are "stand-alone" centers. The government primary schools in two states may not be officially "composite" since they start from Grade 1, but almost 7% of the underage children from the

IECEI cohort were found attending these at age 4, so there is a trajectory provided for them. A third category is the known practice model in Assam, wherein the Government of Assam has relocated Anganwadi centers within primary schools and created an additional preparatory grade prior to Grade 1, known as *Ka Shreni*, thus creating a linear continuum of provision for children from 3 to 8 years. The Rajasthan known practice is an innovative practice, which includes both the stages. Private schools in the sample were primarily found to be composite in structure.

A comparative analysis of coefficients amongst these categories shows that the maximum gain is evident when children notionally moved from Anganwadi centers to *Ka Shreni* in Assam. This is evident on items assessing the numbers concept for which the gain is 3–4 percentage points. For the "following instructions" competency, the gain is about 1.7 points. A similar advantage is seen when children "moved" from Anganwadi centers to the composite NGO-run school in Rajasthan on items assessing prenumber concepts (1.05), pattern completion (2.25), number concepts (1.56 and 2.32), and phonemic awareness (1.63). The most consistent gain is seen across all except one (following instruction) competency if the movement is to private schools where the coefficient varied between 0.38 and 2.48.

The next question that arises from this analysis is: If it is the composite model that is making a difference, what makes this composite school structure for 4- to 7/8-year-olds more conducive for children's acquisition of school readiness competencies, aside from quality which is not significantly better in most of these models, except in the NGO-run preschool in Rajasthan?

If we compare the Anganwadi center stand-alone model with the other three models as a common category, what stands out as a specific difference is that the latter have a daily schedule of a longer duration and have a very organized routine including timings and a time table and children tend to attend these more regularly. The Anganwadi centers were generally observed to be more unplanned and not following a fixed routine or timetable, operated for a shorter duration, and allowed children to come and go as per their convenience. It must also be noted that in an Anganwadi center, preschool education is only one of six services that a multitasking Anganwadi worker is responsible for. Among all the categories, regularity and planned scheduling were observed much more in private preschools/schools as compared to other categories.

Although this emphasis on a planned routine for young children may appear counterintuitive, since there is a general understanding that young children need flexibility and freedom, our hypothesis is that a regular schedule, organization, and management may be positive elements of a program for children who are 4+ and older which enables them to be more self-regulated and better catered to in terms of executive skills and their very visible curiosity and motivation around this time for learning new things. Interestingly, participation pathways studies in the IECEI study (Kaul & Chaudhary, 2014) also indicated a transition for children at age 4 in most cases, particularly from Anganwadi centers to either a government primary school or to a pri-

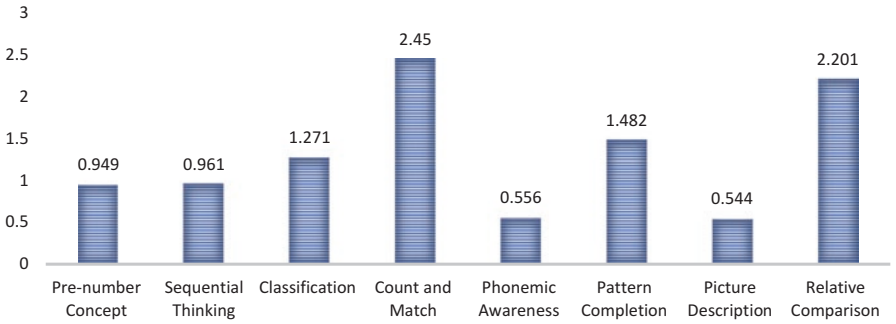

Fig. 7.7 Coefficients of composite schools having an impact on school readiness competencies (base category Anganwadi centers). (Source: Kaul et al. 2017)

vate school. Anganwadi centers are meant to cater to 3- to 6-year-olds, but enrolments in these centers tend to decline steadily beyond 4 years as children move out.

Driekurs (2016) posits that "routine is to a child what walls are to a house; it gives boundaries and dimensions to his life. Routine gives a sense of security…a sense of order from which freedom grows" (p. 1). According to him no child feels comfortable in a situation in which he does not know exactly what to expect.

One can also speculate that if children come to a center or program which allows them to come with older siblings, that itself may provide them a greater sense of security that is conducive to their learning. The IECEI study notes, for instance, that children in *Ka Shreni* cried much less as compared to children in Anganwadi centers when meeting a stranger. Our experience is that in government schools, it is a common sight to see younger children sitting with their older siblings in their class or vice versa, thus providing a level of comfort and security to the child.

These may all be speculative explanations and will need much more systematic and planned research to examine them further and find explanations for features of composite preschools/schools that tend to serve children's learning needs better beyond the age of 4 years, irrespective of content and pedagogy in the preschools. The findings presented in Fig. 7.7 indicate that controlling for the child, household, and curriculum aspects, a child's scores on eight of the ten school readiness competencies will improve if she/he moves from an Anganwadi center to a composite school by 0.556 on the phonemic awareness competency to 2.4 percentage points on the item assessing the numbers concept.[8]

[8] The coefficients of composite schools plotted in Fig. 7.7 represent the significance associated with different school readiness competencies with base category Anganwadi centers.

Conclusion

This chapter's aim was to explore whether and how two different kinds of curricula and pedagogy, one activity based and focused on the developmental domains and the other formal, didactic focused on the teaching of the three R's as seen in Indian preschools and documented in the IECEI study (Kaul et al., 2017), influence or are associated with cognitive and language readiness levels of children at age 5+, an age when in most Indian states children enter Grade 1 in primary schools.

The findings from our analysis done specifically for finding this clearly indicate that formal, teacher-centered teaching of three R's in preschool years can at best add limited value and at worst be detrimental to children's cognitive and language readiness for school, despite children's regular attendance in a preschool program. The rampant "schoolification" of preschool programs in the country, as more specifically documented in the IECEI report, clearly posits a call for action to regulate and advocate for more developmentally appropriate curricula to be developed and disseminated. In addition, institutional capacities need to be strengthened at all levels of the system, with emphasis on teacher development and mentoring opportunities for teachers to enable a developmentally appropriate curriculum to be implemented successfully at scale. This chapter also explored the potentially key role played by composite preschool models versus stand-alone preschools in influencing children's cognitive and language readiness. This shows the need for more research to gain deeper insights and understanding of this phenomenon. Both issues have significant relevance for policy.

Our study provides some evidence to support the emphasis laid on developmentally appropriate content and pedagogy, as opposed to formal, teacher directed classroom practices in curricula for early childhood education. It also hints toward a possible advantage of the composite preschool-school model over a stand-alone preschool center model in terms of developing school readiness in children. However, the challenge is that unless quality improves in the Anganwadi centers and in government primary schools, the move to unregulated private schools will only increase as it will strengthen parents' perceptions that at least children learn "something" in private schools. Not all parents, especially those from the underprivileged sections, are tuned to what we call "developmentally appropriate" preschool education.

Annexure

Table 7.2 Regression analysis model to differentiate between formal teaching and developmental appropriate practices

Variables	Pre-number concept	Spatial concept	Sequential thinking	Classification	Following instructions	Count and match	Phonemic awareness	Pattern completion	Picture description	Relation comparison
Baseline school readiness score at age 4	**0.0703*** **	0.00967	**0.138*** **	**0.0710** **	**0.0562*** **	**0.218*** **	**0.0742** **	0.0206	**0.0323***	**0.142*** **
	−0.0198	−0.0182	−0.0271	−0.0292	−0.0158	−0.0349	−0.0292	−0.0256	−0.0196	−0.0365
Gender (reference category: boys)	0.216	0.00567	−0.096	−0.188	−0.121	0.233	0.16	−0.0677	−0.00335	**−0.382***
	−0.166	−0.151	−0.19	−0.19	−0.11	−0.225	−0.121	−0.173	−0.127	−0.224
Age	**0.0656*** **	−0.0125	**0.0481***	**0.0581** **	**0.0460*** **	**0.138*** **	**0.0453** **	**0.0624** **	−0.00517	**0.0843*** **
	−0.0243	−0.022	−0.0277	−0.0277	−0.0161	−0.0329	−0.0176	−0.0251	−0.0186	−0.0327
Maternal education primary (base category: no schooling)	**0.482***	0.0568	0.432	0.234	0.16	0.28	0.0326	0.0242	−0.0745	0.308
	−0.254	−0.231	−0.291	−0.292	−0.169	−0.345	−0.185	−0.264	−0.194	−0.344
Maternal education secondary and above	**0.404***	−0.0661	0.033	**0.530** **	**0.352** **	**0.595** **	0.233	0.0942	0.143	**0.842*** **
	−0.206	−0.188	−0.236	−0.237	−0.137	−0.28	−0.151	−0.215	−0.158	−0.279
Caste (reference category: non- general)	0.0249	−0.321	−0.00817	−0.393	**0.271***	0.288	0.155	−0.0445	0.229	**0.563***
	−0.246	−0.223	−0.281	−0.282	−0.163	−0.333	−0.179	−0.255	−0.188	−0.332

(continued)

Table 7.2 (continued)

Variables	Pre-number concept	Spatial concept	Sequential thinking	Classification	Following instructions	Count and match	Phonemic awareness	Pattern completion	Picture description	Relation comparison
Affluence as per consumer durables (continuous variable)	**1.205****	0.748	**2.636*****	0.631	**0.730****	**2.816*****	**0.664***	**1.816*****	**1.071*****	0.983
	−0.534	−0.487	−0.612	−0.613	−0.355	−0.724	−0.39	−0.555	−0.409	−0.722
Availability of print material (continuous variable)	0.0806	0.185	−0.12	**3.284*****	−0.517	−0.584	0.646	−0.198	0.777	0.561
	−0.999	−0.907	−1.144	−1.144	−0.662	−1.355	−0.731	−1.037	−0.764	−1.356
Family support in learning (continuous variable)	−0.0973	**0.628****	0.0207	**−0.775****	0.0901	**1.056****	−0.212	0.514	−0.00351	**0.760***
	−0.332	−0.302	−0.381	−0.382	−0.22	−0.45	−0.242	−0.346	−0.254	−0.449
Private preschool	**1.209*****	**0.561***	**0.965*****	**1.408*****	0.0992	**2.485*****	**0.388***	**1.361*****	**0.624****	**2.242*****
	−0.322	−0.292	−0.368	−0.369	−0.214	−0.438	−0.234	−0.334	−0.246	−0.435
Known practice in Telangana	**0.882****	0.509	−0.695	−0.406	0.0464	0.219	0.3	0.366	−0.763**	−0.253
	−0.43	−0.391	−0.492	−0.493	-0.285	−0.582	−0.313	−0.447	−0.329	−0.581
Known practice in Assam	1.478	0.835	1.735	0.791	**1.747*****	**3.935*****	0.282	1.486	−0.466	**3.385****
	−0.986	−0.897	−1.131	−1.132	−0.655	−1.338	−0.72	−1.026	−0.755	−1.333
Known practice in Rajasthan	**1.057***	0.791	0.157	0.463	0.181	**2.327*****	**1.637*****	**2.259*****	−0.347	**1.564****
	−0.562	−0.512	−0.644	−0.645	−0.374	−0.763	−0.41	−0.584	−0.431	−0.76

Government primary school	−0.27	**−1.061***	0.649	**1.547****	−0.327	**1.500***	0.457	**1.498****	**1.284*****	**1.663****
	−0.602	−0.547	−0.689	−0.69	−0.399	−0.816	−0.439	−0.625	−0.46	−0.813
Facilities in the center	**0.100*****	0.0434	0.0322	0.0165	−0.00603	**0.158*****	**0.0596****	−0.0398	**−0.0552***	**0.125****
	−0.0379	−0.0344	−0.0433	−0.0434	−0.0251	−0.0513	−0.0276	−0.0394	−0.0289	−0.0511
Location of the center	0.00256	0.0297	−0.023	0.0374	−0.0242	0.0255	0.0362	−0.0278	0.00916	−0.0825
	−0.0435	−0.0395	−0.0498	−0.0499	−0.0289	−0.0589	−0.0318	−0.0453	−0.0333	−0.0589
Physical infrastructure at the center	−0.0322	0.0215	−0.0646	0.00264	0.0317	−0.0952	**−0.0903*****	0.00379	0.0292	−0.00599
	−0.0434	−0.0394	−0.0496	−0.0498	−0.0288	−0.0588	−0.0316	−0.0451	−0.0332	−0.0586
Learning material in the classroom	−0.016	−0.00504	0.0772	0.018	0.0153	0.028	0.018	−0.0129	0.0027	−0.0424
	−0.044	−0.04	−0.0503	−0.0506	−0.0292	−0.0597	−0.0321	−0.0457	−0.0337	−0.0594
Classroom planning	**0.0972***	0.0215	0.0698	0.0347	−0.0299	−0.00045	0.0307	0.0395	−0.0226	0.00896
	−0.0532	−0.0484	−0.0609	−0.0609	−0.0353	−0.072	−0.0387	−0.0553	−0.0407	−0.0719
Classroom management	−0.0384	0.0379	−0.00834	0.0554	−0.00166	−0.115	**−0.137*****	0.0139	**0.0909***	0.0937
	−0.0636	−0.0576	−0.0726	−0.0726	−0.042	−0.0858	−0.0462	−0.0658	−0.0485	−0.0857
Activities for language development	−0.0708	0.0234	**0.0936***	0.0107	**0.0685****	0.0713	**0.0648***	0.0860*	−0.0193	−0.0542
	−0.0487	−0.0441	−0.0557	−0.0557	−0.0323	−0.0658	−0.0354	−0.0506	−0.0373	−0.0656
Activities for cognitive development	**0.152****	0.0504	−0.0542	0.065	0.0477	0.0679	−0.0602	−0.0124	0.0102	−0.047

(continued)

Table 7.2 (continued)

Variables	Pre-number concept	Spatial concept	Sequential thinking	Classification	Following instructions	Count and match	Phonemic awareness	Pattern completion	Picture description	Relation comparison
	−0.0612	−0.0556	−0.0701	−0.0702	−0.0407	−0.083	−0.0447	−0.0636	−0.0468	−0.0828
Some formal teaching	−0.211	0.129	0.383	0.107	0.0764	0.275	**0.369***	0.126	**0.513****	0.216
	−0.302	−0.275	−0.346	−0.346	−0.2	−0.409	−0.221	−0.314	−0.231	−0.409
No formal teaching	−0.399	0.243	0.326	−0.324	−0.328	0.368	0.405	0.719	0.419	**1.483****
	−0.427	−0.387	−0.488	−0.488	−0.283	−0.577	−0.311	−0.443	−0.326	−0.576
Activities for motor development	−0.0458	−0.0346	−0.0288	−0.0607	−0.01	−0.08	0.0114	−0.0258	0.00627	0.0174
	−0.0436	−0.0396	−0.0499	−0.0502	−0.0289	−0.0591	−0.0318	−0.0453	−0.0334	−0.0589
Activities for creativity	**0.0909***	−0.0265	**0.128****	0.0842	0.0228	0.0895	−0.0297	−0.0229	0.000358	0.0876
	−0.052	−0.0473	−0.0596	−0.0598	−0.0345	−0.0704	−0.0379	−0.054	−0.0398	−0.0703
Activities for social development	**−0.134****	−0.0322	0.00691	−0.038	−0.0588	−0.0442	−0.04	−0.111	0.0147	0.0506
	−0.0668	−0.0607	−0.0766	−0.0767	−0.0443	−0.0905	−0.0487	−0.0695	−0.0511	−0.0903
Teacher disposition	**0.141****	−0.0136	−0.0953	0.0183	−0.0183	0.092	0.00449	**−0.139***	0.00656	−0.069
	−0.0714	−0.0649	−0.0818	−0.0819	−0.0474	−0.0968	−0.0521	−0.0744	−0.0547	−0.0965
Assam (reference state – Rajasthan)	2.194***	2.066***	0.205	4.664***	−1.294***	0.913	0.996***	0.916**	−0.307	1.532***
	−0.41	−0.37	−0.467	−0.477	−0.271	−0.565	−0.298	−0.423	−0.312	−0.551
Telangana (reference state – Rajasthan)	1.395***	1.580***	−1.301***	−1.781***	0.846***	1.686***	−0.21	−0.214	−0.388	0.579

*** $p<0.001$, ** $p<0.05$, * $p<0.1$

Table 7.3 Regression analysis model to differentiate between Anganwadi centers and composite schools

Variables	Pre-number concept	Spatial concept	Sequential thinking	Classification	Following instruction	Count and match	Phonemic awareness	Pattern completion	Picture description	Relation comparison
Baseline school readiness score at age 4	**0.0709*** **	0.0103	**0.140*** **	**0.0718** **	**0.0562*** **	**0.220*** **	**0.0771*** **	0.0193	0.03	**0.142*** **
	−0.0198	−0.0182	−0.027	−0.0292	−0.0157	−0.0349	−0.0292	−0.0256	−0.0196	−0.0364
Gender (reference category: boys)	0.215	0.00916	−0.108	−0.202	−0.12	0.231	0.177	−0.0554	−0.0169	**−0.392***
	−0.166	−0.151	−0.19	−0.19	−0.11	−0.224	−0.121	−0.172	−0.127	−0.224
Age	**0.0672*** **	−0.0114	**0.0468***	**0.0567** **	**0.0468*** **	**0.139*** **	**0.0463*** **	**0.0635** **	−0.00718	**0.0841** **
	−0.0243	−0.022	−0.0277	−0.0277	−0.0161	−0.0328	−0.0176	−0.0251	−0.0186	−0.0326
Maternal education primary (base category: no schooling)	**0.475***	0.0386	0.453	0.26	0.156	0.279	−0.00087	0.00121	−0.0444	0.323
	−0.254	−0.231	−0.291	−0.291	−0.169	−0.344	−0.185	−0.264	−0.195	−0.343
Maternal education secondary and above	**0.421** **	−0.0497	0.0773	**0.561** **	**0.362*** **	**0.618** **	0.189	0.0595	0.169	**0.881*** **
	−0.206	−0.187	−0.235	−0.235	−0.136	−0.278	−0.15	−0.213	−0.157	−0.277
Caste (reference category: non−general)	0.0148	−0.337	0.0164	−0.364	0.264	0.284	0.123	−0.0698	0.265	**0.578***
	−0.246	−0.223	−0.281	−0.281	−0.163	−0.332	−0.179	−0.255	−0.188	−0.331

(continued)

Table 7.3 (continued)

Variables	Pre-number concept	Spatial concept	Sequential thinking	Classification	Following instruction	Count and match	Phonemic awareness	Pattern completion	Picture description	Relation comparison
Affluence as per consumer durables (continuous variable)	**1.259****	0.772	**2.760*****	0.764	0.709**	**2.848*****	0.499	**1.686*****	**1.203*****	1.082
	−0.529	−0.482	−0.604	−0.605	−0.35	−0.714	−0.385	−0.548	−0.405	−0.713
Availability of print material (continuous variable)	0.122	0.255	−0.145	**3.278*****	−0.553	−0.601	0.672	−0.188	0.772	0.533
	−1	−0.908	−1.142	−1.143	−0.662	−1.353	−0.732	−1.036	−0.765	−1.354
Family support in learning (continuous variable)	−0.107	**0.627****	−0.0172	**−0.798****	0.0709	**1.029****	−0.172	0.541	−0.0193	0.722
	−0.332	−0.302	−0.38	−0.381	−0.22	−0.449	−0.242	−0.345	−0.255	−0.448
Composite schools (reference group: Anganwadi centers)	**0.949*****	0.412	**0.961*****	**1.271*****	0.195	**2.450*****	**0.556*****	**1.482*****	**0.544****	**2.201*****
	−0.279	−0.253	−0.319	−0.319	−0.185	−0.379	−0.203	−0.289	−0.214	−0.376
Facilities in the center	**0.114*****	0.0487	0.0371	0.0297	−0.0115	**0.161*****	0.0424	−0.0517	−0.0448	**0.131*****
	−0.0361	−0.0329	−0.0412	−0.0413	−0.0239	−0.0488	−0.0263	−0.0374	−0.0276	−0.0486
Location of the center	0.00334	0.029	−0.0299	0.0369	−0.0299	0.0201	0.039	−0.0257	0.00958	−0.0888
	−0.0434	−0.0395	−0.0496	−0.0497	−0.0288	−0.0587	−0.0317	−0.0451	−0.0333	−0.0586

Physical infrastructure at the center	−0.0467	0.02	−0.0562	−0.00352	0.0396	**−0.0927***	**−0.0816*****	0.00751	0.0264	−0.00281
	−0.0416	−0.0378	−0.0475	−0.0476	−0.0275	−0.0563	−0.0303	−0.0431	−0.0319	−0.0561
Learning material in the classroom	0.00054	0.00423	0.0608	0.00365	0.0213	0.0348	0.0287	−0.00075	−0.0201	−0.0478
	−0.0428	−0.0389	−0.0489	−0.049	−0.0284	−0.0579	−0.0312	−0.0443	−0.0328	−0.0576
Classroom planning	0.064	−0.00802	0.0543	0.0306	−0.0441	−0.0272	0.046	0.0503	−0.0139	−0.0134
	−0.0516	−0.0469	−0.0589	−0.0589	−0.0342	−0.0697	−0.0376	−0.0535	−0.0395	−0.0696
Classroom management	−0.0119	0.0665	−0.0296	0.0262	0.012	−0.0986	**−0.109****	0.0369	0.0481	0.0865
	−0.0619	−0.0561	−0.0705	−0.0706	−0.0409	−0.0834	−0.045	−0.064	−0.0473	−0.0832
Activities for language development	**−0.0862***	0.0142	0.0960*	0.00778	**0.0705****	0.0676	**0.0699****	**0.0891***	−0.0172	−0.0557
	−0.0482	−0.0438	−0.0551	−0.0551	−0.032	−0.0651	−0.0351	−0.0501	−0.037	−0.0649
Activities for cognitive development	**0.157*****	0.0651	−0.0751	0.0415	0.0487	0.0668	−0.0287	0.00943	−0.0163	−0.0634
	−0.0596	−0.0542	−0.0681	−0.0682	−0.0395	−0.0806	−0.0435	−0.0618	−0.0457	−0.0804
Some formal teaching	−0.216	0.103	0.38	0.089	0.112	0.296	**0.365***	0.137	**0.483****	0.229
	−0.301	−0.273	−0.343	−0.344	−0.199	−0.406	−0.219	−0.311	−0.23	−0.406
No formal teaching	−0.417	0.252	0.441	−0.279	−0.28	0.42	0.334	0.657	0.467	**1.572*****
	−0.425	−0.385	−0.484	−0.484	−0.281	−0.573	−0.309	−0.439	−0.324	−0.571

(continued)

Table 7.3 (continued)

Variables	Pre-number concept	Spatial concept	Sequential thinking	Classification	Following instruction	Count and match	Phonemic awareness	Pattern completion	Picture description	Relation comparison
Activities for motor development	−0.0581	−0.0425	−0.0283	−0.0572	−0.017	−0.0895	0.013	−0.0265	0.0154	0.0123
	−0.0434	−0.0394	−0.0495	−0.0497	−0.0287	−0.0586	−0.0316	−0.0449	−0.0332	−0.0584
Activities for creativity	**0.118****	0.00679	**0.117****	0.0639	0.0335	0.106	−0.0101	−0.00881	−0.0316	0.0866
	−0.0505	−0.046	−0.0579	−0.0581	−0.0335	−0.0683	−0.0369	−0.0524	−0.0387	−0.0681
Activities for social development	**−0.125***	−0.0279	0.0257	−0.0179	−0.0611	−0.0385	−0.0651	**−0.131***	0.0336	0.0661
	−0.0657	−0.0597	−0.0751	−0.0752	−0.0435	−0.0888	−0.0479	−0.0681	−0.0503	−0.0886
Teacher disposition	**0.145****	−0.018	**−0.131***	−0.00733	−0.017	0.0864	0.0321	−0.112	−0.0243	−0.0914
	−0.0691	−0.0628	−0.0789	−0.0789	−0.0457	−0.0933	−0.0503	−0.0717	−0.0529	−0.093
Assam (reference state – Rajasthan)	2.056***	1.946***	0.443	4.773***	−1.190***	0.977*	0.817***	0.784*	−0.16	1.714***
	−0.393	−0.355	−0.447	−0.456	−0.259	−0.542	−0.285	−0.405	−0.3	−0.526
Telangana (reference state – Rajasthan)	1.452***	1.540***	−1.221***	−1.686***	0.880***	1.743***	−0.379*	−0.311	−0.316	0.682*
	−0.302	−0.272	−0.342	−0.344	−0.199	−0.406	−0.218	−0.31	−0.231	−0.403

*** $p<0.001$, ** $p<0.05$, * $p<0.1$

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Chapter 8
Language Literacy and Bilingualism in the Early Years

Sunita Singh

Abstract This chapter studies language and literacy practices across Assam, Rajasthan, and Telangana. It focuses on three main aspects of language and literacy instruction—language comprehension and use in the classroom by the teacher and children, forms of print available and use of print and reading, and writing opportunities provided in the classroom. It uses data from the Early Childhood Education Quality Assessment Scale. The data were collected as a part of the Indian Early Childhood Education Impact (IECEI) Study. The data analysis indicates that language and literacy practices across most classrooms did not encourage independent reading and writing among children. The study also highlights the need for paying attention to pedagogies that focus on creating readers, writers, and critical thinkers in classrooms.

Keywords Language · Bilingualism · Literacy strategies · Comprehension · Textbook

Introduction

This chapter examines the trends in language and literacy practices across the three states of Assam, Rajasthan, and Telangana with respect to children's home languages, the language used by the teacher in the classroom, and the specific ways by which language and literacy instruction is transacted in the classroom. Variations are observed in language and literacy instruction across the three states with respect to the different kinds of programs which range from rote memorization to focus on meaning and thinking.

The chapter contextualizes the trends in current research that language and literacy development among young children needs to build on their oral language skills, creating relevance for entering the literate world, and allowing children to

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engage with literate worlds (CECED, CARE India & USAID, 2016; Jayaram, 2017). Further, given the diversity of languages in India, policy recommendations advocate the use of home language or the local language spoken in the community as the primary language of interaction in Early Childhood Care and Education (ECCE) programs (Government of India, Ministry of Women and Child Development, 2013; MHRD, 2014). This chapter highlights some specific school contexts and factors across the three states that are more conducive for language and literacy development among young children in a bilingual context. It also discusses some contextual issues that lend themselves to current language and literacy practices as observed across most of the classrooms such as the primacy of text and conceptualizations of language and literacy.

Background Literature

India's multilingual nature means that language is seen as a contested issue (Bhaskaran, 2017; Mohanty, 2017). The number of languages used in the country and the disparities in the languages available for literacy have resulted in children learning literacy in a language/s that is not their mother tongue or first language. Often, despite policies that favor a child's first language as the choice of language for literacy, English has become the first language taught in schools (Ladousa, 2005; Mohanty, 2006, 2017; Vaish, 2007). Literacy is also not provided in the mother tongue for many individuals because there are mother tongues that have no writing systems and sometimes a language other than the mother tongue may be chosen as the language of instruction even if the mother tongue has a script (Aggarwal, 1992; Rao, 2014; Srivastava & Gupta, 1983). Thus, for many biliteracy is a reality in the Indian context.

This section presents an overview of literature that addresses the key elements of language and literacy learning, especially for children who are growing up bilingually. Language and literacy development among children influences their learning (Freebody 2016). The field of early literacy has witnessed major philosophical and methodological shifts (Teale & Yokota, 2000). Debates on the methods for early literacy instruction have ranged from "skills-based or phonics approach" to a "holistic or literature-based approach" (Tompkins, 2003) and a "balance" or an integration of "holistic" and "skills-based" approaches (Baumann, Hoffman, Moon, & Duffy-Hester, 2000; Pressley, 1998; Stoicheva, 1999). An exploration of the instructional, psychological, social, cultural, and political constructions of literacy instruction points to the complexities associated with teaching (Juel, 1991; Tierney & Sheehy, 2003). In response to the search for a method of instruction that works for all and is "proven by research" Duffy and Hoffman (1999, p. 11) point out, "…no single method or approach has ever been proven to be a cure-all." In a classroom, what works with children is if the teacher provides them with activities that enable them to learn through holistic practices along with skills instruction to build motivation to read (Baumann et al., 2000). Further, it has long been pointed out that effective reading instruction is not the result of a specific method or program, but that of

a teacher who "thoughtfully and analytically integrates various programs, materials, and methods as the situation demands" (Duffy & Hoffman, 1999, p. 11) and is adaptive (Baumann et al., 2000; Duffy & Hoffman, 1999; Taylor, Peterson, Pearson, & Rodriguez, 2002).

Several research studies have presented factors that are important to consider for children's language and literacy development, especially in bilingual contexts. Research (Bernhardt, 2003; Gregory & Kenner, 2003) has provided evidence that development of literacy in the child's first language is key for the transfer of literacy skills to the language that is learnt later (Kenner & Gregory, 2003). Gottardo, Yan, Siegel, and Wade-Woolley (2001) examine evidence of cross-linguistic transfer by exploring phonological, syntactic, orthographic processing skills, and reading among Cantonese-English bilingual children. The Cantonese-speaking children living in Canada were selected from Grades 1–8 (Grades 1–14, Grade 3–24, Grades 5 and 6–15, and Grades 7 and 8–12). Children's residence and schooling in Canada were diverse with some being born in Canada and consequently doing all their schooling in the country, while some had lived there for 2 years or more with schooling in Hong Kong and none in Canada. In Canada, all children attended English only schools. Children were administered English and Chinese standardized tests (parallel measures) for word reading, pseudoword/character reading, and arithmetic problem solving; experimental measures in phonological processing; rhyme/tone detection and deletion; rapid automatized naming; pseudoword repetition; syntactic processing task; and orthographic legality task. The results of the experimental tasks showed a developmental trend that was correlated with the grade level for each language, indicating differences in the age at which English was learned. English phonological processing and rhyme detection in Chinese, the only phonological measure in Chinese, was related to English reading skills among the children. The authors suggest that the cross-linguistic transfer of phonological-processing skills was related to an underlying process that is not specific to the Chinese language but related to the children's ability to transfer phonological skills from one language to another as a general linguistic ability. Additionally, the researchers also concluded that well-developed phonological-processing skills in the first language can aid reading performance in a second language, regardless of the orthography used.

Another study conducted with 30 Spanish-speaking English-as-a-second language (ESL) first graders from Latino immigrant families indicated transfer of phonological awareness across first and second languages, and across oral and written language (Quiroga, Lemos-Britton, Mostafapour, Abbott, & Berninger, 2002). The study sought to uncover the importance and transfer of phonological awareness in learning to read English for Spanish-speaking children. It also explored the role of oral language proficiency (vocabulary and syntax in oral expression and listening) in learning to read in English. The children in the study, selected from 15 different classrooms, received instruction in English only. Children were assessed in Spanish and English on measures of phonological awareness, verbal IQ, oral language proficiency, single-word reading (real words and pseudowords), and English alphabet letter naming. The results of phonological awareness in Spanish and English were correlated and predicted word reading in English and phonological awareness in

Spanish predicted reading in English. Additionally, oral language proficiency in English predicted reading in English. Quiroga et al.'s (2002) educational implications suggest combined instruction in Spanish and English phonological awareness and concurrent instruction in both oral and written English.

A prominent characteristic of Indian multilingualism is that there are not just multiple languages but also languages from different language families[1]; languages from the same language family are more similar in structure than those from different language families. Languages from the same language family also share cognates. Learning a language which shares cognates has been shown to be of advantage. A study by Jiménez, García, and Pearson (1996, p. 41) shows that "successful Latina/o readers" were more aware of the linguistic differences in the two languages and were able to use mechanisms of "searching for cognates, transferring and translating" more effectively than monolingual readers. Wagner's (1998) study on Moroccan children shows that in literacy learning (in standard Arabic) speakers who knew similar languages (Moroccan Arabic) had an advantage initially than those speaking a language that was from a different language family (Berber) but after 5 years this difference was not significant. Though Jimenez et al. (1996) and Wagner's (1998) studies are different, they indicate that similarities in languages can help in second language literacy, at least initially.

Researchers proposing the social and constructive model of second language literacy encourage "additive" bilingualism as opposed to "subtractive" bilingualism (Moll, Sáez, & Dworin, 2001; Williams & Snipper, 1990) for developing biliteracy. According to Gregory and Williams (2000, pp. 10–11), "…*contrasting* rather than *similar* home and school practices provide a child with a larger treasure trove from which to draw from school learning." A model of contrasting literacies (the New London Group, 2000, p. 9) that sees the contrasts as an advantage rather than a disadvantage can be a step towards ensuring that education benefits all and creates "equitable social participation." Studies comparing the use of metacognitive strategies among older bilingual and monolingual children (in middle school) show that successful bilingual children did not differ substantially from successful monolingual children; they were also able to use strategies of code-mixing, code-switching, and use of cognates, which were not demonstrated by monolingual children (García, 1998; Jiménez et al., 1996).

Within the model of contrasting literacies (Gregory & Williams, 2000), teachers need to empower and validate a child's literacy experiences that are gained from home and also help develop a classroom community where the child takes pride in using the first language and talking in it. In more recent research, the use of translanguaging by bilingual learners has been pointed out for the seamless use of two or more languages by learners (Garcia 2009, García et al. 2011). According to Canagarajah (2011, p. 1), "for multilinguals, languages are part of a repertoire that

[1]There are four main language families in India: Indo Aryan, Hindi, Bengali, Punjabi, Odia, Marathi, Assamese, and others; Dravidian, Tamil, Telugu, Kannada, Malayalam, and others; Austro-Asiatic, Khasi, Ho, and others; Tibeto-Burman, Manipuri, Nagamese, and others.

is accessed for their communicative purposes; languages are not discrete and separated, but form an integrated system for them."

In the Indian context, where classroom instruction is still largely focused on rote memorization and copywriting with little space for development of oral language skills and its connection with reading and writing, linguistic diversity and multilingualism are often seen as a hindrance (Karlekar, 2004). However, the "disparate markets" that have been created owing to the value placed on dominant languages undermining the language policies of the government (Ladousa, 2005) necessitate that multilingual capacities are developed among individuals for participation and for a broader worldview (Bhaskaran, 2017). However, while research clearly points to the benefits of instruction in the first language, studies in India's specific context have come up with contradictory findings regarding the medium of instruction (Rao, Shanbal, & Khurana, 2010). Given the diversity in languages and scripts and their respective uses, it is difficult to predict the exact reason though the quality of instruction could have played a critical role in this disparity and may well be a reversal of what one would expect from research. According to Kumar (2004), the culture of examination and textbooks confines teaching to prescribed textbooks. Further, Sinha (2012) points out that the role of comprehension is sparse in many Indian classrooms.

In recent decades, the Indian context has also seen its share of engagement in finding ways to teach literacy in classrooms that are organic to the setting and to Indian languages. These include Pragat Shikshan Sanstha (Berntsen, 2003) and the Organization of Early Literacy Promotion (Jayaram, 2008, 2017). The Position Paper on Early Language and Literacy (CECED, CARE India, & USAID, 2016) highlights a "principle based approach" necessary for instruction for young children, such as emphasizing on the oral language, modeling language and literacy, using drawings and writing as forms of expression, emphasis on critical thinking, and emphasis on young children's multilingual capacities. The Position Paper also highlights the need to see language and literacy as "ideological" and not "autonomous."

Data Sources

The data for this study was a part of Strand B of the India Early Childhood Education Impact (IECEI) Study (Kaul, Chaudhary, & Sharma, 2014; Kaul et al., 2017; see Chap. 2). Data for this chapter was collected through classroom observations in primary classrooms across Assam, Rajasthan, and Telangana. Data was collected using the Early Childhood Education Quality Assessment Scale (ECEQAS), developed by the Centre for Early Childhood Education and Development (CECED), Ambedkar University, Delhi (see Chap. 7). The data documents teachers' language and literacy practices from the early primary grades. It includes three types of activities:

(a) Language use in the classroom: how children understand the teacher's language, use of bilingualism/multilingualism as a resource, listening and speaking opportunities provided by the teacher, and use of higher-order thinking and children's questions.
(b) Forms of print: regular and relevant display of materials, availability of class library and its use, and availability of workbooks/activity books for children and use of textbooks.
(c) Reading and writing: opportunities for reading and writing activities provided by the teacher.

Data from the IECEI Study (Kaul et al., 2014, p. 77) points to an "academically oriented curriculum" with a focus on the formal teaching of reading, writing, and arithmetic in preschools across the three states. In addition, it points out that while there were variations across the states, there were little or no activities conducted in the classrooms related to a conceptual understanding of reading and writing. The exception was the "known practice" center in Rajasthan. Their schools showed the prevalence of interactive language related activities. An examination of the trends in language and literacy instruction in the early primary grades will enable us to see how these transitions play out for young children.

Results

The results of this study are organized according to three distinct but interconnected ways of use of language and literacy in the classroom:

(a) Language use in the classrooms which focuses on how children understand the teacher's language, use of bilingualism/multilingualism as a resource, listening and speaking opportunities provided by the teacher, and use of higher-order thinking and children's questions.
(b) Forms of print and literacy in classrooms: regular and relevant display of materials, availability of class library and its use, and availability of workbooks/activity books for children and use of textbooks.
(c) Reading and writing: opportunities for reading and writing activities provided by the teacher.

Language Use in Classrooms

This section provides an overview of the languages known and spoken by the teachers and students across the three states. The use of language and literacy across the three states indicates that there were certain patterns of language use. Firstly, most children across the three states understood the language of the teacher amidst variations across the states (Fig. 8.1). In Rajasthan, the numbers were comparable across

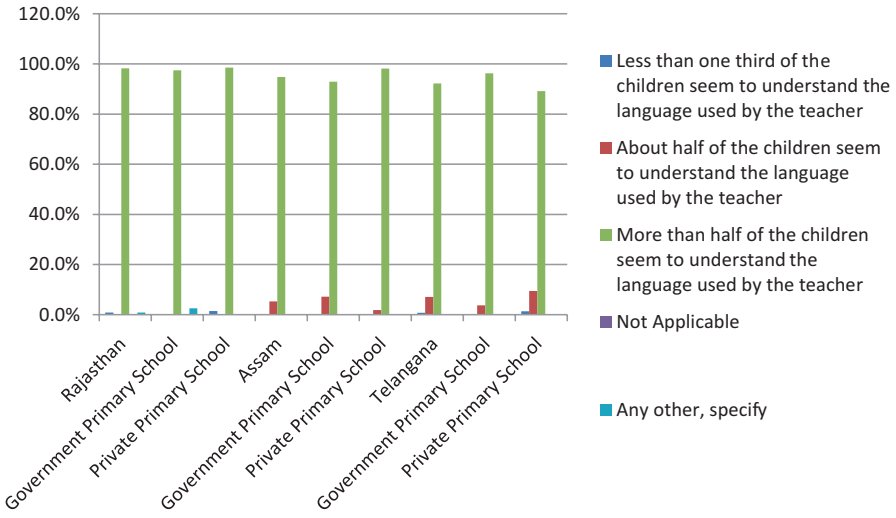

Fig. 8.1 Most children understand the teacher's language. (Source: IECEI Study)

government and private schools (approximately 98%). This could be because most teachers used Hindi across the villages and across the different schools, even if they spoke a different language at home. Private schools in Rajasthan were mostly Hindi medium; even when they were English medium, the lingua franca in the classroom was Hindi. In Assam, more children in the government schools were unable to understand the teacher's language which was Assamese (92%). This could be because most children from the tea garden labor (TGL) community attended government schools and the language spoken by them at home was Sadri. In Telangana, private schools often employed teachers from Kerala because they were considered to speak better English than the local teachers. This is a possible reason why students did not understand the teachers' language (89.2%).

The data presented in Fig. 8.1 shows that while most children across the three states were able to understand the teacher's language, their own home languages did not play a central role in the classroom except in Telangana (71.1%). While there may be several reasons for this, including teachers themselves not knowing the children's language, it does indicate a certain level of teacher preparation. The data indicates that across the three states, most of the children were allowed to speak in their own languages in the classroom (Assam 75%, Rajasthan 63.2%) even if it was not the language spoken by the teacher. While the use of "bilingualism/multilingualism" as a resource is supported in literature (Bialystok, Shenfield, and Codd, 2000; Garcia, Jiménez, & Pearson, 1998; Mohanty, 1990), it found little space in these classrooms.

Figures 8.1 and 8.2 show children's comprehension of the language spoken by the teacher and the use of bilingualism/multilingualism as a resource during instruc-

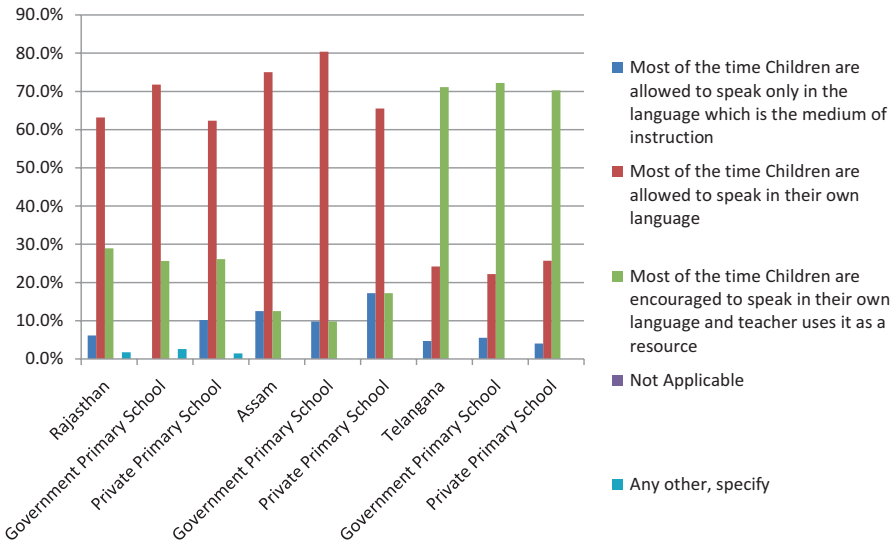

Fig. 8.2 Using bilingualism/multilingualism as a resource. (Source: IECEI Study)

tion. Oral language can go a long way in the development of literacy skills. The use and maintenance of children's home language is critical for transfer of conceptual knowledge and is also a predictor of literacy skills (Carlisle, Beeman, Davis, & Spharim, 1999). While homes and communities could be sites for developing oral languages, teachers also need to provide adequate opportunities for children to be able to use oral languages connected with academic settings. One way in which this can be accomplished in classrooms is through the use of oral language. Many studies that provide evidence for cross-linguistic transfers are based upon the premise that literacy skills acquired in one language could be transferred to the language that is learnt later (Cummins, 1986). Studies with children of varying ages have indicated that bilingual students can use strategies of code-switching, code-mixing, and translation using cognates for cross-linguistic transfers (Bauer, 2000; García, 1998; Jiménez, García, and Pearson, 1995; Jiménez et al., 1996). Depending upon the age of the children and the contexts of language, strategies may vary.

An examination of the use of oral languages in the classroom across the three states yields an environment that is lacking in various respects. Figures 8.3, 8.4, 8.5 and 8.6 provide an overview of listening, speaking, teachers' use of higher-order thinking, and children's questions. Opportunities provided by the teachers for children to listen show that in Rajasthan most times (78.9%) children did not have opportunities to listen to a language through a planned activity apart from the teacher's instructions. Classrooms in Assam (34.2%) and Telangana (60.2%) provided at least one planned activity such as storytelling, rhyme, or a listening game. However,

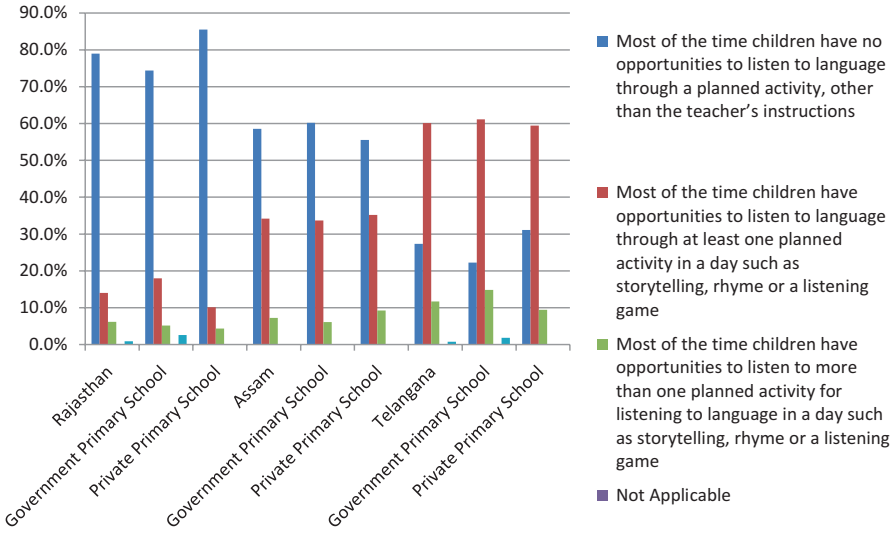

Fig. 8.3 Listening opportunities provided by teachers. (Source: IECEI Study)

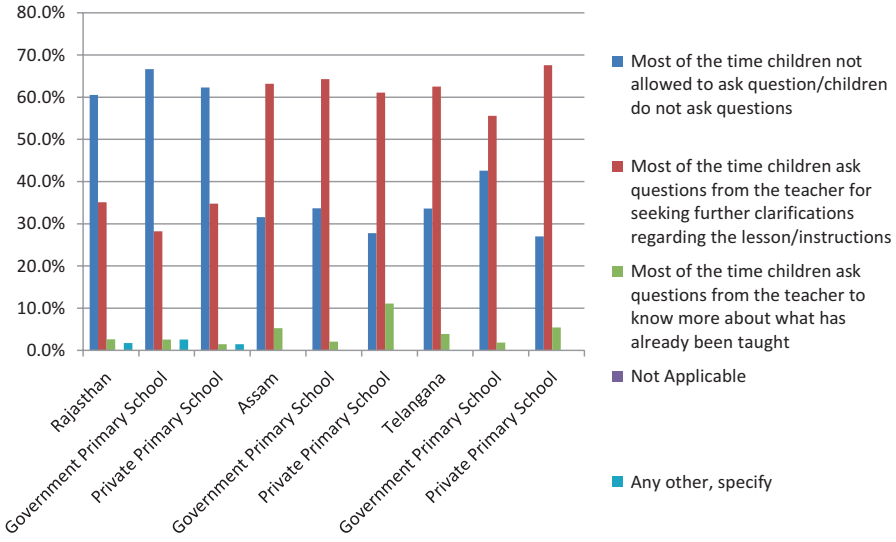

Fig. 8.4 Encouraging children's questions. (Source: IECEI Study)

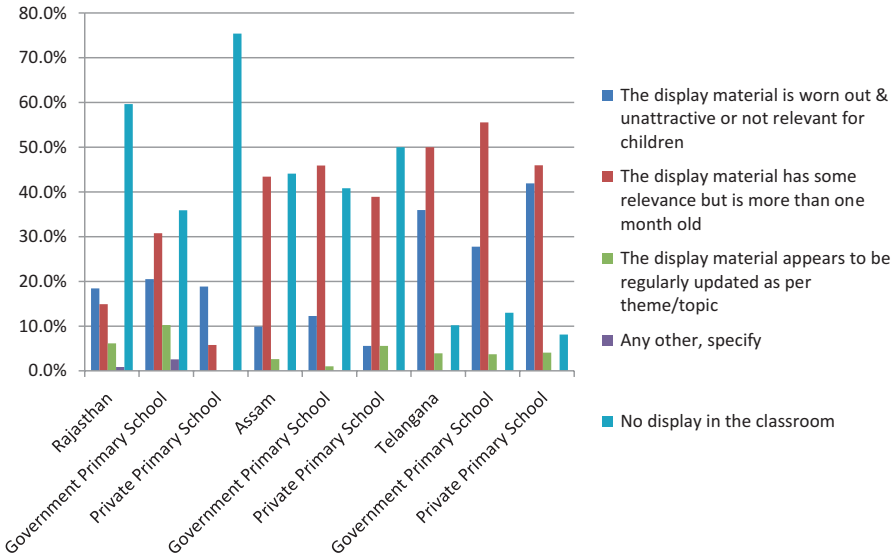

Fig. 8.5 Regular and relevant display of material. (Source: IECEI Study)

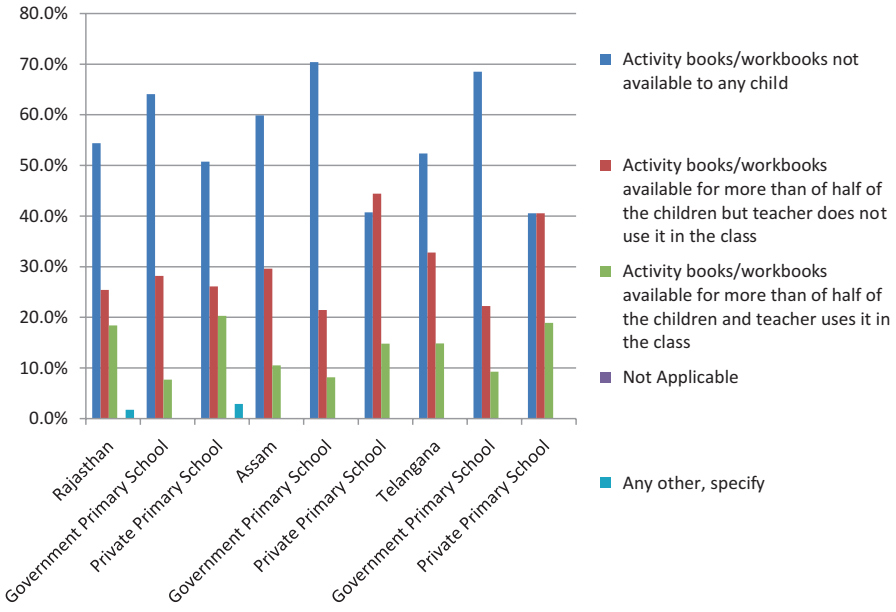

Fig. 8.6 Availability of workbooks/activity books for children. (Source: IECEI Study)

beyond this, there was little in the way of planned listening activities provided by the teachers. These kinds of activities could provide opportunities of modeling for young children as they listen to the language being used in a variety of forms.

If a classroom's goals are to promote active engagement and critical thinking, it is important to encourage children to ask questions in the class. However, data shows that children were either not allowed to ask questions or their questions were mainly centered around seeking clarifications on what had already been taught. Children rarely asked questions on what had been taught to know more about the topic (Rajasthan 2.6%, Assam 5.3%, and Telangana 3.9%). Some of the reasons for this could be lack of understanding and preparation by the teachers regarding how language should be used in the classroom, an understanding that "textbook" learning is the only valid form of learning, or an understanding that listening to the teacher is adequate for learning (Kumar, 2004).

Forms of Print and Literacy in the Classroom

This section provides an overview of the contexts and practices of literacy across the three states. Specifically, it focuses on the display of materials that were relevant for the class, availability of a class library and its use, availability of workbooks/activity books for children, use of textbooks, and opportunities provided by the teacher for reading and writing.

Literacy in the School and Classroom

This section focuses on the availability and display of print materials and availability and use of texts by children and teachers. Availability of print and regular updates on the classroom's walls is a strong indication of the engagement of the class with print. Data shows that while print materials were relevant in most classrooms, they were not regularly updated across the three states. Some variations were also observed across the states. In Rajasthan and Telangana, government schools scored slightly better than private ones, while in Assam the numbers were comparable. However, the number of classrooms where print was regularly updated as per theme/topic was low (Rajasthan 6.1%, Assam 2.6%, and Telangana 3.9%). This shows teachers and children's engagement with the classroom space. Additionally, a lot of the material that was on display on the walls was ready-made material supplied by the government. This could be one reason why there was less display material in private schools.

The next two sections discuss the use of texts by the children and by teachers. It was surprising to note that approximately half of the children did not have any activity book available to them. In fact, even in classrooms where more than half of the children had activity books available to them, very few teachers were using them

(Rajasthan 18.4%, Assam 10.5%, and Telangana 14.3%). The activity books were mostly in the form of workbooks where children had to draw, color, do some activities, or copy letters or words on their own. While the activity books themselves did not always appear engaging, this was one of the very few ways by which children worked independently in the classroom.

The use of textbooks in the classroom shows that classroom instruction was centered on the use of textbooks across the three states. When textbooks were available, they were either not used or used only for reading out to children and sometimes for explaining the text and the pictures. Since the children in the primary grades were young, sometimes they were also expected to repeat the text read out by the teacher. The use of textbooks as a resource or for conducting specific activities with children was low (Rajasthan 13.2%, Assam 6.6%, and Telangana 16.4%). The textbooks were prescribed by the school authorities depending on the curriculum that was followed.

The classroom teacher's reliance on textbooks is also evident from Figs. 8.7 and 8.8. The use of texts such as storybooks and story cards in addition to the textbooks was not very prevalent across the three states (Assam 0%, Rajasthan 5.3%, and Telangana 5.5%). In fact, most of the instructional time was not planned for children to learn reading; even if the activities were planned they focused only on the textbook.

Instruction in writing followed a similar pattern across the states. Although there were variations across the states, there was little by way of providing opportunities

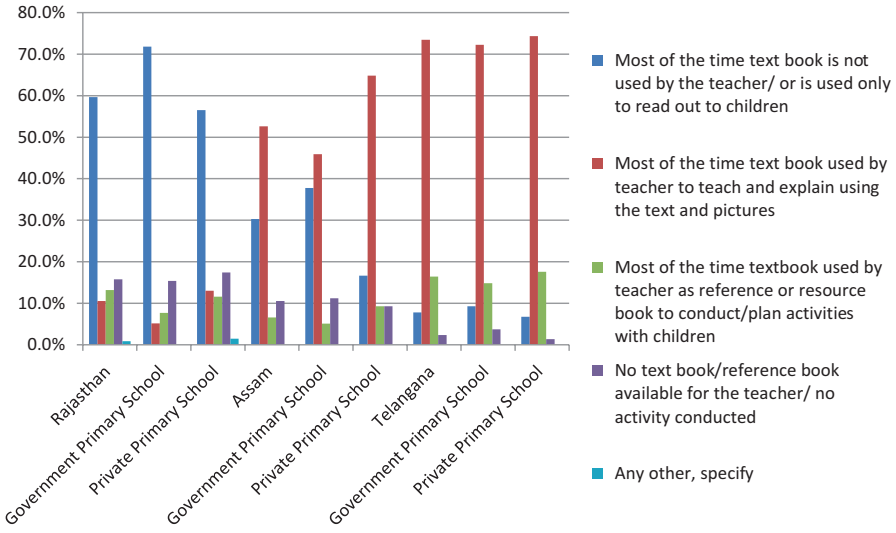

Fig. 8.7 Use of textbooks. (Source: IECEI Study)

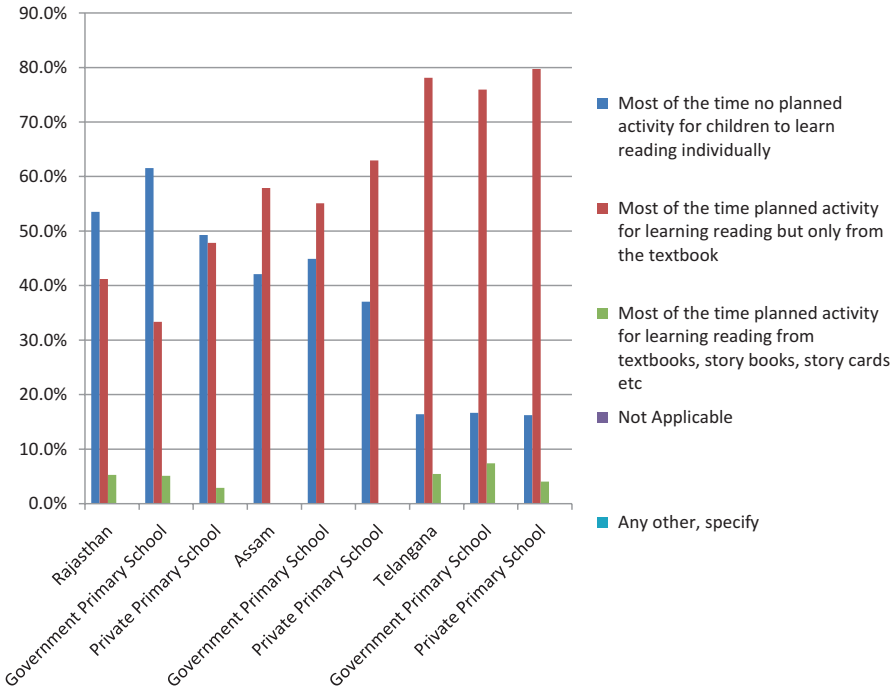

Fig. 8.8 Opportunities and activities for reading. (Source: IECEI Study)

that might be meaningful and interesting for children (Rajasthan 4.4%, Assam 21.1%, and Telangana 13.3%; Fig. 8.9).

Discussion and Conclusion

The government's Padhe Bharat Badhe Bharat (MHRD, 2014, p. 1) initiative sees language and literacy's aims as, "to enable children to become motivated, independent and engaged readers and writers with comprehension possessing sustainable and lasting reading and writing skills and achieve learning levels appropriate to the class of study." However, data from the IECEI Study points out that to achieve this goal for all classrooms, concerted efforts need to be made to develop teachers' capacities to work with children.

An ethnographic study by Farah (1998) among Pakistani girls going to an Islamic school to learn *sabaq* and later to a government school in the village provides a very different but real picture of literacy in a multilingual context. It discusses literacy instruction in Pakistan which also holds true for many developing countries, includ-

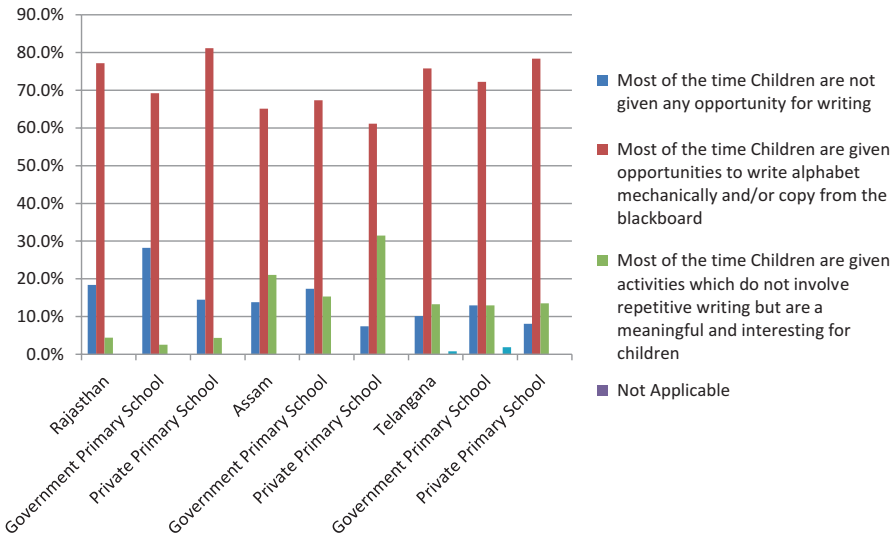

Fig. 8.9 Opportunities and activities for learning writing. (Source: IECEI Study)

ing India. The article highlights that children in the Quranic as well as the government school had literacy in Arabic and Urdu which is not the same as Hindko, the spoken form of the language. The focus of instruction in both the schools was on decoding, rote memorization, practicing letters, and copying, with little or no focus on independent reading, writing, and comprehension. This continued till about the fifth grade after which the students developed their own style of reading and writing.

Looking at the data from the three states under study, it appears that practices that enable children to become independent readers and writers were low. An examination of the data related to the use of oral languages in classrooms across the states indicates that while most children could understand the teacher's language, the use of bilingualism/multilingualism as a resource was low. Moll et al., (2001) highlight the social and cultural processes that could help develop biliteracy among Latino children. They proposed the making of Spanish as well as English the unmarked language of the classroom which could help transfer of language skills.

According to Datta (2007), an exclusion of children's languages and cultures from the classroom means an exclusion of the ways by which children think and learn. Use of children's knowledge as a resource engages them in the classroom and enables them to make connections between home and school. While research points out that multicultural and multilingual practices have found their way into the mainstream discourse on quality education (Jayaram, 2017), there was little evidence of this in the classrooms. If school literacy is not based on home literacy, the learners

have a problem because they find it hard to relate to school literacy experiences (Gregory, 1996).

Regarding print-related use and literacy practices, specifically reading and writing, there was trend that did not allow children to grow as independent readers and writers. As pointed out by the data for preschool years (Kaul et al., 2014), rich engagement with texts is missing even in the early primary grades. During these years, children are supposed to be transitioning from emergent forms of language and literacy use to more conventional forms and grow toward "reading to learn." However, much of the reading and writing opportunities provided to the children in these classrooms still remained confined to textbooks or notebooks. There was little in the way of vocabulary development and fluency- and comprehension-related activities in most classrooms which would enable children to become independent readers and writers. The "known practice" primary classrooms in Rajasthan, however, did provide some evidence of the rich use of language and literacy (Kaul et al., 2014).

Research also points to some implications for instruction which addresses linguistic, metalinguistic, and sociocultural factors. In the examination of linguistic and metalinguistic factors, studies emphasize the use of simple texts for developing background knowledge in order to enable comprehension (Droop & Verhoeven, 1998). Further, research also suggests the importance of development of vocabulary in both languages, reading comprehension skills (Carlisle et al., 1999), background knowledge (Ulanof & Pucci, 1999), and children's language and metalinguistic skills in their first language to facilitate the acquisition of literacy skills in a second language (López & Greenfield, 2004). According to Rao (2014, p. 33):

> children undertaking bilingual education, particularly in languages with widely differing features are likely to exercise differential skills depending on the linguistic and script features because of which it is extremely important to sensitize language teachers to the possibility of differential underlying skills as well as the need to focus on training/enhancing the cognitive resources that are necessary for children learning two or three languages/scripts. This, however, calls for intensive efforts to empower teachers to meet the needs of bilingual children.

Some studies also stress the effectiveness of providing instruction in children's first and second languages (Francis, 2000; Moll et al., 2001; Quiroga et al., 2002; Verhoeven, 2000; Wade-Woolley & Geva, 2000). In terms of sociocultural factors, studies have stressed the effectiveness of making the first and second languages the unmarked languages in the classroom for additive biliteracy skills to develop (Moll et al., 2001) and for a need to provide young bilinguals with a print-rich environment and opportunities to interact with texts in both languages at an early age (Bauer, 2000). Abbott and Grose (1998, p. 181) conclude, "Good teaching emerges from the teachers' solid convictions, identification of a goal, and adherence to that goal through the flow of classroom life." This is opposed to a strict sequential delineation of skills.

Our study on literacy and bilingual practices in primary classes has major implications for teacher education as well. Based on a case study of a successful teacher for minority students (Jiménez et al., 1996), four ideals need to be stressed in teacher

education classes: "…integration of diverse educational philosophies and …personal experiences"; "modulating language use and task difficulty"; "understanding of students' families and their cultural backgrounds"; and "support for professional development" (pp. 339–340). Further, Menon, Viswanatha, and Sahi (2014, p. 61) point out, "The TE programmes could prepare prospective teachers to look critically at the way different languages are used in schools and to value their own, and their students', emergent capabilities with languages." It is important to understand that "teachers need time, knowledge and resources for authentic professional development" (Schmidt & Singh, 2011, p. 326). As argued in Chap. 9 in this volume, besides providing infrastructure and resources for training, what is also needed is providing an enabling environment for teachers to develop their own agency to make language and literacy meaningful and relevant in their classrooms. Keeping in mind the cultural context that values schools as "literacy-based information storage systems" (Kumar, 1993, p. 107), it is also important to challenge the dominant pedagogies that place value on rote memorization and copywriting rather than creating readers, writers, and critical thinkers in the classroom.

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Chapter 9
Situating Teacher Beliefs

Sunita Singh and Aparajita Bhargarh Chaudhary

Abstract This chapter explores teachers' beliefs regarding good early childhood education (ECE) and the contextual factors pertaining to the school and school community that might influence their day-to-day beliefs and practices. It uses interviews with 380 teachers across different types of schools (preschool and primary) in the three states of Assam, Rajasthan, and Telangana. The data were collected as a part of the Indian Early Childhood Education Impact (IECEI) Study. The results indicate that even with lower rates of education and training, many of the preschool and primary school teachers had high ideals for themselves and their students. They also talked about the benefits of preschool education although their perceptions on the kind of instruction varied. In contextualizing their beliefs and exploring the challenges that they faced, the teachers highlighted questions about teacher autonomy and agency.

Keywords Teacher beliefs · Early childhood education · Preschool curriculum

Introduction

The central role that teachers play in young children's education has been widely acknowledged (Jackson, 1968; Kaul, Chaudhary, & Sharma, 2014; Lortie, 1975). However, realities of schooling and teaching that determine the shape of classroom transactions mean that we have to understand teachers and teaching processes in their contexts. For decades, the evolving nature of schools demanded a change in teachers' role in addressing the changing populations of school students as more

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and more first-generation learners made their way into the school system (Ahmad, 1978; Ramachandran, 2004). This trend is continuing even today as we have more first-generation learners in classrooms thanks to the Right to Education (RTE) Act (2009) who are demanding quality schooling. The National Early Childhood Care and Education Policy and the National Curriculum Framework for Early Childhood Care and Education (GoI, 2013a, 2013b) provided the much-needed impetus for preschools to implement the required changes in instruction and learning. Additionally, an expansion of the provisions for preschools also led to children coming into the fold of the system at earlier ages thus adding to the challenges (see Chaps. 3 and 10 in this volume and Kaul et al., 2014).

The diversities that young learners bring into a classroom are often at variance with the instructional practices in the school (Ahmad, 1978; Moll, Amanti, Neff, & Gonzalez, 1992). This difference is especially evident in government schools where the social distance between the teachers and students is wide owing to class and caste differences (Ramachandran, 2004). The role of the teachers too has become far more challenging as they navigate between the school and young children (Ahmad, 1978), and differences in social class could also lead to conflict (Bourdieu, 1974). Teachers are ill-prepared for the diversity of "multiple childhoods" that children bring to the classroom and many times know little about teaching young children (NCERT, 2006). This disconnect is particularly evident in the case of first-generation learners. One of the challenges comes from the fact that the content is often based on a generalized understanding of the way children are (Kumar, 2004). Kumar also points out that educators can only understand a child's perspective in a limited manner as they do not have the same vantage point as the child.

A great deal of responsibility is placed on the teacher for implementing a curriculum that fosters children's capacity to learn and develop. This chapter presents some findings from the Indian Early Childhood Education Impact (IECEI) study (Kaul et al., 2014, 2017) that explains teachers' beliefs vis-à-vis their classroom/center practices and factors that influence them.

Teachers' Beliefs and Practices

Teaching is seen as a reflection of teachers' thinking and belief systems (Isenberg, 1990) and the beliefs and philosophies held by teachers have an influence on their classroom transactions (Fang, 1996). In his book *Life in the Classrooms*, Philip Jackson (1968) writes, "beneath the surface of classroom events lies the complex world of individual psychology" (p. 172). Teachers' actions in a classroom are influenced not only by their internal thought processes but also by external factors because the "physical, temporal, and social limits of the classroom have a constraining effect upon the events that might occur there if individual impulse were allowed to reign free" (Jackson, 1968, p. 13). Examining teachers' beliefs is significant because when teachers share their beliefs and understanding with other teachers or colleagues, it provides them an opportunity to explore their own teaching practices

(Clark, 1988). Thus, an understanding of the processes of teaching not only includes an understanding of teachers' thinking and beliefs, but it also an understanding of how these beliefs are formed, and how they influence instruction. According to Gupta (2008, p. 267), "educational philosophies and teaching practices are a factor of local cultural, social, historical, political and economic forces, and it is important to be mindful of the fact that people's lives in schools and classrooms are actually extensions of their lives in the larger society outside their schools." It is also necessary to understand the role that external factors play and their influence on teachers' beliefs as they impact life in a classroom.

Clark and Peterson (1986) present a reciprocal relationship between a teacher's thoughts and practices, with each influencing the other. An understanding of the teaching processes cannot be limited to an understanding of teachers' beliefs, the formation of these beliefs, and their influence on instruction. A teacher's belief system may also affect how children perceive the classroom environment and, thus, influence their performance in the class. A teacher has a major role to play in a child's life, especially in the early grades. Hence, many times, a child's environment alone may not explain his/her school performance (Ahmad, 1978). How a classroom teacher transacts the curriculum has a major role to play in a child's learning. The IECEI Study (Kaul et al., 2014, p. 137) points out:

> The success of any educational programme rests on the presence of an effective teacher who is trained for that particular stage of education, for transacting the curriculum appropriate for that stage and is interested and motivated to reach out to her students. This principle becomes even more significant at the early childhood and primary stages of education when the child is still very young and tends to idolize the teacher, is very influenced by the teacher's disposition and considers her/him as a role model. The teacher is, thus, the key to the quality of any ECE programme and an important indicator.

Researchers have long asserted that belief systems developed in the long process of teachers' own schooling are often stable and develop a resistance to change (Clark, 1988; Lortie, 1975; Zeichner, 1983). Batra (2005) points out that since teaching processes are determined by teachers' beliefs and assumptions, teachers may tend to follow the dominant pedagogic practices without questioning; sometimes even educational reforms that bring in a culture of critical thinking may be ineffective. However, the stability of beliefs can be addressed in college courses in pedagogy that explicitly challenge these belief systems (Borko & Putnam, 1996). Beliefs in teacher preparation programs need to be addressed because state policies, curricular frameworks, and teachers' notions of what is workable based on their own experience and education influence their decision-making (Davis, Konopak, & Redeance, 1993; Duffy, 1982; Duffy & Anderson, 1984; Fang, 1996). The role of contextual factors has been widely acknowledged. These factors include national and school administrative policies, the context of teaching and the school culture, parental expectations vis-à-vis their relationship with the teacher, and time and personal allocations to meet expected instructional and curricular requirements. Given that our goals for all classrooms, especially early childhood classrooms, center on providing quality instruction, teachers' professional qualifications and training are also central to their understanding of their profession.

The IECEI Study (Kaul et al., 2014, 2017) concludes that the program's quality is an important factor in determining learning levels among young children. In the IECEI Study, teachers are crucial for defining quality. While literature posits certain contextual factors that might influence teachers' beliefs and practices, educational background and pre- and in-service training have also emerged as critical for a disposition that focuses on creating a developmentally and contextually appropriate and democratic classroom environment (Kaul et al., 2014). This gets manifested in, among other aspects, encouraging self-expression among children, encouraging interaction among children, and sensitivity toward gender and toward children from socially disadvantaged communities. This chapter delves deeper into the major influences on teachers' beliefs and practices. It also examines some of these relationships, their interdependencies, and how they play out in teachers' professional lives.

Method

This chapter explores teachers' beliefs vis-à-vis the roles that they play and what is considered "good" early childhood education in preschools and early primary grades. It also discusses contextual factors pertaining to the school and the community that might influence teachers' day-to-day beliefs and practices.

The data for this study comes from interviews conducted with teachers in Strand B of the IECEI Study (see Chap. 2). The data was collected using the Early Childhood Education Quality Assessment Scale (ECEQAS) developed by the Centre for Early Childhood Education and Development (CECED), Ambedkar University Delhi (see Chap. 2). In all, the IECEI Study interviewed 380 teachers across different levels (preschool and primary) in three states covered in the study (Rajasthan, Assam, and Telangana). The interview protocol used with teachers teaching younger children comprised of questions related to understanding their educational and professional background along with the kind of assistance that they received from their institutions in terms of support and supervision. The questions on professional background focused on work profiles in terms of job responsibilities and distribution of time spent on different activities in the school. The questions also focused on limitations and factors affecting their work conditions. In addition, teachers' attitudes about teaching and learning were assessed with questions around "who is considered to be a good teacher?" The questions in the interview protocol elicited discrete as well as open-ended responses. The interviews were conducted in Hindi, Assamese, and Telugu and translated into English.

The study analyzed the data from the IECEI Study in three stages. In the first stage, data that provided discrete information was segregated from that which provided descriptive responses from the interview protocol and ECEQAS. In the second stage, the questions on single responses were analyzed using descriptive statistics. In the third stage, an initial coding of the interview data was done using open codes. After the initial coding, the codes were integrated into categories and

comparisons made across categories for underlying uniformities and contradictions for a thematic analysis (Bogdan & Biklen, 1992; Glaser & Strauss, 1967). During this stage, some questions on teachers' beliefs were compared with observational data on teacher practices in the classroom to examine the relationship between the two. The analysis of the teachers' interviews and survey data focused on trends in teachers' qualifications and experiences and estimated the beliefs of teachers teaching preschool classes and early grades. It further identified contextual factors and tried to understand teachers' views on assessment and their attitudes toward teaching and learning.

Results

This section first presents a profile of the teachers interviewed across the three states including their academic qualifications, pre- and in-service training, status of supervision and support, and characteristics. The next section presents teachers' beliefs regarding early childhood education (ECE) vis-à-vis the constraints that they faced.

Teachers' Profiles

This section presents a brief snapshot of the interviewed teachers across grade levels and across preschools/schools and how they perceived themselves in their settings. These include 6 anganwadi workers (AWWs), 56 private preschool teachers, 2 *Ka shreni* teachers, 5 madrasa teachers, 167 government primary teachers, 138 private primary teachers, and 4 teachers from a nongovernmental organization (NGO) ("known practice"). We focused on their educational qualifications, preservice training, and nature and systems of supervision. While the teachers' profiles are presented in quantitative terms, only qualitative data from the interviews was used to inform the other sections because the number of teachers in some school categories was low. Qualitative data was taken into account when deeper explanations for discrete responses were sought.

Academic Qualifications

Educational data indicates that teachers in government schools had lower levels of education than teachers in private schools (Fig. 9.1). In private preschools and schools more than half the teachers were graduates. The location of these schools, sometimes in remote villages, may be one of the reasons why teacher qualifications were distributed in this manner. While government jobs are more sought-after jobs, they are not easily available resulting in more qualified individuals working in private jobs.

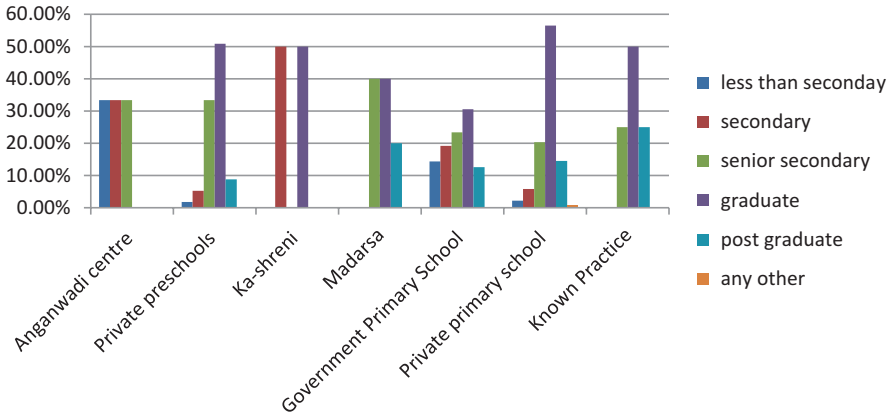

Fig. 9.1 Teachers' educational qualifications across different types of schools. (Source: IECEI Study)

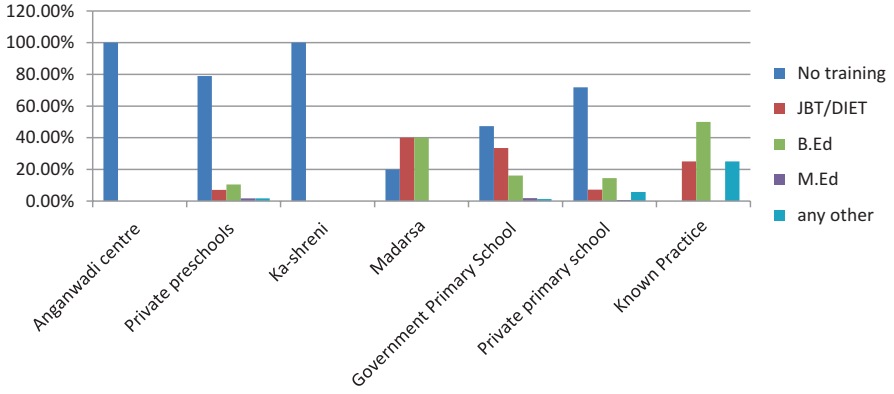

Fig. 9.2 Preservice training. (Source: IECEI Study)

Preservice and In-Service Training

The trends in preservice training indicate that teachers who taught preschool children had lower preservice training than those who taught primary grades (Fig. 9.2). For preservice, teachers were trained at the District Institute of Education and Training (2-year District Institute for Education and Training [DIET] Diploma after Class 12) or had Junior Basic Training (JBT Diploma), Bachelor of Education (BEd), or Master of Education (MEd). More than 80% of the teachers in the private preschools had no previous training and neither did the AWWs (even though their numbers were very low).

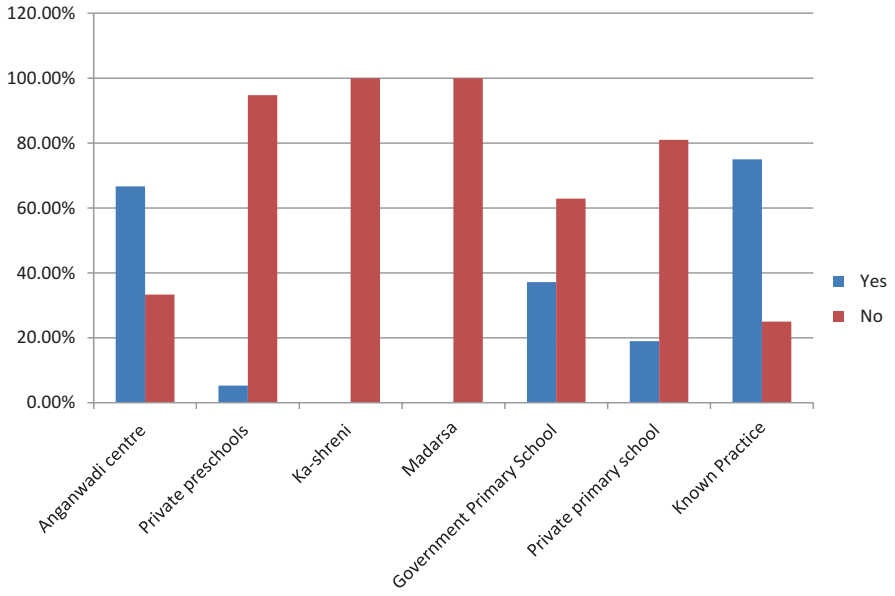

Fig. 9.3 In-service training. (Source: IECEI Study)

When it comes to in-service training (Fig. 9.3) government school teachers received more in-service training than the others. According to the IECEI Study (Kaul et al., 2014), approximately 20.3% of the AWWs had received some kind of job training or initial training at the anganwadi training centers (AWTCs) for a month. This training, however, focused on preschool education only for about 5 days since it was intended to prepare the AWWs to serve as multipurpose workers and included content on health, nutrition, and community participation as well. However, this is not sufficient for providing quality early childhood education to young children on an ongoing basis. Private preschools had little or no training available.

Figures 9.1, 9.2 and 9.3 present a rather bleak picture of preschool teachers' preparations as they step into the classroom and take up the various responsibilities assigned to them. Minimum training puts teachers at a disadvantage and influences the quality of support that they might be able to provide to young children. It is also interesting to note that professional qualifications of teachers who are trained indicate that they had been prepared for elementary and secondary levels and not for preschool teaching. A study conducted by CECED (2010, p.6) explains this situation as, "It is popularly believed that people working with young children require minimal training and at best need to be prepared to be fun loving, playful and caring towards young children." The study recommends making changes in this scenario. A report by National Council of Educational Research and Training (NCERT) (2009) taking stock of teacher education programs at various levels says that while

the significance of early childhood education has been realized, teacher preparation for this sector is still very uneven. It recommends systematic and organized training programs for preschool teachers.

Status of Supervision and Support

Figure 9.4 presents an overview of the status of supervision across grade levels. As can be seen in the figure, supervision was available across most schools with the highest levels in the "known practice" centers/schools. While the data does not explain the type of supervision—in the known practice schools, available qualitative data indicates that supervision was more in the form of intensive mentoring and on-site support to teachers. These schools believed that teachers were central to the education process and could serve as change agents in the community and so invested in their ongoing supportive supervision at all levels (Chaudhury, Shukla, & Tomar, 2013).

Structurally, the anganwadis have an entire cadre of supervisors over a cluster of 20–25 anganwadis and a Child Development Project Officer (CDPO) who are expected to visit the anganwadis on a monthly basis. However, the nature of supervision was reported to be more administrative. According to an AWW in Rajasthan, "the ICDS officials come. They are here for the whole day and they only check the registers." Another said, "the CDPO supervises us. Sometimes, he also tells us what to do based on the training he has received." Other responses indicated similar trends. The AWWs also said that while some supervisors provided support and guidance during supervision, most focused on checking the registers.

Primary and preschool teachers in private schools were also asked about the kind of supervision that they had received. Most of them talked about occasional

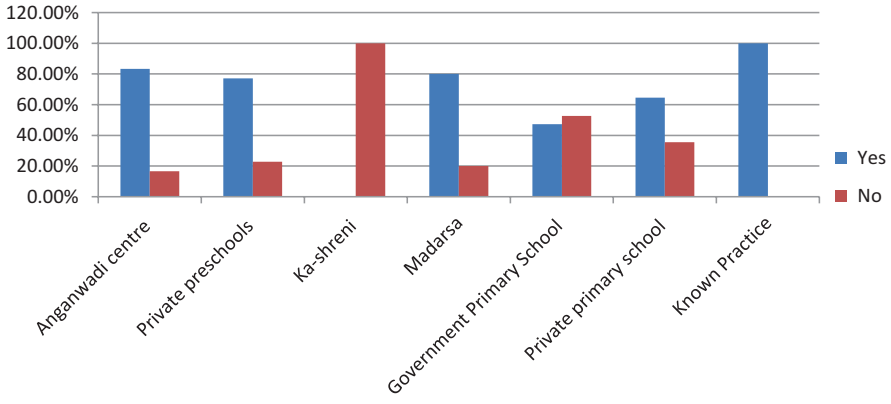

Fig. 9.4 Supervision of teachers. (Source: IECEI Study)

supervision by the principal or the school head ranging from 15 min to an hour, in many cases, on a daily basis. According to one teacher in a private school in Assam, "the principal supervises by going to the different classes and observing how teaching is going on." Another teacher said, "the school principal gives instructions and guidance after a 30-minute observation, almost daily." In Andhra Pradesh, a government school teacher said, "the Block Officer comes to the school to check the administrative records and children's performance." Thus, some supervision was available across settings; however, the nature of this supervision was largely administrative, and it covered monitoring only in some cases to see if the teacher was doing his/her job and did not provide academic supervision and support. The impact of this on the quality of classroom transactions is documented in detail in Chap. 7 with an emphasis on teacher-directed rote and repetitive learning in the classroom. The exception is the known practice centers because the quality of teachers' supervision was reflected in classroom quality in these centers which were much more child centered and constructivist in approach. This was largely attributable to the availability of on-site mentoring on a regular basis. In contrast, the other schools reflected more teacher-centered practices (Kaul et al., 2014).

Teachers' Characteristics

Teachers' perceptions about their roles and responsibilities are also a major factor that influences their beliefs and practices. The IECEI Study explored the qualities necessary for teaching in particular settings across grade levels. The teachers cited personal traits, ability to demonstrate child-centered pedagogy, and the need for improving their own knowledge for instruction as important aspects. Most of the teachers across all grade levels also cited "punctuality," "good personality," "patience," "ability to work at the level of the children," and "good behavior" as important teacher characteristics.

According to a government primary school teacher in Telangana, "a teacher should be punctual, patient, should be able to answer children's questions, and be a role model." Another teacher said, "a good teacher is one who takes care of the children as her own children and is friendly with them. She should be able to solve their problems by identifying them, observing the children, and helping them out." These comments illustrate a teacher's role as a "caregiver." Many of the teachers considered addressing children's needs to be an important part of their role. Children's behavioral changes were also perceived as teachers' responsibility. A private primary school teacher in Rajasthan said, "the teacher should be able to change a child's behavior from bad to good and improve children's attitudes and knowledge." Although she did not elaborate on what she meant by "bad" and "good," other teachers too referred to similar ideas across grade levels. According to a teacher in a private school in Assam, "a teacher should understand children, should be able to use different techniques to make them learn, especially those who are slow in learning. She should have patience and she should encourage children

through different activities and motivate them; sometimes she should be firm to discipline them." Some teachers also focused on the need for better training to improve their own capacities.

While teachers' responses on their perceptions of a good teacher varied, the data indicates that most of the teachers focused on personality traits. The overt focus on personality and behavior traits indicates that several teachers believed that personality was a key for becoming an early childhood teacher or a teacher for primary grades. They seemed to be conforming to the notion that liking children, being a mother or caregiver, and being good natured were adequate qualifications for a teacher who taught young children (Batra, 2005; NCERT, 2006).

Teachers' Beliefs

This section focuses on teachers' beliefs regarding ECE and the constraints that they face. It also compares these beliefs with classroom practices.

Teachers' Beliefs About ECE

One of the questions that the teachers were asked was about their own beliefs regarding what they thought about early childhood education, especially in the anganwadi centers. Overall, most of the teachers believed that children as young as three-and-a-half years old and four-and-a-half years old should be attending a preschool (Kaul et al., 2014). According to most teachers, children who had attended anganwadis before coming to school showed more familiarity with the school environment; had better abilities to focus on a task; and had better development of cognitive, social, and emotional skills (Fig. 9.5).

According to a teacher in a government primary school in Assam, "children who attend preschool are more familiar with the school environment since they can perform better than those who have not attended preschools…children who were in preschool maintain regularity in the formal school." In Rajasthan, a teacher in a private preschool said, "in an anganwadi center, children learn to control their emotions and they know how to be disciplined in the class." Teachers across different types of schools also indicated that children who attended preschool were "ready for formal school." One teacher said, "children definitely perform better because they had formed some base of education in the anganwadi center and we do not have to start from scratch. They understand and grasp concepts quickly."

Teachers were also asked if the curriculum in a preschool was different from that in the primary grades. Figure 9.6 shows that several teachers perceived the curriculum at the two levels to be the same. Many teachers also talked about some of the academic work that was done in the anganwadi centers. One teacher in Telangana said, "for pre-primary, we do oral drilling, reading, and writing of numbers; letters

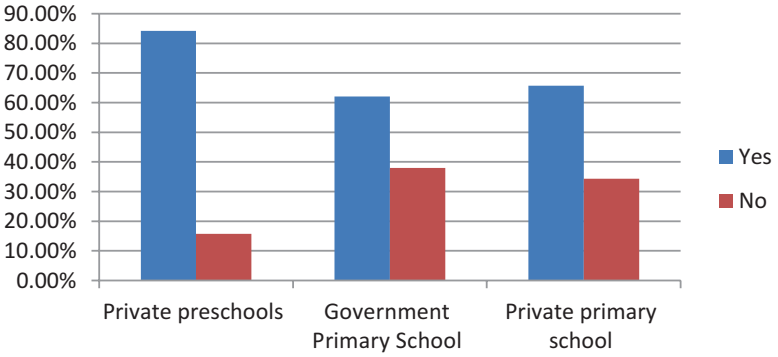

Fig. 9.5 Better performance of children from anganwadis during later schooling. (Source: IECEI Study)

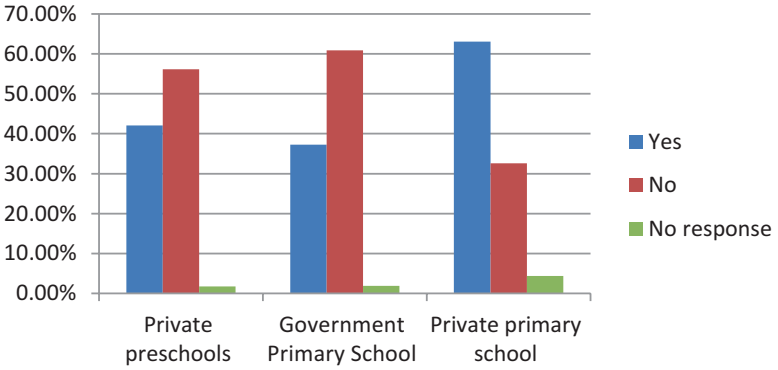

Fig. 9.6 Differences in curriculum between preschool and primary. (Source: IECEI Study)

and small words; and for primary we use textbooks, sentences, etc. There is a difference in the duration of the schools." A few teachers said that there was no point sending children to anganwadi centers because "nothing happens in the anganwadi centers… children do not know the basic colors, shapes, or the alphabet."

Several teachers also drew a distinction between preschool and primary grades when they said that in preschools the instruction was through "play way," "oral," and "informal" means and in primary grades it was "preparation for formal schooling," "focused on textbooks," and "writing and reading." Overall, one can see that while most of the teachers said that children who had ECE were better prepared socially and emotionally for school, perceptions about the kind of education provided in preschools varied, with several centers focusing on "formal" ways of teaching and learning. One of the reasons for this could be that in private preschools, the same teacher often taught the preschool and primary sections. This also points to the overwhelming demand for "formal schooling" even at the preschool level.

Teachers' Beliefs and Practices

This section focuses on teachers' beliefs regarding some classroom practices and their actual classroom practices from the ECEQAS observation data. This section explores three aspects—children asking questions in class (Figs. 9.7 and 9.8), use of corporal punishment in the classroom (Figs. 9.9 and 9.10), and children making mistakes (Figs. 9.11 and 9.12).

When teachers were asked if it was okay for children to ask questions in the classroom, most of them responded positively (Fig. 9.7). However, when the same teachers were observed in the classroom, it was seen that children either did not ask questions or were not allowed to ask questions or they asked questions only for clarifications or doubts regarding what had already been taught (Fig. 9.8). Very few children actually asked questions to explore the content in detail (see Chap. 8 on Language and Literacy). This indicates a disconnect between teachers' beliefs and their classroom practices. This can be attributed to low levels and poor quality of training and supervision received by most of the teachers across grade levels. Alternatively, it could also be an attribute of the teachers' own classroom experiences. According to Kaul and Sharma (2017, p. 40), "…an example of the cultural dissonance between western thought and Indian belief systems is the clear divide evident between the current policy prescriptions for pedagogy informed by Euro-western theorists, such as Piaget and Vygotsky, and actual classroom practices. These again reflect the cultural dissonance with the pan-Indian understanding of process of learning as 'handed down', or as a process of knowledge transmission from teacher to taught, rather than that of co-construction." The teachers who were interviewed and observed seemed to demonstrate the same attitude.

The second aspect that was explored was use of corporal punishment. Although the Right to Education Act (Government of India, 2009) was supposed to be followed by all schools, many did not do so (Figs. 9.9 and 9.10). Section 17 of the Act prohibits physical punishment and mental harassment of children. While a larger

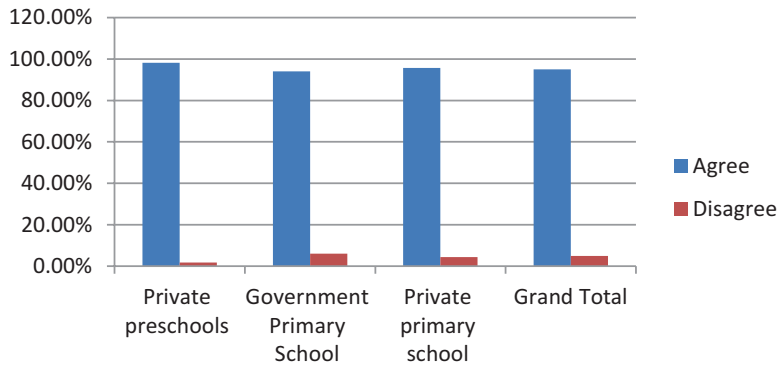

Fig. 9.7 Teachers' beliefs about children asking questions. (Source: IECEI Study)

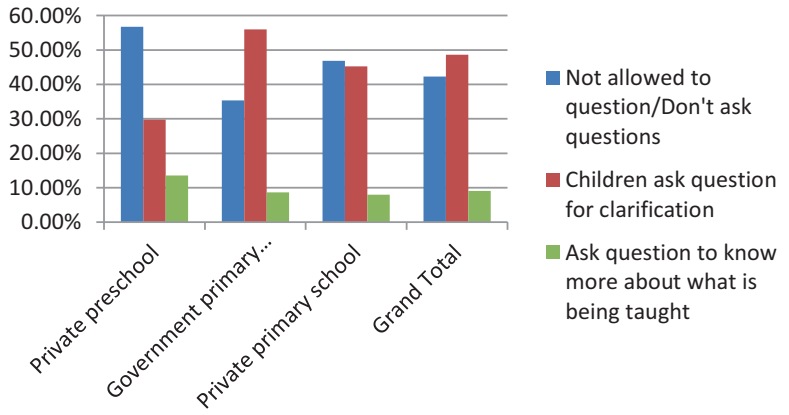

Fig. 9.8 Teachers' practices regarding children's questions. (Source: IECEI Study)

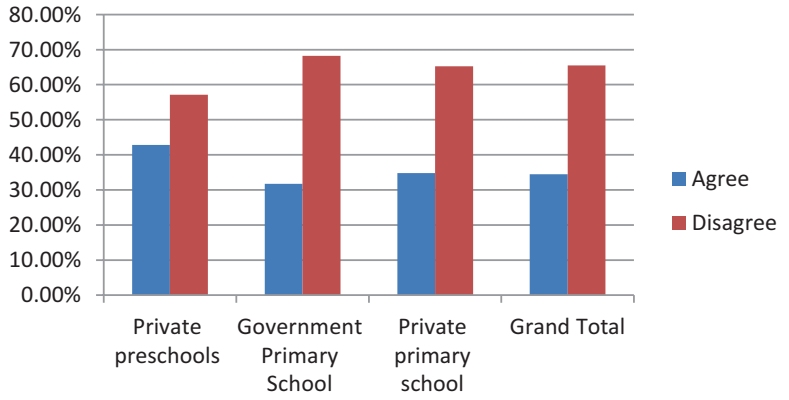

Fig. 9.9 Beliefs about the use of corporal punishment. (Source: IECEI Study)

percentage of teachers believed that it was not okay to use corporal punishment, at least 30% of the teachers were observed practicing it. Since parents paid fees in private schools, they demanded more accountability from the school. They followed-up with regular visits, especially when they were called by the school authorities. The parents also allowed schools to use any means to make their children learn. According to a government school teacher in Rajasthan, "corporal punishment should not be given to the children; we should find some way to discipline them. Otherwise, they don't learn and they also don't fail! If they don't learn they should fail. We should also find new methods for teaching." Thus, it seemed that the teachers had little resources that they needed for providing better quality instruction. This reflects some teachers' inability to revisit their beliefs about how children

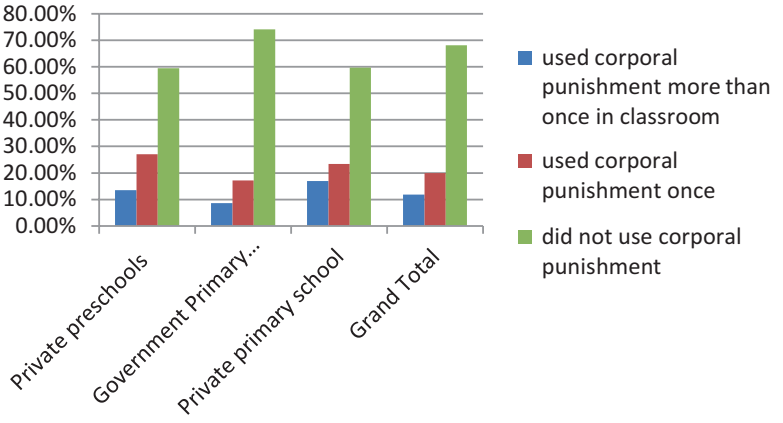

Fig. 9.10 Use of corporal punishment in the classroom. (Source: IECEI Study)

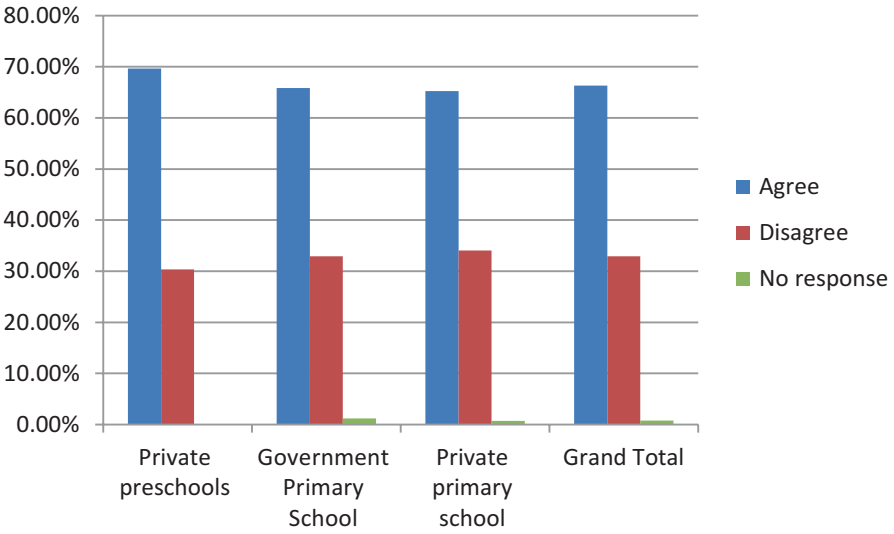

Fig. 9.11 Beliefs that children making mistakes are okay. (Source: IECEI Study)

learn; they also could not imbibe new shifts and ideas in policy easily. This highlights the need for more interactive engagement with teachers to translate policy into practice.

The third aspect that was explored was if it was okay for the child to make mistakes (Figs. 9.11 and 9.12). While most of the teachers agreed that children could make mistakes and it was a part of their learning, more than 50% of the teachers either scolded children when they made mistakes or did not react or respond to the mistakes.

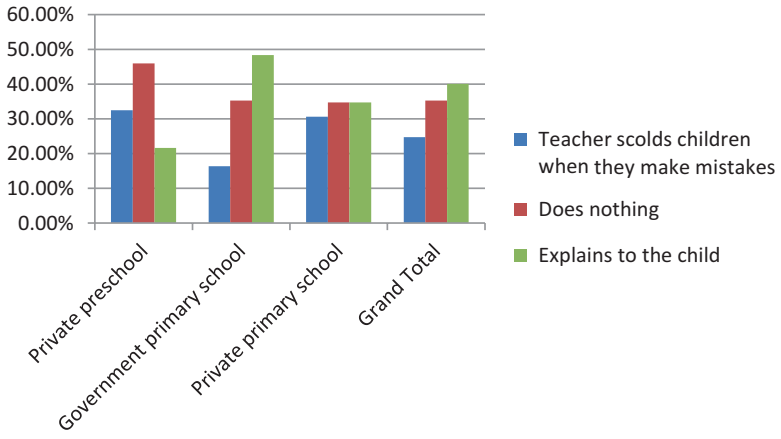

Fig. 9.12 Teachers' practices when children make mistakes. (Source: IECEI Study)

These three aspects provide some key insights into teachers' beliefs and classroom practices. However, data for all the three indicates that teachers need to be provided with more support in their classroom transactions to implement more child-centered practices. To challenge teachers' existing beliefs, engagement by way of discussions on these aspects during training and supervision is critical.

Constraints Faced by Teachers

This section focuses on the constraints faced by teachers while teaching across the different types of schools (Figs. 9.13 and 9.14). In addition to the type of challenges faced by the teachers, the data also gives the types of tasks that the teachers performed in schools (Fig. 9.15). Teachers responded to more than one type of challenge in the activities that they engaged in (Figs. 9.14 and 9.15). Most of their responses centered on lack of adequate teachers, infrastructure requirements, curricular needs, and inadequate cooperation from parents.

The need for more teachers was echoed by teachers across the three states and in different kinds of schools. According to a teacher in a government school in Rajasthan, "school's lack of teaching staff is the biggest problem. If the other teacher has to go out for any work then I have to take care of everything in his absence." Even in private schools, teachers had similar responses as they talked about large class sizes or needing more teachers in schools. According to Kumar (2016) just the elementary schools across the country lack 1.3 million teachers in spite of RTE norms. They often hire contractual teachers who may not be as invested in their current positions. Many of the teachers in government schools indicated that

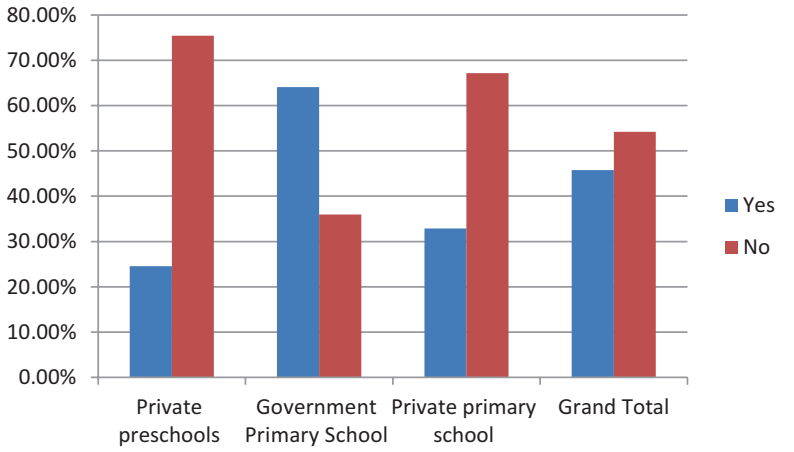

Fig. 9.13 Difficulties faced in the profession. (Source: IECEI Study)

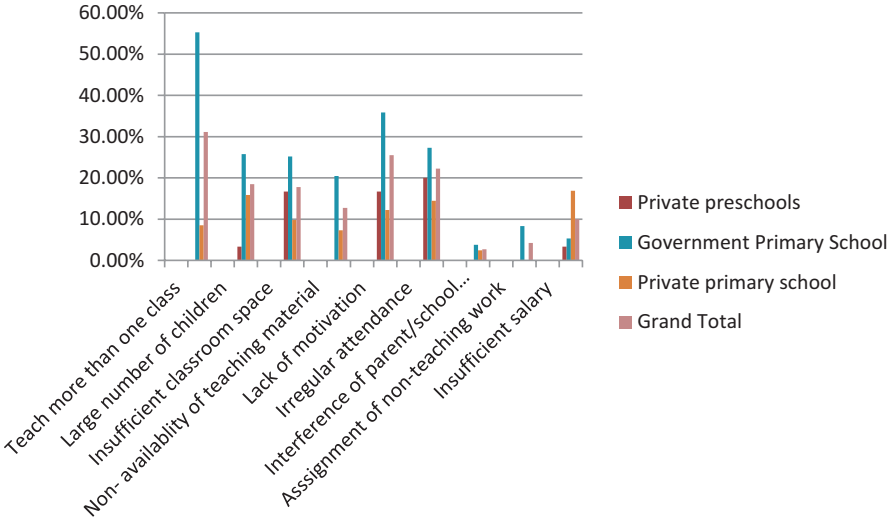

Fig. 9.14 Types of challenges faced by teachers. (Source: IECEI Study)

they faced difficulties in their jobs. This could also be because of the added responsibilities of not just teaching, but also being assigned work outside the school and taking care of the mid-day meal (Fig. 9.14) due to staff shortages. The teachers pointed to the lacuna in the number of teachers' necessary for providing instruction and the additional burden that this led to.

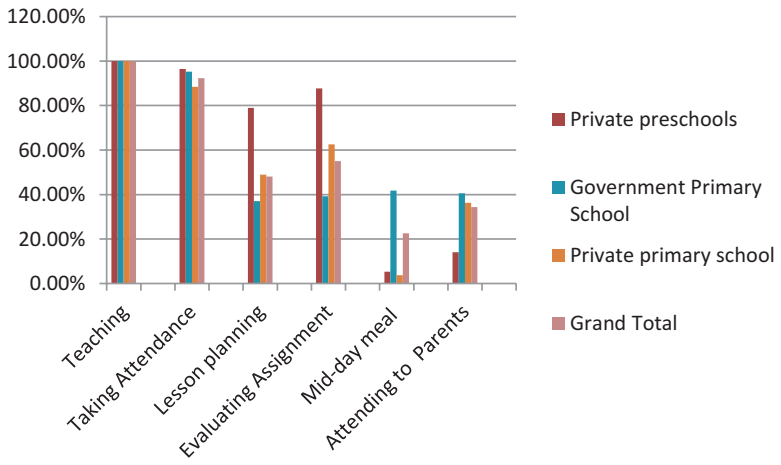

Fig. 9.15 Time spent on various activities. (Source: IECEI Study)

Lack of proper infrastructure was another big challenge faced by the teachers in transacting the curriculum in all the three states. According to a teacher in a government primary school in Assam, "building new classrooms is very necessary for conducting the classes smoothly. When it rains, water comes into the classrooms." A government primary school teacher in Andhra Pradesh pointed out that the "government primary school needed a boundary wall and an office room otherwise the school was not bad." Another teacher said that they needed, "a kitchen garden, proper floors, ceiling, proper building, class-wise classrooms and teachers, and also electricity in the school." The dismal infrastructure in schools is well documented in literature as well, especially in rural schools (Rao, Cheng, & Narain, 2003).

The teachers also identified several challenges related to the transaction of the curriculum. In Fig. 9.15, it is important to note that while all the teachers identified "teaching" as an activity they all engaged in, only 50% of the teachers indicated spending time in creating lesson plans; this is less than the time spent in taking attendance and evaluating assignments. While several teachers did not indicate any challenges related to the use of textbooks or the curriculum itself, several pointed to the need for more teaching-learning materials (TLMs) for a more robust curriculum. Several teachers cited the lack of facilities in their schools and an overt focus on textbooks. According to a private school teacher in Telangana, the program should include extracurricular activities related to physical exercise/development, music and movement, games, and dance. When children are involved in activities, they feel active, motivated, and relaxed. However, when the whole day is filled with mechanical learning, children do not learn that well. Hence, more learning materials were needed so that there was less use of textbooks.

A teacher in a government school in Assam said, "the program is based on mechanical learning. The curriculum has no extra-curricular activities which is

boring for children and me also because I have to teach the same thing for the whole day, daily with no relaxation in between." A teacher from a private school in Rajasthan said, "there is lack of facilities in the school. I think the play way method is good for children's learning. But we have no resources in the school. Wherever there is lack of resources, it hinders the growth of a child." According to another teacher, "more teaching aids are required for children to visualize and learn the concepts."

These comments indicate a lack of agency among the teachers; they are also an indication of the systemic challenges in implementing a desired curriculum and finding support for pedagogy that supports children's learning in the class. Moreover, the question of curriculum is a critical one for ECCE. The CECED study (2010) posits a dilemma in prescribing a centralized curriculum as opposed to providing an adaptable curriculum framework. It says that while the second option (of providing an adaptable curriculum framework) might be more adaptable to the diverse contexts of the country, the availability of trained professionals and mentoring support will be a necessity for this to be adapted and contextualized across the country.

Several teachers also pointed to the need of parental support in the school. However, it is interesting to note that less than 40% of the teachers reported that they were able to engage with parents. Some teachers, especially those who were from the community, knew the parents of most of the children in their classes and were sometimes able to interact with them. Other teachers talked about a disconnect between what was happening in the school and parents' engagement. A teacher from Andhra Pradesh said, "parents should also get involved with the school activities." The literature too discusses the engagement of families and schools for the education and well-being of children (Singh, Sylvia, & Ridzi, 2015). According to Gupta (2004, p. 375), the reasons for success in classroom experiences where she was conducting her research were, "a result of the attitudes and dispositions of the teachers, administrators, parents, and students."

Thus, while teachers had high "ideals" for themselves and also aspired for their children's progress, they also reported several systemic issues that influenced their lives in school. They talked about basic infrastructural requirements and lack of support in transacting the curriculum. These are an indication of how teachers' beliefs might not translate into practice due to these constraints. It is also important to note that several practices were observed that may not be in consonance with what is proposed as desirable practices for young children. This could be because of lack of awareness or agency in implementing these practices.

Discussion

One of the key reasons for identifying teachers' beliefs and how they may relate to practices is also a way in which students can be enabled to perform better. It is therefore critical that one moves away from a process-product approach to understanding "teacher effectiveness." Some studies show the possibilities of adverse

effects of programs that highlight teachers' incentives and accountability based on students' scores (Cullen & Reback, 2006; Neal & Schanzenbach, 2010). In fact, providing incentives to teachers who are better qualified and better trained may help a school to be more effective (Muralidharan & Sundararaman, 2011). Given the realities of teacher preparation in the Indian context, there is a need for creating teacher leaders who can change the school culture by taking on responsibilities of curriculum development and capacity building (Murphy, 2005; Sachdeva, Kaul, & Paranjpe, 2018). The idea is for teachers themselves to become agents of change (Batra, 2005; Sachdeva et al., 2018).

This study shows that major reforms for quality schooling practices include formulating national policies and curriculum frameworks such as the National Curriculum Framework (NCERT, 2005), Right to Education (2009), and the National ECCE Policy and Curriculum Framework (2013). However, observations of curriculum transactions in the classroom reveal a different picture from these documents' vision. For example, the entire constructivist approach and developmental appropriateness of the curriculum emphasized for pre-primary and early grades in the National Curriculum Framework do not get implemented across many preschools and primary schools; in fact, many teachers had not even heard about it. In the case of RTE too, while corporal punishment is not permissible, teachers still believe that it is okay to use corporal punishment and also use it in the classroom.

Teachers' beliefs are shaped by their knowledge and self-efficacy, and these influence and guide their practices. Classrooms serve as grounds for testing teachers' beliefs, in part because of external factors including curricular demands, level of administrative support, material availability, grade level, and the number of children in the classroom. These can be a constraining force in the actualization and maintenance of one's beliefs over time and may not always be predictable (Singh, 2007). This study points to some unique challenges for teachers. First, low educational levels and the training and mentoring of teachers pose systemic challenges in the implementation of a child-centered curriculum. The study found that existing supervision was uneven across different schools. These factors indicate that even if the teacher had high ideals for implementing a meaningful curriculum, without additional support there was little that she/he could do. Teachers across settings also pointed out various challenges related to basic infrastructure requirements and training needs. Challenges in implementing a desired curriculum were cited across the board. In fact, the requirements mentioned by the teachers were minimal. Without these and with little supportive supervision, instruction remains confined to textbooks and rote learning.

One aspect that we do not explore fully in this chapter is the fact that the schools where the study was conducted were rural, hence, the facilities provided in these schools or lack thereof could be an outcome of the location of the schools (Ramachandran, 2018). Second, class differences between the teachers and students could lead to inequities, especially in government schools; these have already been documented (Ramachandran, 2004, 2018).

This study also highlights aspects of supporting teachers' beliefs in the context of instruction. To enable teachers to support themselves in the classroom, teacher

education programs for all levels need to work with teachers to understand their existing situations and goals and to understand how they can realize these on their own. Teachers can be prepared to examine their beliefs and see how their ideals can be implemented. Teacher education programs need to engage teachers on their beliefs not only related to content and issues of classroom management but on leadership in a larger educational context to provide students with tools that can reshape their context (Singh, 2007; Schmidt & Singh, 2011). Although the study also points to minimal training and educational levels (especially for preschool classrooms), more advocacy for improving the professionalization of the teaching profession even at the pre-primary level needs to be in place. Sachdeva et al. (2018) highlight the need for creating enabling spaces for teacher autonomy at the macro and micro levels. They also advocate for providing support through regular mentoring.

This study also points to the limited support received from parents and limited parental involvement in preschools and schools. Programs can incorporate preparing teachers to play an active part in preschool/school reforms. In this way, teachers can learn to work not just with the children in the classroom, but also collectively with the school community with a focus on collaborative learning and on coalition building across classrooms and schools. While teaching they can focus on remaining organically connected to their classroom and school, their students and families, and their colleagues and communities.

The CECED (2010) study highlights the inequitable distribution of teacher training institutes for the training of ECCE teachers, an inadequate number of institutions recognized by NCTE, and also inadequate qualifications of teacher educators. The National ECCE Policy (2013) points to the need for comprehensive training and capacity building for all ECCE professionals. In addition to an increase in the number of training centers, goal must be set for training centers, colleges, and universities in teacher education to prepare preservice teachers for the multifaceted realities of the classroom.

The National Curriculum Frameworks (NCERT, 2005; GoI, 2013b) talk about constructive pedagogy in the transaction of the curriculum for early childhood and elementary years. However, just providing training, infrastructure, and supportive materials will not result in a change in beliefs from a perspective of transmitting knowledge to the coconstruction of knowledge (Kaul & Sharma, 2017). Teachers' beliefs about teaching also flow from their own experiences, both personal and professional. These points to the need for activating teacher agency and autonomy and their participation in policymaking. Coursework/training during programs should focus not only on knowledge about the pedagogical content as Shulman (1986) discusses, but also reflect the larger politics and organizational structure of preschool/school education. This increase in self-efficacy and adaptability will allow educators to address the needs of their diverse student populations (Fullan, 2003). An enabling environment which instills critical thinking and makes teachers more aware and confident of contributing to policymaking is critical for a change in beliefs and any meaningful reforms.

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Chapter 10
Are Schools "Ready for Children"? Assumptions and Ground Realities

Suman Bhattacharjea

Abstract The concept of "ready schools" implies that schools recognize and engage with the characteristics and needs of the children they aim to educate. But as school systems grow in size and reach populations with little or no prior experience of schooling, the notion that schools should aim to understand, communicate with, and respond to individual children and their families seems to be moving further and further out of reach. This chapter uses data from the India Early Childhood Education Impact (IECEI) Study and the Annual Status of Education Report (ASER) to examine two basic assumptions about how the school system is structured, not only in India but around the world and the extent to which these are valid in the Indian context. The first assumption is that children in a given grade are roughly the same age, and the second is that children in a given grade are at roughly the same learning level. Based on this evidence, the chapter concludes that schools in India are far from "ready" to help children learn.

Keywords Ready schools · Early childhood education · Transition to school · Early years

Introduction

> Our nation is in the midst of a major education reform movement and a major effort to build a new system for serving preschool children and their parents. Our public education system is searching for models and strategies to improve the quality of teaching and learning in classrooms, and to enhance the contribution of education to our economic growth and social welfare. At the same time, the early childhood community has developed a comprehensive vision of the components of effective services for young children and their families. (…) Both efforts are aimed at enhancing school success and overall development of children. (…) However, the two movements have largely separate origins and leadership. – National Association of State Boards of Education (1988). *Right from the start: Report of the NASBE task force on early childhood education*, p.vii

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A first-time reader of these words might be forgiven for thinking that they were written in and about the current-day Indian context, where despite the flurry of activity in the education sphere in recent years, the preschool and elementary school sectors continue to be largely distinct domains of policy and practice, so much so that they were traditionally handled by separate ministries in the Indian government.[1] In fact, the text quoted above was published 30 years ago (in 1988) in one of a series of landmark reports that were among the first to highlight the urgent need for collaboration and continuity between early childhood education programs and primary schools in the United States. A decade later, the concept of "ready schools" came into its own with the release of the US National Education Goals' Panel Report on Ready Schools (Shore, 1997). The concept now informs the thinking of a wide range of actors seeking to improve support systems for young children, from influential international nongovernment organizations such as UNICEF (see, e.g., UNICEF, 2012) to the Indian government via the curriculum framework for early childhood care and education (GoI, 2013).

The deceptively simple idea behind the concept of "ready schools" emerged from theories of child development that viewed children's learning as the product of an interactive process between a child and her social, cultural, and economic context. Variants of this basic idea were articulated by Vygotsky in his social development theory (Vygotsky, 1978) and by Bronfenbrenner in his ecological theory of child development (Bronfenbrenner, 1979), among others. One key lesson for educational practice that emerges from these social constructivist theories of learning is that it is not only children and their families who need to adapt to the demands of the formal institution called "school" (i.e., become "ready for school") but equally that schools should be "ready for children." In other words, to facilitate children's learning and development, schools need to be structured so as to be able to recognize and engage with the characteristics, interests, and needs of the children that they aim to educate to ensure a smooth transition for children and upward continuity of learning.

That education systems should provide the flexibility for individual pathways through the curriculum is not a new idea in either Indian or western educational philosophy. In India, this basic principle has been articulated in different ways, for example, in Gandhi's belief in "correlated teaching" that would draw on the child's environment for ways of exploring topics or concepts, or in Aurobindo's model of "integral education" that views each child as an individual who will determine the direction and pace of his or her own learning. The need to engage with the question

[1] This situation is changing even as this book goes to press. Historically, school education was the responsibility of the Ministry of Human Resource Development (MHRD), whereas early childhood education came under the Ministry of Women and Child Development (MWCD). Very recent policy changes, most importantly the establishment of the MHRD's Samagra Shiksha Abhiyan with the objective of bringing all stages of education from preschool through Grade 12 under a single, unified umbrella, are already beginning to alter this landscape with the establishment of a 2-year preprimary class within primary schools. Exactly how this national level policy shift will be reflected in the programs and responsibilities of the different institutions on the ground is yet to be seen.

of *systemic* readiness to provide appropriate environments for children grew more important as education systems grew larger and more diverse, because this required looking beyond the boundaries of each individual institution – family, preschool, primary school – to ensure a smooth transition between home and school as well as between the early childhood education center and the school. Crucially, this required formulating strategies for active coordination and collaboration between parents, early childhood education (ECE) providers, and primary school teachers. To date, other than the IECEI study, few robust studies on ECE have been conducted at scale in India (see Chap. 2 in this volume for a review of the available research). Much of the research evidence on the subject of "ready schools" therefore stems from western country contexts which examines the different ways in which schools can work collaboratively with parents and ECE providers, focusing on transition practices that ensure the best developmental outcomes for children (see, e.g., Perry, Dockett, & Petriwskyj, 2014).

A parallel development in the 30 or so years since the concept of "ready schools" first started being discussed in academic and policy circles was the rapid expansion in the size of education systems around the world. The World Conference on Education for All held in Jomtien, Thailand in 1990 saw the emergence of an international consensus on the goal of achieving universal primary education, initially proposed to be achieved by 2000; this agreement was later reflected in the Millennium Development Goals (MDGs) to be reached by 2015, and more recently in the Sustainable Development Goals (SDGs) for 2030. Countries around the world have invested significant efforts in expanding the reach of primary schooling, with sharp increases in school facilities and enrolments. India is no exception to this trend: between 1975 and 2015 the number of schools more than doubled in India, as did primary school enrolments. In 2016, India had more than 800,000 primary schools serving 130 million students in Grades 1–5 alone (MHRD, various years), and 97% of the children in the 6–14 age group were enrolled in school even in rural India (ASER Centre, 2017).

One consequence of these two parallel trends is that the gap between what child development theory advocates and what schools provide seems to be growing. Although an expanding body of research enables an understanding of what constitutes optimal learning environments for young children to become ever more fine-grained, the expansion in school systems to include populations with little or no prior experience of schooling has meant that the needs that schools are expected to address have diversified enormously. As more and more children enter school, the pressure to create ever more standardized norms and processes has grown more intense, and schools' ability to understand, communicate with, and respond to the needs of individual learners and their families seems to be becoming steadily weaker.

Expressions of this gap between what theory advocates and what schools actually provide can be observed at the level of both policy and classroom practice. At the micro level, for example, the fact that large numbers of first-generation learners are entering the school system can result in increased social distance between teachers and students, making natural empathy between the two more difficult (Rawal &

Kingdon, 2010). Similarly, teachers' attitudes toward disadvantaged or minority groups may influence their expectations of what children from these populations can achieve, thereby influencing their school experiences and outcomes (Hanna & Linden, 2009). These situations reflect exactly the opposite of the collaborative parent-teacher relationships recommended to support children's successful transition from home to school. At the policy level, one outcome of this worldwide growth in school-going populations has been the steadily expanding influence of the private sector in offering "global" solutions that often frame educational change through the lens of better management systems rather than better teaching-learning processes (Ball, Junemann, & Santori, 2017), especially in contexts like India where this growth has taken place alongside an expanding economy.

One aspect of "ready schools" has to do with ensuring that children feel socially and emotionally comfortable; this requires the transition between home/preschool and the primary school environment to be as seamless as possible. But there is also the question of whether schools are structured in ways that help children transition to the world of formal academic learning – an issue that has less to do with their socioemotional status than with children's cognitive development and needs. Critical to schools' readiness for children is their ability to structure their resources (people, time, space, materials) as needed to understand and build upon the experiences, skills, and abilities that children bring with them. This basic principle of constructivist pedagogy is important throughout schooling, but perhaps never more so than in the initial months and years when the foundations for all future learning are built. It is this specific aspect of schools' readiness for children that this chapter focuses on.

The extensive research evidence on how schools can do a better job of delivering the outcomes they are intended to generate can be broadly classified into two kinds. At one end of the spectrum, a range of studies have examined the interactions between teachers and students, often evaluating the extent to which schools provide the kind of teaching-learning environments that are advocated by theory and/or policy. These are often relatively small scale, primarily qualitative studies that focus on documenting and unpacking interactions mainly if not exclusively within the classroom. Today, there is a wealth of research that aims to understand the "black box" of classroom processes and thus explain (and therefore potentially influence) local action (for India see, e.g., Clarke, 2003).

At the other end of the research spectrum, large-scale studies have focused on identifying specific school characteristics that are associated with better student outcomes. For more than half a century, extensive literature on "effective schools" aimed to answer big picture policy questions about the best inputs or combination of inputs that lead to better outcomes for children (e.g., Glewwe, Hanushek, Humpage, & Ravina, 2011). Because this literature focuses on school and system characteristics that can be measured reliably on scale, it often ignores classroom process altogether – though there have been attempts to quantify and thus scale up the measurement of classroom interactions as well (e.g., Abadzi, 2009; Schaffer, Nesselrodt, & Stringfield, 1994; Stallings, 1977).

This body of research is substantially in agreement that improving the nature of student-teacher interactions in the classroom is key to ensuring better experiences and outcomes for children. But while classroom processes and pedagogy are of course critically important in the context of "ready schools," for the most part research has not empirically examined some very basic assumptions about how the school system is structured and the relevance or appropriateness of these assumptions for the local context. Most developing-country education systems are modeled on that of western countries. The so-called factory model of education defines a set of standardized processes that begin with schools taking in children at a given age and, some years later, producing educated young people on a given schedule (or "made by date," popularized by Sir Ken Robinson in his now famous TED talk).[2] But as school systems expand, some of the key design characteristics of this model begin to break down, with important consequences for teaching and learning and hence for schools' ability to be "ready" for the students they aim to teach, with the cohort of Grade 1 students clearly the most vulnerable.

In this chapter, we examine two basic assumptions underlying educational policy in India, and discuss some of the ways in which these faulty assumptions can disrupt children's transition to and experiences in the early grades of primary school. First, the assumption that children in a given grade are the same age; and second, that children in a given grade have roughly similar levels of reading and math abilities. Data sources comprise primarily longitudinal data from the IECEI study[3] and cross-sectional data from ASER.[4]

Assumption 1: Children in a Given Grade Are the Same Age

As is the case in most countries, grouping children by age is a fundamental characteristic of India's school system. Stemming from the maturationist perspective on readiness for school (see Chap. 1 in this volume), it is assumed that children are "ready" for school at a specific age; age is thus conceptualized as the key characteristic determining what and how much children should learn. Thus, norms for entry into Grade 1 are based on predefined age criteria, and the provisions of the Right of Children to Free and Compulsory Education Act (RTE) (GoI, 2009) specify that subsequent progress through elementary school should also occur on the basis of age. Because children are assumed to enter Grade 1 at the age mandated by policy,

[2] The 2006 talk by Sir Kenneth Robinson, a British author and expert on education in the arts, on 'Do schools kill creativity?' was presented at a TED Conference, a media organization that posts talks online for free distribution under the slogan 'ideas worth spreading'. It went on to become one of the all-time most popular talks ever posted under the TED Talks label.

[3] See Kaul et al. (2017) for the final report of the study.

[4] Conducted annually from 2005 onward, ASER generates estimates of children's schooling and foundational learning status for every rural district and state in India.

typically at either 5 or 6 years of age,[5] it is assumed that teachers teaching children during this initial year of schooling are equipped to respond to the needs of children at this specific age and developmental stage.

There are a number of problems with this assumption. A first, fundamental issue in countries such as India is the fact that measurement of age is often unreliable. Thus, using age as a proxy for children's developmental stage is likely to be problematic. Fairly large proportions of children under 5 in India are not registered at birth, especially among rural and poorer households.[6] Household estimates of age tend to cluster around numbers ending in 0 or 5, for example, official statistics report many more 25-year-olds than 24- or 26-year-olds in India.[7] Extensive literature on child development tells us that during the early years children develop at an incredibly rapid pace; if children's real age is different from their reported age, this is likely to cause an equivalent gap between children's actual and expected abilities as well.

Even assuming that children's age is accurately recorded, a second issue is that the criteria governing age of entry to school are not consistent across the country. National policy, as reflected in the RTE Act, expects children to enter Grade 1 at age 6. But since education is a concurrent subject under the Indian Constitution, states are not required to follow national norms: in 2011–2012, the latest year for which data are available, 26 of India's 35 states and union territories allowed entry into Grade 1 at age 5, while 9 followed the nationally prescribed norm of entry at age 6 (GoI, 2014).

Of more importance is the fact that in practice neither national nor state age-grade norms are followed on the ground. The IECEI study, which tracked a cohort of close to 14,000 4-year-old children in three major states in India over a period of 4 years, documented the many different trajectories that young children take during early childhood as they move between home, preschool, and primary school. In some states, children were found in primary school even at age 4,[8] while in others large proportions of children did not enter Grade 1 until age 7.[9]

How applicable are these trends to the country as a whole? ASER has collected data on the schooling and learning status of a random sample of more than half a million children aged 3–16 years in rural India every year since 2006; the ASER report routinely publishes children's age-grade distribution for rural India as a whole as well as for every state in the country. At the all-India level, ASER data for 2016 shows that less than half of all the children in Grade 1 in rural India were at the nationally mandated age of 6 years (44%); 23% were 5 years old; 21% were

[5] Although the RTE Act specifies that children should enter Grade 1 at age 6, many states in India permit them to begin primary school at age 5 (GoI, 2014).

[6] UNICEF has compiled country-wise breakdown of age data which is available at https://data.unicef.org/topic/child-protection/birth-registration/#.

[7] See, for example, Srinath (2013) for an analysis of age spikes in Census 2011 data.

[8] Although not necessarily enrolled. The IECEI study examined what children were actually doing, regardless of their formal enrolment status.

[9] See Chap. 11 in this volume for a detailed discussion of children's trajectories in the early years.

Table 10.1 Age distribution of children in Grade 1 in rural India: All-India and selected states

State	N	Percent grade 1 children who are:						
		Age 5	Age 6	Age 7	Age 8	Age 9	Age > 9	Total
All-India	**51,210**	**22.5**	**43.5**	**20.9**	**7.8**	**2.4**	**3.0**	100
Karnataka	2217	7.1	59.9	29.9	2.3	0.3	0.6	100
Maharashtra	2231	7.8	56.2	31.7	3.0	0.3	1.0	100
Telangana	554	19.3	35.0	30.7	9.9	2.5	2.5	100
Bihar	4926	22.6	42.8	19.0	9.0	2.7	3.9	100
Uttar Pradesh	8629	24.0	30.8	21.0	13.1	4.6	6.5	100
Assam	2698	24.2	38.6	23.8	8.9	2.4	2.0	100
Tamil Nadu	1794	27.2	64.1	7.8	0.5	0.1	0.4	100
Rajasthan	3044	36.3	34.6	17.2	7.3	2.0	2.7	100

Source: ASER Centre (2017)

7 years old; 8% were 8 years old; and the remaining 5% were older than 8 years. In other words, 95% of the children in the first grade of the formal school system were spread over a 4-year age range, from 5 to 8 years old (Table 10.1). In each subsequent grade, a similar spread of ages is visible; for example, about 90% of the children in Grade 8 were spread over the age range of 12 to 15 years.

This national picture masks enormous variations across states. In some of the southern states, for example, the age bands are much narrower, reflecting tighter control over school admissions. In Tamil Nadu, more than 90% of the children in Grade 1 in 2016 were either 5 or 6 years old, and in Karnataka, the equivalent proportion of children were either 6 or 7 years old. In both these states, the age bands in every subsequent grade were correspondingly tight. In Rajasthan, on the other hand, the age range of children entering Grade 1 was wide, and it widened further over time, such that by Grade 8, 90% of the students were spread over a 5-year age band of 11–15 years. Similarly in Uttar Pradesh, almost a quarter of the Grade 1 cohort was age 8 or older. Another major ASER Centre study, *Inside Primary Schools*, found a similarly varied set of age ranges in the five states that it covered (Bhattacharjea, Wadhwa, & Banerji, 2011).

It is worth noting that in the case of both the ASER and the *Inside Primary Schools* study, these figures reflect children who were formally enrolled in school. Once we take informal participation into account, the age range of children found in each grade becomes even wider, particularly in early grades. In the IECEI study, for example, 4-year-old children were often found accompanying their older siblings to school and sitting in Grade 1 classrooms. Although these situations of "informal participation" are not captured in official statistics and are therefore invisible to education policymakers, teachers still have to find ways of dealing with the underage children who find their way into primary school classrooms.[10]

[10] Anyone who has spent time in rural primary school classrooms can attest to the presence of these young children who are usually found sitting quietly at the very back of the class, ignored by both the teacher and the other students present.

These variations in children's age distribution within a given grade have a number of direct implications for schools' ability to be "ready for children." From the point of view of the teachers', having children at different developmental stages in the same classroom requires skills and tools that they are not trained for since the assumption of homogenous classrooms permeates the country's teacher training institutions as well.[11,12] The kind of attention that a 9- or 10-year-old child entering Grade 1 may need to help him feel an integral part of a class made up mainly of much younger students may be very different from the strategies needed for a 5-year-old who is spending time away from her home and family for the first time. From the point of view of the learners, a 5-year-old child and an 8-year-old child have very different developmental characteristics. Expecting the same type and level of engagement and ability from children of such varied ages is not merely unreasonable; it may also have adverse effects on children's future development.

Assumption 2: Children in a Given Grade Have Similar Foundational Reading and Math Abilities

In India, as elsewhere, the curriculum defines what children in a given grade are expected to learn during the year. In this section, we examine the evidence as to whether children in early grades of primary school are able to handle the prescribed curriculum, focusing on reading ability in Grade 1. We then reflect on what this evidence tells us about schools' readiness to support a smooth transition from preschool to primary school for the entering cohort of children.

Children entering primary school are taught the prescribed Grade 1 curriculum. A set of learning outcomes for each grade and subject recently produced by the National Council for Educational Research and Training (NCERT) provides a framework for what students are expected to learn during a year (NCERT, 2017). For example, for Grade 1, a number of outcomes are specified for Hindi (Table 10.2).

The prescribed curriculum is transmitted to teachers and students via textbooks, which define the content to be taught; the methods to be employed; and the activities to be conducted with or by students. A set of textbooks is developed centrally by NCERT. The Hindi textbook for Grade 1 contains content and exercises at a level of difficulty that progresses considerably beyond the outcomes listed in Table 10.2, which for the most part address emergent literacy skills. The textbook expects that children will make fairly rapid progress through reading texts of increasing length

[11] Some states have implemented multigrade, multiage classroom pedagogies in early grades, such as Activity Based Learning in Tamil Nadu and Nalli Kalli in Karnataka.

[12] For example, recent collaborations between ASER Centre and District Institutes of Education and Training (DIETs), which are the government's official teacher training institutions, provided opportunities to document how candidates in preservice teacher training programs are expected to design lesson plans for single grade classrooms, despite the fact that in many cases the classes they actually have to teach are multigrade.

Table 10.2 NCERT learning outcomes for Grade 1 in Hindi

Use mother tongue/language taught in school for different purposes – reciting poems and stories, asking questions, and sharing personal experiences
Discuss, give opinions, and ask questions on stories/poems and other such things that they have heard
Play with and enjoy similar sounding words in the language – *inna, binna, tinna*
Can differentiate between print (written and printed) and nonprint (e.g., graphics and pictures)
Can observe minute details in a picture
In a set of pictures with different events, activities, and characters arranged in a sequence, can understand a common context and narrative
By identifying sounds and understanding them, can identify symbols/words/sentences of a script that they read in stories/poems
With the help of context, can estimate the meaning and purpose of common prints around them, for example, by looking at the title printed on a chocolate wrapper, they should be able to identify it as "toffee," "lollipop," or "chocolate"
Can identify letters, words, sentences, and units in written or printed word, for example, if a sentence is "My name is Vimla", they should be able to point to 'name' if they are asked "where do you see 'name' written here?"
Show interest in familiar or unfamiliar written materials (e.g., the mid-day meal chart, own name, class name, and title of favorite book). They should also talk about it and try to find the meaning by using different methods like estimating meaning with the help of pictures only; by using the relationship between letters and sounds; by identifying words; and by using prior experience and knowledge
Can identify the shapes and sounds of the letters in the Hindi Varnmaala
Choose their own books and try to read them inside (book corner/library) as well as outside the school
During the process of learning to write, as per their developmental level, attempt to write their own thoughts or things that they have heard via zigzag lines, letters, and shapes; invented spelling; and conventional writing
Labeling pictures that they have drawn, for example, drawing a hand-made fan and writing "beejna" (in Brijbhaasha, which can be the language spoken in their household) under it

Source: NCERT (2017)

and complexity, ending with a story that continues for several pages and runs close to 300 words. It also expects children to answer written comprehension questions with answers varying from one word to a full sentence. However, states are not required to use NCERT textbooks and can instead produce their own. As a result, textbooks vary from state to state on many dimensions – length, level of difficulty, structure, and format (Fig. 10.1 provides a sample page of a Grade 1 language textbook from two states, Bihar and Himachal Pradesh). Despite these differences, all Grade 1 language textbooks expect that by the end of their first year of schooling, children will be able to read and comprehend simple text passages comprising several sentences of running text and sometimes considerably more.

To achieve this level of reading ability, children must have first mastered the prerequisite emergent language and literacy skills (e.g., print and phonological awareness) that are listed as outcomes in the NCERT list of learning outcomes for Grade 1, as well as the ability to read letters, words, and simpler running text. Given

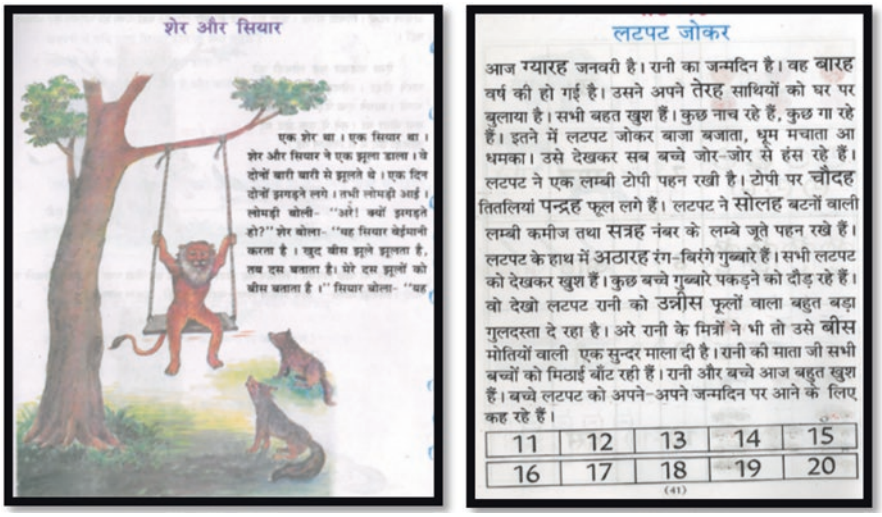

Fig. 10.1 Sample pages from Grade 1 language textbooks in Bihar and Himachal Pradesh

that large proportions of children entering school in India are first-generation learners, these initial steps are often taken only once the child enters a preschool or school. ASER (2016) data shows that about one out of every five children in Grades 1–5 in rural India had parents who had never been to school themselves. Three quarters came from households without any print material other than school textbooks. Additionally, large proportions of children spoke a language other than the school's language of instruction at home. For many of these children, familiarity with print material was often developed only when they started attending school.

Although there is no evidence on scale with respect to children's cognitive, preliteracy, and prenumeracy skills at the moment of entry into primary school in India, data from the IECEI study provides a good approximation. The study's findings do not provide grade-specific estimates of children's readiness for school, but results from several of the assessment tasks that it used suggest that children were far below expectations with respect to early language and literacy skills. For example, at age 5, barely 15% of all children sampled across the three states were able to identify the beginning sounds of words. At age 6, barely a quarter had print awareness (they could identify the front cover of a book; indicate the page where the text began; and demonstrate how to turn the page). At age 7, less than one in three children could read words with a single vowel, and by age 8, just over one in three could do so. Even at age 8, less than two-third of the sample could match simple two-letter words with a picture of the corresponding object.[13]

Given this context, how well are children entering the formal education system able to cope with the academic demands of the Grade 1 curriculum? Every year

[13] See Kaul et al. (2017) for a detailed discussion of the school readiness tasks that were administered and children's performance on each.

since 2005, ASER has published data on children's foundational reading and math levels by grade. Among other things, ASER data routinely highlights the fact that there are wide variations in learning levels within each grade. ASER (2016) shows, for example, that after several months into the school year (ASER is in the field in September–November each year), almost half of all children in Grade 1 could not yet recognize letters of the alphabet, while almost a third could recognize letters but could not read more than that. Just two out of every ten children could read simple two-letter words or more and thus could be said to be on track to achieve the reading abilities needed to be able to handle their textbook. For the most part, children who made the expected progress in reading were those who came from economically better-off households: almost three times as many children from better-off families than those from less advantaged households were reading at grade level or better, presumably because their families and/or preschool contexts had helped ensure that they were familiar with print materials and had developed some basic preliteracy skills prior to entering Grade 1. The finding that schools cater primarily to the top of the class has been reported elsewhere for older children (see, e.g., Rose, Sabates, Alcott, & Ilie, 2016); the analysis in this chapter shows that unreasonable curriculum expectations begin from the very first year of school.

The curriculum for each grade builds on and is more difficult than that of previous grades, and assumes that the children have mastered the content taught in earlier years. In other words, children in Grade 5 (for example) are assumed to have mastered the content transacted in Grades 1–4. A 2015 analysis of Grade 1 and 2 language textbooks in five Hindi-speaking states (Bihar, Haryana, Himachal Pradesh, Rajasthan, and Uttarakhand) showed that the median length of the stories in these textbooks increased by two and a half times between Grades 1 and 2, from 78 to 203 words, and in poems by four and a half times, from 35 to 163 words – a crude but revealing indicator of the jump in level of difficulty from 1 year to the next.[14] Hence, by the time they begin Grade 2, most children have already fallen behind. ASER data also shows that although many more children in Grade 2 could read letters, more than half had not yet learned to read words, let alone grade level text. But because teachers are required to teach the grade level curriculum,[15] children who are unable to acquire foundational reading and math skills often go unidentified and are usually unable to catch up, and the gap between what children can do and what the curriculum expects widens rapidly. These enormous learning deficits have been well documented in a growing body of evidence both for India and for other developing countries (e.g., ASER Centre, 2015; Bhattacharjea et al., 2011; Education Initiatives, 2010, Glewwe, Kremer, & Moulin, 2009; Pritchett & Beatty, 2012, 2015). IECEI and other studies have characterized this view of the school curriculum as extrapolating downward from what we expect children to be able to do in Grade 10 or 12, rather than upward from preschool, resulting in a curriculum that is overambitious relative to students' capabilities from the very first year of schooling.

[14] ASER Centre, unpublished analysis

[15] Teachers are required *by law* as well as force of convention to complete the syllabus within the academic year (see RTE, Article 11).

The implications of these variations in children's foundational abilities in Grade 1 are sobering. Children enter the education system with a set of skills that are, for the most part, inadequate to successfully handle the Grade 1 curriculum. Because the teacher is required to complete the curriculum, she ends up teaching only to the top of the class – primarily those children who entered school with significant advantages based on the characteristics of the homes they come from. Schools' ability to make formal academic learning accessible to the vast majority of children who enroll – surely a fundamental aspect of being "ready" for children – is lacking even in this first, most crucial, moment in children's formal educational trajectory.

In summary, despite the constructivist theory that underpins India's National Curriculum Framework (NCERT, 2005), actual curriculum goals appear to assume that all children entering Grade 1 have the cognitive, preliteracy, and prenumeracy abilities necessary to be able to handle the demands of the Grade 1 curriculum. The fact that this assumption is erroneous for the vast majority of children in the country has huge implications for children's ability to cope with the academic demands not only of Grade 1, but throughout their schooling. It is a curious fact that although India's school textbooks have been subjected to intense scrutiny with respect to parameters such as appropriateness of content, inclusiveness, gender bias, and others, little work has been done on what is perhaps their most fundamental characteristic: the extent to which children are able to read them.[16]

Does Age Affect Learning in the Early Grades of Primary School?

As discussed earlier, the education system is designed in such a way that entry to and progress through school is organized by age. For a given grade in school, all children are assumed to be the same age and are expected to transact the same content. School curricula, textbooks, teaching, and evaluation are all designed based on this organizing principle. Thus, in theory, age determines grade, and grade determines content. In earlier sections of this chapter, we saw that both age and learning levels varied enormously even within a given grade. In this section, we look at whether these two factors are inter-related. That is, does children's age have a bearing on their learning outcomes in Grade 1?[17]

The IECEI study found that age was a significant factor influencing children's learning outcomes at both preschool and primary school levels, that is, older children had better learning outcomes than younger children even when this difference was a matter of just a few months. Recent evidence from the US shows that these differences can be significant even when the age difference is as little as 1 month (Dhuey, Figlio, Karbownik, & Roth, 2017). Although in no way an academic analy-

[16] Although a few studies from the 1990s did attempt to analyze textbooks' level of difficulty relative to what children could do. See, for example, Kaul et al., 1995.

[17] This question has also been explored by Banerji and Nanda in Chap. 3 of this volume.

Table 10.3 Distribution of children in Grade 1 by age and reading ability

				Reading level: Proportion of children who (%)					
Age	N	%	Cum. %	Cannot yet read letters	Can read letters but not more	Can read words but not more	Can read Grade I text but not more	Can read Grade II text or more	Total
5	9,570	21.9	21.9	57.7	30.1	8.6	2.0	1.6	100
6	19,231	44.0	65.9	44.0	35.0	13.8	4.2	2.9	100
7	9,277	21.2	87.2	33.2	35.3	18.6	7.4	5.6	100
8	3,350	7.7	94.8	30.7	35.0	17.6	8.6	8.2	100
9	1,041	2.4	97.2	23.1	38.2	20.5	7.6	10.7	100
10	630	1.4	98.7	27.0	34.6	18.4	8.7	11.3	100
11	183	0.4	99.1	19.7	37.7	19.1	11.5	12.0	100
12	174	0.4	99.5	25.9	32.8	19.5	8.6	13.2	100
13	57	0.1	99.6	12.3	40.4	14.0	5.3	28.1	100
14	42	0.1	99.7	9.5	28.6	16.7	7.1	38.1	100
15	54	0.1	99.8	14.8	20.4	9.3	5.6	50.0	100
16	78	0.2	100	12.8	6.4	5.1	5.1	70.5	100
Total	43,687	100		42.6	34.0	14.2	5.0	4.2	100

Source: ASER Centre (2017)

sis, a fascinating visual depiction plotting the month when children were reported to be born against their state board examination results for about ten million students in Tamil Nadu and Karnataka between 2007 and 2012 suggests that children's reported age can have a cumulative impact on their academic outcomes even years later. In two simple charts, it shows first how parents' desire to get their children into school early appears to influence their "choice" of birthdays for their children, with disproportionate numbers of children reported to be born in May and June and almost none having birthdays in August. Second, it suggests that selecting earlier birthdays to get younger children into school early may have adverse effects on these children's academic results even many years later: children who were younger appeared to fare worse than those who were older in their Grade 10 board exams.[18]

Returning to the question of whether age affects learning in Grade 1, putting the age and learning outcome data together for the almost 44,000 Grade 1 children assessed during the most recent (2016) round of ASER, it is immediately evident that there was a strong positive relationship between age and reading abilities (Table 10.3). Among children in Grade 1, the proportion of those who were yet to learn how to read even letters ("Beginner" level) decreased monotonically from age 5 to age 9, an age range that covered more than 97% of the sample. Further, at the upper end of the ASER reading assessment, as children's age increased, so did the proportion of children in Grade 1 who could read at least at the Grade 2 level, in other words, children were reading at least one grade level *higher* than their current grade. A similar relationship between age and reading was observed in the ASER

[18] See https://gramener.com/posters/Birthdays.pdf

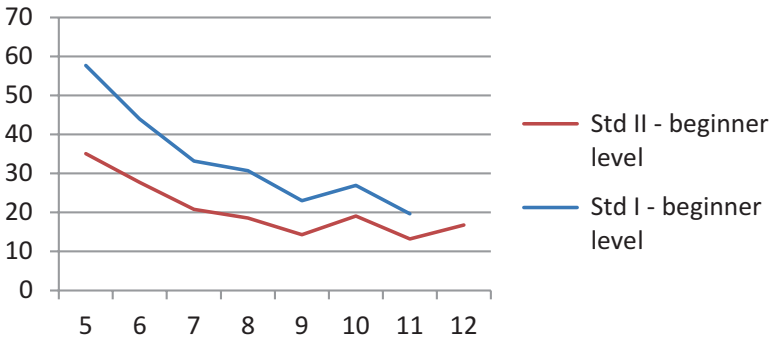

Fig. 10.2 Percentage of students in Grades 1 and 2 who are as yet unable to read letters of the alphabet (by age). (Source: ASER Centre 2017)

2016 Grade 2 sample of almost 41,000 children: younger children were far less likely to be able to read even letters than older ones till about age 9 (Fig. 10.2).

The observed relationship between children's age and their foundational reading ability in Grade 1 is likely to be due to a number of factors, in addition to children's maturational status as reflected in their age. For example, the longitudinal IECEI data shows that despite the no-detention provisions of the RTE Act, young children's trajectories through preschool and primary grades are far from linear: as many as three quarters of all children either repeated grades or were demoted at least once between age 4 and age 8 (Alcott, Banerji, Bhattacharjea, Nanda, & Ramanujan, 2018, and Chap. 11 in this volume). This occurred most often (but not exclusively) in privately managed preschools and schools, which typically focus heavily on teaching the 3 R's.[19] Interviews with parents suggest that these schools often required children to attend 1–2 years of preschool classes before entering Grade 1 and/or repeated grades when their academic performance was viewed as being inadequate. All these factors – prior exposure to a preschool, the later age of entry to Grade 1, and grade repetitions – are likely to influence the observed relationship between age and foundational reading ability in Grade 1. However, although evidence corroborates the fact that for all these reasons children in Grade 1 in private schools are, on average, older than those in government schools, it also shows that within the Grade 1 cohort the relationship between age and learning outcomes is similar in both private and government schools (Fig. 10.3).

To test whether this relationship holds true in a regression framework, we ran a logistic regression using ASER (2016) data for children in Grade 1.[20] The bivariate

[19] As part of the IECEI study, a detailed analysis of institutional quality was conducted in preschool centers and schools across the three study states. Results of this analysis show how private and government preschools/schools distributed their time between different kinds of activities, and the extent to which private institutions at both preschool and primary school levels focused on formal teaching activities (Kaul et al., 2017).

[20] We created a binary outcome variable – whether a Grade 1 child was at the beginner level (yet to learn how to read letters) versus whether (s)he was able to read letters or more (recall from

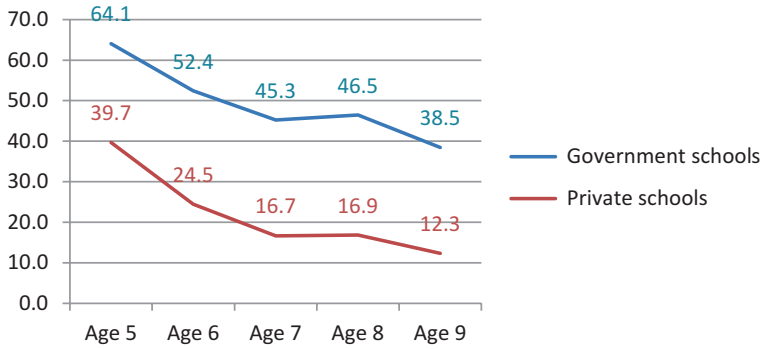

Fig. 10.3 Proportion of children in Grade 1 who are yet to learn how to read letters (by school type) (N = 18,238). (Source: ASER Centre 2017)

relationship holds true in a regression framework (Annexure). Among students in Grade 1, controlling for individual, household, and school characteristics, there was a positive and significant relationship between children's age and their ability to read. The odds of being able to read letters or more as compared to being unable to read even letters increases 1.52 times per year increase in age. As one would hypothesize, the ability to read and do math improves with economic affluence and mother's education, and children in private schools have better learning levels than children in government schools.

Conclusions

Discussions of "ready" schools often focus on ensuring children's social and emotional comfort in a new situation, away from their families, by way of coordinating with parents and other caregivers to provide an environment that feels secure, friendly, and welcoming. Equally critical, however, is the need to ensure that young children feel comfortable engaging with the world of academics.

This chapter reviewed two fundamental reasons why this need is rarely addressed in Indian classrooms. The entire apparatus of schooling is designed around cohorts of children who are assumed to be of roughly the same age and at the same level of ability. Yet, as this chapter shows, there is plenty of evidence that clearly demon-

Table 10.3 that overall, 43 percent of the cohort was at the beginner level and the remaining 58 percent was able to read letters/text of varying levels of difficulty). The variable of interest is age of the child, which ranged from 5 to 12 years (covering 99.5 percent of the cohort). The model controlled for the child's gender and management type of the institution that the child attended. The type of house, whether it was *kutcha*, semi-*pucca*, or *pucca*, was used as a proxy measure for household wealth. The model also controlled for mother's education. If a child was unable to read letters, (s)he was assigned a score of 0; otherwise regardless of reading level (s)he was assigned a score of 1.

strates that these assumptions are far from true. Children in Grade 1 vary in age from 5 to 9 years; a small proportion are even older than 9. They also vary enormously in their early literacy skills and therefore in their ability to handle the Grade 1 language curriculum, a fundamental tool for being able to handle formal academic learning in any subject. This evidence also shows that there is a clear relationship between children's age and their ability to handle the Grade 1 language curriculum not only in private schools where children are often held back until they demonstrate mastery over the specific competencies that these schools demand, but also in government schools that are far more strictly regulated with respect to children's grade progression.

In other words, the expectation that an average child transitioning to primary school at age 5 or 6 will be able to cope with the Grade 1 curriculum without additional support is entirely unrealistic. The pressure to complete the textbook rather than help children learn, coupled with the complete absence of opportunities for children to work through curriculum content at their own pace, results in a system that is far from ready to engage with the realities of the children it was created for. In consequence, most children are doomed to falling behind from the very beginning of their school trajectories.

A few months ago, the Secretary in the Ministry of Human Resource Development, Government of India announced that the school curriculum was too heavy for children and should be cut down substantially. The ministry invited suggestions from the general public on how to restructure the curriculum for Grades 1–12 and intends to come up with a plan to do so over the next 2–3 years. This is perhaps the moment to recall once again that a growing number of advocates of quality early childhood education have on the basis of many years of solid international research evidence argued that curricular continuity must build upward from what children can in fact do, rather than downward from what we imagine they should be able to do at age 14 or 16. Perhaps, in addition to asking for opinions, it is time to base these important decisions on hard evidence regarding the characteristics and abilities that our children enter school with and what is reasonable to expect them to achieve in a year. In its recommendations, the IECEI study stressed the need for a flexible foundational curriculum from preschool to Grade 3 (Kaul et al., 2017); this would be an excellent place to start.

Annexure: Odds Ratio of Being at the Beginner Versus Higher Level for Reading and Math for Grade 1 Children

	Reading ability (0: Unable to read even letters; 1: Able to read letters or more)	Math ability (0: Unable to recognize digits; 1: At digit recognition or higher level)
Age of the child	1.517***	1.598***
	(0.0297)	(0.0349)
Child's gender (Reference category: Male)	1.084***	0.992
	(0.0328)	(0.0314)
Management type (Reference category: Government)		
Private	2.333***	2.571***
	(0.0967)	(0.113)
Other	0.558**	0.560**
	(0.139)	(0.135)
House type (Reference category: Kutcha house)		
Semi pucca	1.201***	1.121**
	(0.0580)	(0.0558)
Pucca	1.527***	1.577***
	(0.0695)	(0.0751)
Mother's education	1.117***	1.112***
	(0.00639)	(0.00663)

* $p<0.1$ ** $p<0.05$ *** $p<0.01$

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Part IV
Families Ready for School

Chapter 11
Participation Trends in ECE Programs: Who Goes Where and Why?

Benjamin Alcott, Suman Bhattacharjea, Purnima Ramanujan, and Mansi Nanda

Abstract There is strong evidence that high-quality early childhood education (ECE) is beneficial for development, but this is contingent on certain forms of provision and participation. We know far less about what families who are often far removed from such discussions value. In this chapter, we use data from the India Early Childhood Education Impact (IECEI) study to explore both (quantitatively) patterns in children's participation in ECE and (qualitatively) parental perceptions that underlie these. We examine three main aspects: (1) deciding *whether* young children should participate in ECE; (2) deciding *which* ECE center they should attend; and (3) deciding *when* they should transition into ECE and then on to primary school. Our findings show that although most of the children participated in preprimary education, parents' views on what constitutes good ECE are far removed from policy guidelines.

Keywords Early childhood education · Participation · Transition

Introduction

Early childhood education (ECE) matters. There is now cross-disciplinary consensus regarding the importance of cognitive development in the early years (Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey 2001; Heckman, 2011; O'Gara, 2013; Richter et al., 2017) and compelling evidence that high-quality ECE boosts such development (Engle et al., 2011; Rao et al., 2013). While effective ECE depends on sensitivity and adaptation to local contexts (Raver, 2004; Yoshikawa &

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Nieto, 2013), some commonly agreed elements of high-quality provision of ECE include sensitivity to children's physical and emotional needs; opportunities for explorative learning; stimulating engagement with other young children; and mother tongue instruction (Black et al., 2011; Bühmann & Trudell, 2008).

The Indian government's Integrated Child Development Services (ICDS) marked one of the world's first attempts to provide a nationwide early childhood development program. Launched in 1975 in 35 blocks in the country, the program currently operates through 1.3 million anganwadis (or "courtyard") centers across the country, offering a package of six services for pregnant and lactating women and children below the age of 6 (GoI n.d.; Woodhead, Frost, & James, 2013).[1] In the present day, the Indian government has ensured that almost all citizens have access to at least one government ECE provider (anganwadi), and the proliferation of private provision has led to multiple institutions operating even in rural areas (Day Ashley et al., 2014; Kaul et al., 2017). The national government's policy on ECE is based on a framework encompassing physical, cognitive, social, and emotional development. In other words, the national policy reflects the components mentioned earlier that research posits as key to high-quality education.

Yet, despite the recent development of a national policy and curriculum framework, ECE in India is still far less regulated than the school system (Kaul et al., 2017). This is important given that children have been found to benefit from participation in ECE only when the program is of high quality, with design and implementation characteristics that research has identified as important in what good ECE entails. However, we have far less research evidence on what families, who are often removed from such discussions, value and how this influences their uptake of the available ECE services. Consequently, when ECE is implemented at scale and in the absence of the "clinical" conditions of compliance and program fidelity, there is a potential disconnect between planning, provision, and utilization of the available ECE provisions.

Previous evidence on ECE participation in India is useful but typically cross-sectional (e.g., Arora, Bharti, & Mahajan, 2006; Datta, Boratne, Cherian, Joice, & Vignesh, 2010; Kaul & Sankar, 2009, Nagaraja & Anil, 2014; Shabana, Mohhamad, Sushil, Mahajan, & Muneer, 2013), which risks underestimating the complexity and nuance of participation patterns. One major exception is the Young Lives study, which followed two child cohorts in parts of Andhra Pradesh and Telangana. However, while the Young Lives study enabled important studies exploring parental choice and perceptions of ECE (e.g., Singh & Mukherjee, 2016; Streuli, Vennam, & Woodhead, 2011; Woodhead, Ames, Vennam, Abebe, & Streuli, 2009), its insights on ECE are restricted to one survey wave during the ECE years of childhood and coverage of a single region in India.

[1] See Chap. 2 by Venita Kaul in this volume for a brief history of the ICDS program.

Research Aims

This chapter contributes to research on ECE participation in India by analyzing data from the India Early Childhood Education Impact (IECEI) study, which has a rich, longitudinal dataset covering three diverse states: Assam, Rajasthan, and Telangana. Our analytical approach uses distinctive but complementary methods to help provide insights into both *patterns* (via quantitative data) and *perspectives* (via qualitative data) on ECE participation.[2] We analyze participation trends in three stages:

1. First, understanding the decision of *whether* to send a child to ECE. We compare ECE participation rates across the three states and the factors that influenced parents' decision to send children to ECE.
2. Second, *which* ECE provider parents choose. Here we contrast participation rates in government and private ECE providers, and the reasons underlying parents' choice of provision.
3. Third, the dynamic aspects of the timing of choice and participation, namely *when* children enter and leave ECE. We explore the timing and duration of ECE participation, as well as the extent to which children move between ECE providers.

Empirical Approach

We focus on data from the IECEI study for Assam, Telangana, and Rajasthan. For the quantitative elements of the analysis, we used 11 waves of survey data conducted over 4 years (September 2011–December 2015). This data covers 7336 children for whom we had participation information for all 11 survey waves. Summary statistics for these children are presented in Table 11.1.[3] We used quantitative descriptive analysis to explore broader patterns in children's ECE for three research questions: whether to undertake ECE; which ECE provider to choose; and when to enter and leave ECE.

For the qualitative elements of the analysis, we used parents' interviews conducted at the completion of all 11 waves of the survey. Fieldwork for the qualitative component was conducted in 12 sampled villages (four per state), within which semi-structured interviews were done with parents of 180 children who took part in

[2] An earlier version of this chapter appeared in: Alcott, Banerji, Bhattacharjea, Nanda, & Ramanujan (2018).

[3] By definition, it is not possible to know whether those participating in all 11 waves differed on unobservable characteristics. However, an analysis of observable characteristics from the first survey wave suggests at least a reasonable degree of comparability between the groups: there was no statistically significant difference (at the 0.05 level) between the two samples in either caste or household wealth, indicating that children from marginalized economic and social backgrounds were not more likely to have been left out across survey waves.

Table 11.1 Summary statistics for the quantitative data sample

	Assam	Telangana	Rajasthan
Percentage of children…			
Whose home language matches the official state language	52	88	18
Whose mother has never been to school	33	47	58
Whose mother has completed Grade 5	52	45	39
Who had reading material at home in survey wave 1	86	84	53
With at least one government ECE provider in the village	100	100	100
With at least three government ECE providers in the village	82	76	64
With at least one private ECE provider in the village	29	39	93
With at least three private ECE providers in the village	4	1	34
n =	2140	3074	2122

the quantitative survey: 60 in Assam, 58 in Telangana, and 62 in Rajasthan. We used the thematic analytical approach (Braun & Clark, 2006) to analyze data from these interviews by focusing on two major areas of inquiry: *reasons for choice* and *experience in preprimary and school*. Parents' responses enabled us to explore the specific strategies and decision-making at the household level that underpinned the broader patterns emerging in the quantitative analysis. Given that the interviews addressed actions taken several years ago, the analytical approach primarily sought to identify the considerations that parents discussed, and equally those that were not mentioned.

Our empirical approach is best characterized as a blended research design, meaning that we gave both the methods equal status to explore different facets of the same phenomena (Greene, 2007). For example, the sampling frame for the household interviews is directly informed by the quantitative survey. With prior knowledge of households' background characteristics and participation patterns in both ECE and primary schools, researchers were able to ensure that they interviewed a diverse range of families to include a broader representation of experiences in the qualitative data. In addition, the interviewers were also able to use information on each child's participation trajectories over the prior 4 years to elicit more focused, concrete explanations of parents' perspectives, choices, and decision-making in their children's early years.

Deciding *Whether* to Participate in ECE

Before delving into different types of ECE participation, we examine the question of whether children were participating in any form of ECE at all. National policy commitments to providing preprimary services are reflected in the existence of at least one government-run ECE institution – usually an ICDS anganwadi – in each

Fig. 11.1 ECE participation at age 4

of the surveyed villages (Table 11.1). Still, it is important to identify the extent to which this provision translates into universal preprimary participation. Also, while academic research provides a clear rationale for participation in ECE, namely, cognitive and socio-emotional development, it is worth exploring whether parents voice this same rationale.

Patterns

Among the surveyed villages, universal provision of ECE is still not reflected in universal participation, although even at age 4 the participation rates were very high across the three states (Fig. 11.1). This was most notable in Assam, where every child in the subsample participated in ECE, suggesting that in this state at least there was essentially universal take-up of ECE. Participation rates in Telangana and Rajasthan at age 4 were 94 and 83%, respectively.

Perspectives

But, while participation rates were high, the data shows that not all families sent their children to ECE. So, what were parents' perspectives regarding sending their children to ECE centers?

Among the subset of households purposively selected for the qualitative sample, in the parental interviews across the three states, we found close to universal acceptance that young children below primary school-going age should be attending an

educational institution rather than staying at home. But parents did not necessarily think that ECE centers were the best educational institutions at this stage. Instead, they varied considerably in their views about what they considered the best type of exposure for their young children.

Systematic governmental outreach initiatives emerged as important processes that shaped parental attitudes with regard to ECE's importance. Most of the parents interviewed in Telangana described participation in preschool as "the usual path for young children"; all the parents who offered this explanation had sent their young children to a government anganwadis as the first step in their educational trajectories. They also explicitly mentioned the role of the ICDS anganwadi workers (AWWs) in shaping their view that participation in anganwadis was a prerequisite for enrolment in a primary school. For example, outreach by the AWW tipped the balance for one mother in Telangana, who explained, "he was small and I thought what he will do sitting at home … and teachers also had come to our house asking to send him to the anganwadi center, so I sent him." A similar pattern was seen in Assam, where about a third of the parents mentioned that the AWWs informed them that children ought to be sent to their local anganwadi centers. These parents often referred to the child's preschool as the "allotted center," indicating that they were aware of the existence and purpose of anganwadi centers in the villages.

A contrasting pattern was visible in Rajasthan, the state with the highest level of nonparticipation in ECE (17%). Here, several parents spoke of how "children [here] go directly to [Grade] 1." No parent in Rajasthan mentioned being influenced by AWWs or other outreach. On the contrary, many parents articulated a negative perception of government anganwadis, citing concerns about poor infrastructure; unsanitary environments; and a perceived lack of "useful activities" for young children. As a consequence, parents who could not afford private ECE often preferred the government primary school over the government preprimary even for young children.

Summary

These findings suggest that ECE participation was the norm for most of the children in the sample, although it was not universal. Participation rates varied across the three states, from every 4-year-old child in Assam attending an ECE center, to a substantial proportion in Rajasthan not participating in ECE over the course of the study. Although nearly all the interviewed parents wanted their preprimary age children to attend some form of educational institution, this did not always mean an ECE institution where doubts existed about the quality of ECE provision; many preferred primary schools even for very young children. However, parents were not intransigent in their views: outreach efforts by AWWs in Assam and Telangana seem to have played an important role in shaping their perceptions.

Deciding *Which* ECE Provider(s) to Attend

Most of the surveyed children did participate in ECE (Fig. 11.1). Given that multiple ECE options existed within each village, with most having both government and private centers (Table 11.1), we now turn to which options the households chose primarily in terms of government or private provision (recognizing, of course, that there is considerable heterogeneity within these provision types). We then consider the rationale underlying the parents' choices, in other words, what were they looking for in an ECE provider?

Patterns

When considering which ECE providers children should attend, one might assume that children who participated in ECE attended a single ECE center before progressing to primary school, that is, a single provider per child. However, a large proportion of children attended multiple ECE institutions (hence the sub-heading "'Provider(s)"'). In Telangana, for example, 36% of the children attended two or more ECE providers between the ages of 4 and 8. In Rajasthan, the corresponding figure is 26% (Table 11.2). For technical reasons, it was not possible to conduct a similar analysis in Assam.

In terms of provider types, households differed considerably across the states (Table 11.3). Among those participating in ECE at age 5, around three-quarter of the children in Rajasthan and Telangana attended a private (or other non-governmental) provider (79 and 73%, respectively). In contrast, 82% of the 5-year-olds in Assam who were participating in ECE did so at a government institution.

Table 11.2 ECE participation between ages 4 and 8 in Rajasthan and Telangana

Number of ECE providers attended	Telangana (%)	Rajasthan (%)
Zero (did not attend ECE)	6	17
One	59	57
Two	24	20
Three	9	5
Four or more	3	1
n =	2,122	3,074

Table 11.3 Participation in ECE at age 5 by management type of institution

	Assam	Telangana	Rajasthan
Ratio of government: private (or other) among children participating in ECE at age 5	82:18	27:73	21:79
% of children in preschool at age 5	94%	59%	48%

Perspectives

In analyzing ECE's desirability, research has focused on the provision elements that aid children's cognitive and behavioral development. However, among most of the parents interviewed, the choice of ECE center usually hinged on more functional matters. Many relied on the choices made by other parents nearby, or selected an ECE center where they knew a staff member. Familiarity – their own or of others in the neighborhood – emerged as an important element underlying these decisions.

The developmental needs of preschool-age children were commonly articulated in terms of physical, rather than age and developmentally appropriate cognitive needs. More often than not, these kinds of needs were seen as something that government ECE centers were able to meet. For example, parents described the importance of care, that is, providing a space where young children would be looked after, while his/her parents worked. In the words of a mother from Telangana, "he used to learn things there, sleep when he felt like sleeping and the teacher used to look after him even if we were a little late coming back from the field." Another parent worried about the health ramifications of distance between home and the ECE center, "kids get some illness when they are sent far from the home… I want him to study here [in a preschool nearby] until he becomes a little older."

Other pragmatic influences include the provision of meals and the financial costs of ECE. While the absence of fees mattered to many parents choosing government providers, it is also true that those choosing fee-paying centers were also influenced by cost. Private ECE centers offered several measures to make ECE affordable for influencing such households like flexible fee payment schemes and "package" deals wherein centers charged reduced rates for a second or third child from the same family.

Comparatively, only a minority of the parents mentioned quality of provision (as understood in research literature, i.e., opportunities for cognitive and socio-emotional development) in their criteria for choosing an ECE provider. Among these parents, just one mentioned physical infrastructure as a quality indicator. Instead, most focused on practices such as learning goals, behavioral norms, and language of instruction in the center. However, parents rarely viewed these practices in relation to a distinct developmental stage for children and instead saw them as offering a chance to get a head start in developing primary school competencies. Put another way, parents commonly viewed ECE as a downward extension of a primary school. Also, whereas parents saw government ECE centers as appropriate providers of secure care for younger children, those with preferences relating to the quality of provision were more likely to see this as being provided only by private ECE centers.

Discussing the purpose of ECE, one parent focused on the same learning goals that children encountered in the first grade of primary school: "ECE is advantageous. They are young, they get habituated to a school environment, learn manners,

alphabets etc. Later parents send their kids to school." With the exception of two parents who mentioned the importance of play, none described a desirable ECE curriculum or ECE teaching methods in terms that were different from those that they used to describe primary schools. Reflecting on their reasons for choosing one ECE center over the others in their village, one parent noted, "in [the selected] preschool, studies were given more importance than singing and other extra-curricular activities."

Regarding behavioral norms, some parents who were in contact with AWWs in Telangana articulated socialization and habituation as ECE's distinct objectives. More commonly though, parents mentioned disciplinary objectives "to prepare for school" or "to help with learning." Asked about their choice of private over government ECE, one parent responded, "in the government school there is no pressure, so why will the children feel fearful to go to the government school? In private school if they don't do homework they will be beaten up. If it is a government school, if you tell them that I didn't have time then the teachers won't care."

Academic research also speaks of the value of matching home and institutional languages in the early years of education. In contrast, there was considerable demand among interviewed parents for English as the preferred language of instruction. English skills were viewed as important and viable even for young children, and were a key element of many parents' preference for private ECE: "we don't know how to speak or write English properly, we want him to study in English. We want him to learn something. In the government ECE there is little English taught."

Summary

Understanding which centers parents chose offers three key insights into ECE participation patterns. First, for most parents, pragmatic concerns (such as distance, affordability, and reliance on personal recommendations) predominated. For others though, an interest in certain characteristics of ECE centers helped us understand what the parents currently valued, and how this related to the choice of private or government centers. Very few parents visualized the ECE phase as requiring an environment and set of inputs distinct from those provided in primary school. This presents an important disjuncture with ECE as understood in academic and policy debates, which view it as serving a distinctive developmental stage in children's growth. In addition, parents' interest in goals such as "good quality teaching," "focusing on studies," and "better discipline" help us understand why so many chose to pay for private provision. In addition, this is likely to explain why many children attended more than one preprimary center during their preschool years: initially, children's caring needs can be met by government ECE, but subsequent schooling preparation is seen to be the remit of private ECE.

Deciding *When* to Enter an ECE Institution and When to Leave

Temporal aspects of participation are perhaps the most under-researched area of ECE in rural India. As shown in most policy research, the value of high-quality ECE for children's development is predicated on stable, predictable participation. The longitudinal nature of the IECEI data enables us to analyze the timing of ECE participation in two major respects: (1) whether children transition first into ECE and then through the early primary years "on time" and (2) the extent to which students make linear progress through these same educational stages.

Patterns

For our first point of analysis – whether children transition first into ECE and then through the early primary years "on time"' – we define "on time" according to the timing mandated by national education policy, that is, that at ages 4 and 5, children should be in some form of preprimary provision, and at age 6 they should be in primary school (GoI, 2009). This means that at age 6 the sampled children who were in Grade 1 were "on track"; those in ECE or not participating in any educational institution were "behind"; and those who were in Grade 2 or higher were "ahead."[4]

Our analysis shows that most, though not all, children entered ECE "on time," but a majority then either fell "ahead" or "behind" expected progress by the early years of primary education. Across the three states, at age 4 most of the children were "on track," meaning that they were in a preprimary center (Fig. 11.2). In Rajasthan, around 20% of the children were already "ahead" of track, meaning that they were attending primary school at age 4.

By age 5, almost all the children in Assam remained "on track," meaning they were spending a second year in ECE. In contrast, close to half the children in both Telangana and Rajasthan were "ahead," that is, in primary school, indicating that state norms permitting earlier entry into primary school were commonly followed in these states. Over the ensuing ages of 6, 7, and 8, the proportion of children who were "on track" diminished further, such that by age 8 only very few children were "on track," that is, in the third grade of primary school.

It is worth noting that although state norms permit early entry into school, or moving "ahead" of national policy, a considerable proportion of children in each state fell "behind" both state and national policy norms. This was most notable in Assam, where over half of the children were "behind" by age 8. Hence, in terms of

[4] It is worth noting though that, since education is a concurrent subject under the Indian Constitution, state and national policies often differ from one another: despite RTE, all three states allow entry into Grade 1 at age 5, as do 23 of India's 29 states (GoI, 2014).

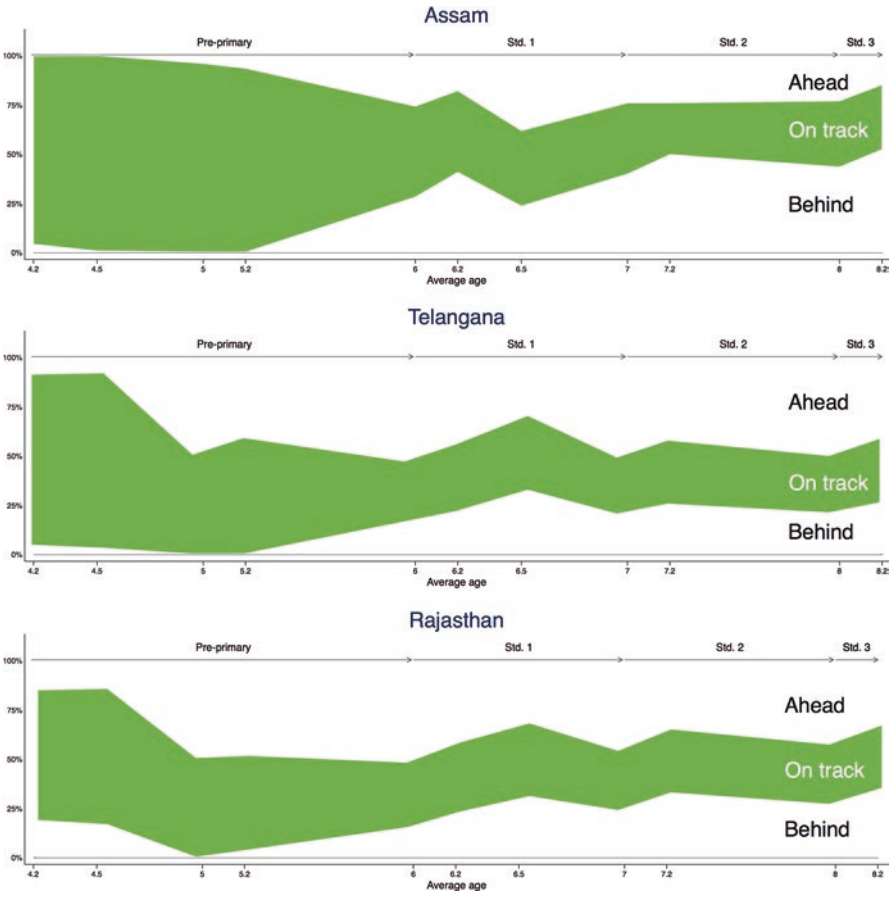

Fig. 11.2 Patterns in progress through preprimary and early primary grades between ages 4 and 6 How to read this chart: The average age of the sampled cohort is represented on the x axis, ranging from 4.2 years at baseline, to 8.2 years at fieldwork round 11. At each age, the proportion of the sample who are "on track" relative to national policy norms for preschool or school participation is represented by the green segment above it, which is largest at baseline, meaning that large proportions of children were in preschool at age 4.2 years. At each age, the segment above the green segment represents the proportion "ahead" of track (e.g., children in primary school at age 4 or 5, when they should still be in preschool), and the segment below the green represents the proportion "behind" track (e.g., children in preschool at age 7, when they should be in primary school). The total of these three segments adds up to 100%

progress, it is not simply the case that children are moving ahead of national expectations of progress in each state; instead children are divided reasonably equally across being "on track," "ahead," or "behind," showing the disparate nature of children's progress through the early years of formal education.

It is plausible that even if children entered preprimary or primary earlier or later than recommended by the Right of Children to Free and Compulsory Education

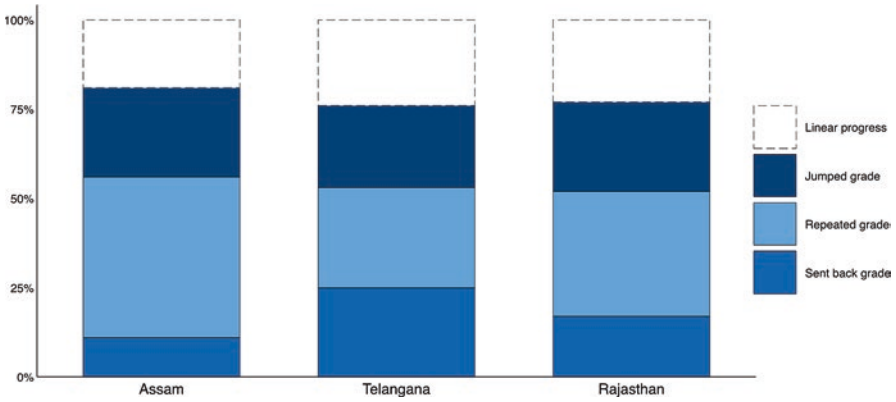

Fig. 11.3 Proportion of children with at least one instance of nonlinear movement after entering Grade 1, by state

Act, 2009 (RTE), they subsequently made smooth, linear progress across grades (moving from Grade 1 to Grade 2 after a year; from Grade 2 to 3 after another; and so on). Ostensibly, this should be the case: once in school, the no-detention policy mandates annual progress to the next grade without repetition all the way through to the end of elementary school at Grade 8.

To identify whether this actually happens we analyzed the proportion of children with at least one instance of nonlinear movement after entering Grade 1, which could consist of being sent back a grade; being held in a grade; or jumping forward an extra grade (e.g., from Grade 1 directly to Grade 3) (Fig. 11.3).

Across all the three states, only a minority of the children followed a linear trajectory (as shown by the dotted white bar in Fig. 11.3): at least three quarters experienced at least one nonlinear movement after entering primary school (as shown by the blue bars). In Telangana, roughly equal proportions of children were in each of the three nonlinear categories. In Rajasthan and Assam, children were more likely to have repeated a grade than either jumping a grade or being sent back.

Perspectives

The concept of "age-appropriate" grades, which is so central to education policy, found little echo among the interviewed parents. There were multiple cases of children going to anganwadi centers from age 2 onward, despite these centers officially only offering ECE services for children aged 3–6 years. Similarly, many parents sent their children to primary school at age 4. This links to findings in the previous sections: interviewed parents rarely saw ECE offering a developmental approach that was distinct from and complementary to primary school. Thus, while in some

cases early participation in ECE was a means of offering a head start on primary, in others, children simply entered primary school early.

Crucially, nonlinear movements typically had less to do with parental decisions than with those of staff and educational institutions. However, rather than viewing them as a problem, parents often interpreted grade repetition (or being sent back) as an indicator of institutional quality, in the sense that a better-quality school was providing remedial education to a child who was not performing to the requisite level. Nonlinear patterns were often tied to transitions between government and private institutions and thus represented a price that parents were willing to pay to get their children into a private sector institution.

Parental interviews revealed that in several cases children progressed to primary school only to be demoted again to preschool. For instance, in one case from Telangana, a child first joined an anganwadi at age 3 and after 2 years progressed to a local government primary school where he studied for 3 years. However, his parents expressed dissatisfaction with the quality of education provided in the government school, commenting that "although he did not study at all they used to promote him to a higher class." The child was subsequently sent to a private school where he repeated 2 years of preschool before progressing to the primary grades in the same school, thus not only repeating 2 years in preschool but also the first three grades of primary school. In another case, a child joined an anganwadi at age 3 and was enrolled in a private preschool after 1 year where he remained for three consecutive grades – nursery, lower, and upper kindergarten – thus only joining Grade 1 at age 7, 1 year later than the RTE norm prescribes.

We found similar cases in the other two states as well. In Assam, the reason many children remained in preschool for so long was changing centers at least once and repeating preschool grades in successive institutions. In Assam, a child who joined a government primary school was made to repeat Grade 1 for two consecutive years after failing to pass in the annual examination despite the official no-detention policy. In Rajasthan, a child without any preschool exposure who joined a private school at age 4 was given an out of turn promotion to Grade 2; according to the child's mother, this was done at the suggestion of the school principal who believed that the child was a good student.

Summary

Between ages 4 and 8, very few children progressed through preprimary and primary education "on track" as per national norms. In each state, there were considerable numbers of children "ahead" and "behind." Parents rarely viewed either as problematic. Nonlinear grade movements (i.e., being promoted more than a grade, demoted, or held back) were commonplace in ECE and early primary school and occurred largely at the discretion of education institutions. Changing schools, most often from government to private school, but also on occasion from one private

school to another, often involved grade repetition for the child. In several, if not all such cases, parents accepted the institution or teacher's judgment, especially when this was a means of accessing a private school.

Discussion

Table 11.4 summarizes our findings on ECE participation patterns and parental perspectives underlying these patterns. To recap, we found that most of the surveyed children participated in ECE. This cannot be taken for granted though: in Telangana and Assam, outreach from AWWs played an important role in normalizing ECE participation. Those who did not participate in ECE (concentrated mainly in Rajasthan) still wanted their children to participate in an educational institution at this age, but saw primary schools as an equal, if not more viable option.

ECE participation is thus an established norm, but when we focus on the nature of this participation things are far less straightforward. Simply put, parental perceptions did not reflect research or policy perceptions. Most households focused on pragmatic concerns such as distance, mid-day meals, and, at least initially, care. Those who thought about the quality of provision did so to get a head start on primary schooling (both in terms of curriculum and discipline), and preferably in English. Private providers were willing to cater to these demands, and a sizeable number of parents were both willing and able to pay for this.

This has important implications for participation patterns, which are far from stable. Between ages 4 and 8, few children remained "on track" as per RTE norms,

Table 11.4 Summary of findings

	Patterns	Perceptions
Whether	A vast majority of children attend ECE	Nearly all parents want their young children to join the education system, but some see primary as an equally valid option as ECE
	Rajasthan has the lowest participation rate, at 83%	Outreach by government AWWs influenced many parents to send their children to ECE
Which	Around a third of the children attend more than one ECE center	Most households focus on pragmatic factors in choosing ECE
	Private ECE centers are a popular choice, especially in Rajasthan	Those choosing according to "quality" see ECE as a downward extension of primary school
When	Fewer than half the children progress through ECE and primary at the rate expected by national policy	The concept of "age-appropriate" grades has little traction among parents
	Most children have at least one nonlinear movement across grades	Institutions tend to enforce nonlinear movements, though parents are amenable, especially to gain entry into private providers

and fewer still experienced a linear progression from one grade to the next. In practice, children's trajectories in the early years of education often entailed grade repetitions, demotions, or out-of-turn promotions. This nonlinearity was driven primarily by educational institutions. Still, parents were typically amenable, especially when such shifts enabled access to their preferred institutions.

Implications for Policy

Our findings make it clear that there is a considerable gap between what policy prescribes and the practice on the ground. Policy documents focus on appropriate environments for young children which appear to be largely unfamiliar to parents in rural India and are thus largely missing from their discussions and decision-making. With many households expressing a desire for curricula, behavioral discipline, and language of instruction that are at odds with recommendations emerging from research, realizing the benefits of high-quality ECE will depend not only on the implementation of suitable programs but equally on effective outreach to parents regarding the conceptual and practical dimensions of early childhood as a distinct stage requiring a different set of inputs.

An important finding of this research is that parents' views on ECE are not immutable. The normalization of ECE participation in Telangana and Assam can be attributed, at least in part, to AWWs' outreach work. A careful development of such outreach initiatives might now play an important role in shaping parents' understanding of ECE as making an important and distinctive contribution to their children's development, and one that is all the more valuable when designed to complement rather than replicate later years of schooling.

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Chapter 12
As We Look Ahead

T. S. Saraswathi, Venita Kaul, and Suman Bhattacharjea

It is with a sense of tremendous satisfaction that we write this Epilogue. It was a long journey that started in 2011, and we are well aware that this is but a milestone, albeit a significant one, as the journey will continue through many pathways. Looking back at where we started and then looking ahead to where we want to go, we pen this Epilogue, recording the modest contributions made, the lessons learnt, and some possible pathways for the future. If we sound somewhat self-indulgent, the reader must pardon us as it has been an arduous yet interesting journey that we are happy to document.

The Uniqueness of the Study on Which This Book Is Based

It is a matter of great pride that the longitudinal, mixed-method study of early childhood education, referred to as IECEI study (Kaul et al., 2017), reported in this volume is the first of its kind, not only in India but perhaps in all of South Asia. Planned on an ambitious scale (though it was pruned to make it feasible), the study was able to achieve what it has for several reasons:

1. A multi-institutional collaborative spirit of true partnership was a hallmark of the research. At the national level, CECED and the ASER Centre partnered in each phase of the project with each organization bringing to the table its comparative

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advantage in terms of disciplinary background and skills. State partners in the three states contributed further to contextualizing the study's design and tools and addressing the language gap, thus providing complete support from the field perspective.

2. Sustained funding from several national and international organizations that saw value in a study of this nature and had confidence in the study team based at CECED and ASER Centre, ably supported by CECED's parent university, Ambedkar University, Delhi, and its first Vice Chancellor, Professor Shyam Menon, on the one hand, and the ASER/Pratham management on the other, with UNICEF providing steady support. Without such sustained support, the successful completion of this project would have been impossible.
3. The study was conceptualized not only as policy research but also as an advocacy initiative. This objective was integral to the study's design and was realized through an active Coordination Committee constituted for the research, with representation from the government as well as all funding partners. The committee met on a quarterly basis not only to smoothen out any coordination issues that arose, but also to stay informed about the progress and emerging findings of the research. This created an ongoing momentum for discourse on ECE throughout the period of the study and also led to extensive sharing on an ongoing basis, not only at the meetings but snowballing into further sharing by partners in their respective spheres of influence.
4. A highly qualified and supportive Advisory Team that was committed to ECE, and like the funding agencies, believed in the promise held by the study team. The members of the Advisory Team extended a helping hand whenever there was a need, generously sharing their own experiences and helping with troubleshooting.
5. The study team, consisting mainly of young people in the early stages of their professional lives, proved to be the backbone of the project. They were enthusiastic about working with communities they had not interacted with before; they were eager to learn and equally eager to contribute; and were questioning and argumentative at every stage of the study. Their insights, often uncontaminated by preconceived opinions, helped us understand the reality of the field situation better than we would have otherwise done.

All this and more helped us to build a knowledge base on ECE in India; provide critical insights regarding the research methodology, including sampling, assessment, statistical analysis, and unpacking the variables to understand their effects in a more nuanced manner; provide guidelines for policymaking sensitive to contextual differences and based on evidence; and provide an understanding of the needed infrastructure and the training needs of teachers who keep the system going against all odds.

What Have We Learned?

We began the Epilogue by saying that it has been a long and interesting journey. And as in all long journeys, as keen observers of what people have to say based on their own and other people's experiences, we have gathered a fund of knowledge on ECE in India and elsewhere. We summarize the main points here as they point us towards the road ahead.

We know for sure that more and more children are coming into the preschool system from diverse backgrounds, many of them first generation learners. This increasing diversity brings with it increasing challenges in addressing the learning needs of this new generation of children. Yet, we continue to perpetuate age-old practices with little reflection on how to make education more participatory, age relevant, meaningful, responsive to children's needs, and productive in the long run.

There is convincing evidence from neurobiology, economics, and child development regarding the significance of the early stages of development, and the short- and long-term gains from providing a stimulating learning environment during the critical years of young children's development. Our study corroborates this evidence. The corollary that follows is that early childhood experiences provided in preschool settings should be of good quality and implemented by well-trained teachers with adequate support in the form of preservice and in-service training, regular mentoring, a regular supply of teaching–learning resources, a reasonable workload, and a setting that is conducive to safe and positive interactions. The challenge is to achieve quality—even excellence—on scale, so as to enable all children to benefit.

Preschool education is increasingly in great demand, even among poorer communities and in rural areas. However, the developmental needs of young children are poorly understood, whether by parents, teachers, or communities. Despite its enormous coverage across the country, the Integrated Child Development Services scheme (ICDS) is not able to bridge this gap. Preschool education being one of the six services offered by ICDS, it often takes a back seat as compared to the nutritional needs of young children. In its 2009 survey, the National Institute of Child Development and Public Cooperation (NIPCCD) highlighted the constraints under which the anganwadi workers functioned, including lack of basic infrastructure and inadequate training and support (NIPCCD, 2009). This observation still comes through a decade later in the IECEI Study. It is a pointer to the need to move away from the practice of doing "more of the same" to doing things differently, thereby meeting the challenges of scale as well as sustainability.

As is evident from the chapters in this volume (as also from the other Indian and cross-cultural studies cited), children's exposure to preschool (even if not of high quality or continuous in time) gives them several advantages such as better psychosocial adjustment. But overall, children are still poorly prepared for primary school. The gains from ECE can be substantially increased through better quality preschool education and a developmentally appropriate curriculum consistent with the ECE

policy's thrust. A later age of entry in Grade 1 gives children a head start, with 6-year-olds observed to be more ready for school than younger children.

As succinctly summarized by UNICEF (2012), school readiness needs to be viewed from a holistic perspective which includes children's readiness for school, schools' readiness for children, and families and communities' readiness to support a quality preschool experience. This perspective views child development as an interactional process with the child's environment providing opportunities to actualize her potential. What is desirable is attracting qualified personnel to provide quality education that is developmentally appropriate, thereby convincing parents and the community of both the short- and long-term gains in successful learning.

Provision of quality teacher training, mentoring, clearer role definitions, access to learning resources, and opportunities to exercise their own agency can empower teachers to feel in control and improve their performance and job satisfaction. As for parents, although awareness regarding the need for preschool is widely present, what is needed now is to make them aware of the need for developmentally appropriate experiences. Parents need to understand that having their children learn the three R's before they enter Grade 1 does not pay any dividends. At the same time, they also need to see for themselves the competencies that a quality preschool experience promotes, especially when in children's mother tongues.

The dramatic shift to low-quality private schools in recent years because the medium of instruction is English (read: poor English) is a cause for concern. Yet, this is a reality among both the urban and rural poor who pay fees beyond their means for an educational experience that has little value for any of the concerned parties—the child, the teacher, or the parents. This is largely a consequence of the government's inability to provide basic education of acceptable quality.

At this juncture, we must loop back to the major findings of the IECEI study and reiterate some of the key findings that provide both evidence and directions for taking the field of early education forward. While the study design and results are detailed in Chap. 2 of this volume, we highlight only the key findings here.

1. The IECEI study provides empirical validation of the concept of school readiness in the broad sense of the term, and underlines the importance of ECE as a foundation for learning in primary school, thereby emphasizing that learning is a continuum.
2. It provides evidence-based support to the current policy emphasis on a developmentally appropriate curriculum in ECE as opposed to a formal teaching of the three R's.
3. It documents the fact that enrolment statistics are an inadequate and misleading measure of young children's participation in preschool settings. Children's "participation" in different preschool and school settings is fluid, irregular, and often informal and therefore often invisible in official statistics.
4. Using a large sample of children from three major states, it shows that young children's trajectories through the early years vary enormously both within and across states and do not reflect the smooth age-based transitions from home to preschool to primary school envisaged by policy and assumed by the school system.

5. Most importantly, and emerging from the foregoing points, its findings question the basic assumptions that guide curriculum development and planning in the provisioning of early education. These include the mismatch between children's age of readiness and age of admission, children's home background and that of the school setting, and children's developmental stage of learning and comprehension and the existing curriculum and rigid school structures that do not allow children to learn at their own pace. All these result in cumulative learning deficits.

What we have learned from this project in general and the longitudinal study in particular, leads us to the next section on implications for the road ahead.

Implications for the Onward Journey

Contributions to Research Methodology

In research, we often end up with more questions than clear answers. However, the very constraints in sampling and data gathering experiences reported in the various chapters provide useful directions to future researchers in terms of what to expect and what to guard against. Further, the use of alternate analyses and the systematic unpackaging of complex variables by the investigators to decipher the reasons for both the anticipated and unanticipated findings provide crucial lessons in research methods to the next generation of researchers. Many of these are specifically applicable to the Indian context.

Doing research in real life contexts is a challenge with overwhelming noise factors that intervene to cloud our understanding of the relationship between the variables of interest. Lack of reliable data and noneffectiveness of standard, systematic sampling methods in rural contexts; diverse social contexts often with limited availability of birth certificates to determine the age of the child; multiple caregivers alternating as respondents to the survey and often providing inconsistent information requiring further validation; and children being registered under more than one name for various reasons thus making identification and follow-up difficult are only some of the challenges that we faced. Each one required very specific solutions to be thought through and implemented. The consistency of results across the study's components and phases provides reassurance in this context.

The three-tiered research design comprising large-scale surveys of large samples; followed by an in-depth assessment of children, teachers, and parents; and succeeded by detailed case studies of nine programs identified for their known quality practices is an attempt to refine the information and deepen the understanding obtained at each stage, attempting a methodological triangulation. Of course, this is possible only in a large-scale project with adequate funding.

Anthropological methods of participatory observation, built in feedback loops for refining data collection, and use of team work were useful in providing insights

which careful data collection with standardized tools alone will not yield. It will be worthwhile to consider the preparation of a field manual for use by research scholars based on the challenges faced and insights gained during the course of the study.

Refining Assessment Measures

The study generated a set of innovative, activity-based instruments to assess classroom quality in preschool and early primary grades, as well as young children's school readiness and early grade learning levels. These tools have been used for research by several agencies; they have now been standardized and have made a significant contribution nationally and internationally, especially in the context of Goal 4 of the SDGs and the global requirement for monitoring and assessment.

Tool construction and refinement are, however, continuous processes. No tool can stand the test of time with associated changes in attitudes, knowledge, practices, and competencies related to the phenomenon under investigation. Assessment measures used in the study are no exception and are already undergoing further vetting and standardization. Among the measures used, two deserve special mention—the School Readiness Instrument (SRI) and the Early Childhood Quality Assessment Scale (ECEQAS). Both these instruments are described in Chap. 2. The challenge was in assessing children's psychosocial development. As documented in Chap. 4, this domain does not lend itself to a direct assessment of the child, unlike cognitive and language readiness. Controlling for the subjectivity that is inherent in this assessment is a significant challenge.

Experience with tool construction always raises many questions: Is this the best way of capturing what one wants? Does the sample of items represent the universe of possible items that may measure the same competency? What is the effect of the testing method itself? Are children with no exposure to books and pictorial material at home, comfortable with a pictorial representation of objects? Would their response with concrete objects be different? We recall Robert Serpell's (1979) experiment with Zambian boys familiar with wire construction of toys and second grade primary school children in England to reproduce geometric forms using a variety of materials. When using paper and pencil to reproduce the forms, the English children performed better and when copying the models with scrap iron wire, the Zambian children excelled. This is a good example to show that the cultural or contextual specificity of cognitive skills cannot be ignored. Similarly, one recalls Sarangapani's (2003) ethnographic work with rural school children who showed amazing knowledge of agricultural crops, pests, and other experiences in their daily lives, yet did not consider this to be important knowledge as compared to what was taught in school, even though what they learnt in school had little meaning for them.

The reason for this digression is to underline the importance of developing assessment measures that can be used on scale and yet are sensitive to context and

the population under study. The question always remains valid for whom (which population), for what (namely, content coverage, understanding the construct or prediction), and under what conditions (of testing).

The Teacher as the Key Actor

As in the case of schools, the role of the teacher repeatedly emerges as a significant factor influencing the quality of ECE. This is seen not only in the findings of the IECEI study but also in several other contexts in both developed and developing nations.

One cannot overemphasize the importance of the teacher in creating and maintaining a stimulating environment for early education. Given India's diversity, there is a need to contextualize the curriculum for young children and this can best be done at the level of the teacher. But teacher education programs for ECE do not develop this capability in teachers, or provide opportunities for them to learn from praxis; instead, in most cases the programs tend to limit the training to skill development. Leave alone preschool settings in rich countries, for example, Scandinavia or Japan, even in countries like Turkey which are not resource rich, the teacher is paid well, receives regular supervisory support, and is not overburdened by other responsibilities. Hence, her focus is on providing quality education. This stands in stark contrast to the Indian ECCE scenario where the teacher, especially the anganwadi worker in ICDS, remains underpaid, overworked, and receives little support in the form of guidance and mentoring, not to mention access to teaching–learning resources.

Not surprisingly, the IECEI Study sees a democratic and trained teacher as more effective than an authoritarian teacher. Yet, unfortunately feedback from published studies and field experience underlines the dependence on untrained or semitrained multipurpose workers in the public domain (ICDS) to double up as teachers of preschool education. Further, there is nearly complete absence of ongoing guidance to improve the preschool component of the anganwadis or even of private preschools. The study shows that the popularly held view that all anganwadi workers are illiterate or semiliterate is not true any longer. Many graduates have opted to join as preschool teachers based on interest and convenient access to the work setting. ECE teachers in private schools are somewhat better qualified than anganwadi workers, but not necessarily trained in early education. While periodic supervision in the form of monthly meetings and short-term in-service training do exist for anganwadi workers, these seem to focus predominantly on administrative tasks and less on quality improvement. They do not provide hands-on practice in classrooms, or exposure to good practices and there is very little onsite mentoring.

Even the most enthusiastic and committed teachers require the presence of someone they can turn to for guidance regularly or even periodically, especially when it comes to developmentally appropriate, play based pedagogy which emerges as more effective from the perspective of building school readiness. Preschool teachers

or anganwadi workers have little exposure to this pedagogy. Yet, our case studies of exemplary practices in ECCE across the country demonstrate clearly that even personnel with lower academic qualifications can be trained with continued onsite guidance and mentoring.

Another major deterrent in teaching during the early years is related to the problem of overburdening teachers/anganwadi workers with a host of responsibilities that use up their time, leaving little time or energy for planning and conducting creative learning activities. The myth of teacher absenteeism has been questioned by data showing that even in primary schools, the teacher is more often away from school on nonacademic duties rather than being absent from work (Azim Premji University, 2017). In the case of anganwadi workers the challenge is further compounded by their role as multipurpose workers requiring them to deliver not only preschool education but five other services as well with each service requiring a different skill set.

A further handicap that the teachers have to cope with is the absence of regular access to teaching–learning resources and guidance for adapting the materials to their needs. The availability of a few resource centers in selected regions in the country is a drop in the ocean considering the extent of the need.

Finally, we need to address the absence of sustained field experience among educational administrators, researchers, and teacher educators and supervisors who support policy development and implementation. In the absence of ground-level exposure, it is difficult to understand the day-to-day hassles and the burden of non-teaching responsibilities carried by the teachers on whose shoulders rests the sole responsibility of providing quality education to young children. In the absence of field experience, policies and supervisory feedback to teachers serve only to further alienate teachers who are already at the bottom of the educational ladder.

Policy Building

The implications that one can draw from IECEI for policy development related to early childhood development are many and significant. For one thing, as is evident from the data, while preschool education is now widespread and has reached far corners of the country, it is still not universal. At age 4, about one in four children is not in ECE programs and at age 5, one in ten is neither in ECE nor in school (ASER Centre, 2017).

While exposure to any kind of preschool undoubtedly bridges the transition from home to primary school, data from the IECEI longitudinal study; the well-known practices of quality programs seen through case studies that were part of this project; as well as cross-cultural evidence attest to the impact of quality programs. Enhancing the quality of government as well as private preschools is imperative and dependent on effective policy changes.

The mushrooming of low-quality private preschools, especially those with English as the medium of instruction, increasingly preferred by the urban and rural

poor is a cause for worry. At a time when the child development domain is stressing the need for education in the mother tongue in the early years, especially for first generation learners, forcing a young child to learn in an alien language not a part of her home setting guarantees a bad start in formal education. Unless policies are in place to enhance the quality of government schools, the spread of low-quality private schools cannot be arrested.

Another policy decision that is crying for attention based on the very credible evidence from the IECEI study and that of others is the question of age of admission to Grade 1. The prevalence of multiple age groups in Grade 1 (ranging from 4 to 9 years) and the variations among states makes this a complex problem. Age 6 is the recommended age at entry since older children learn and perform better than their younger peers. This is the rationale for a higher age of admission to primary schools in most developed countries.

Further evidence that is relevant to policymakers is the positive influence of psychosocial factors, in addition to foundational cognitive and language competencies, in supporting children's acquisition of literacy and numeracy. Attention to psychosocial development is bound to enhance the children's learning and performance, including development of executive functions crucial for life-long learning, whereas too early an emphasis on formal teaching/learning (as is often the case) is self-defeating and deters learning with meaning.

Promoting emotional intelligence has increasing worldwide attention and cannot be sidelined in India. What is evident is the role of anganwadi workers in reaching out to parents and encouraging them to send their young children to school. However, what is still needed at the policy level is putting in place strategies that will create awareness among parents not only about the significance of early education but also that of learning through play way and participatory activities rather than formal learning of the three R's and that too in an unfamiliar language. The early childhood education policy must reflect this clearly.

Proponents of ECE have repeatedly argued in favor of bridging the early primary grades through a gradual transition to formal education with supportive play way approaches. As discussed in Chap. 10 in this volume, the curriculum in the early grades is hardly developmentally appropriate, and schools' insensitivity to allowing children to learn at their own pace leads to cumulative learning deficits. The problem is further aggravated by the increasingly loaded curriculum leaving children from disadvantaged homes far behind in learning levels. The top down approach to curriculum development cannot continue to be ignored.

In addition to curricular continuity, given recent changes in policy and the inclusion of the preprimary sector under a single schooling umbrella, the issue of structural coordination between the different ministries and agencies involved also becomes extremely important, so that continuity and collaboration between the anganwadis and the primary schools enable smooth transitions from one to the other.

A point that needs continued reiteration is that unless the gap between policies and their implementation are addressed, policies will only remain on paper and not be reflected on the ground.

Where Do We Go from Here?

As we mentioned earlier, the journey toward making early education a meaningful experience that will reach every child in the country must continue. We offer a few suggestions for advocacy and program implementation, monitoring, and research.

Advocacy

Concurrently with the period of research, increasing international advocacy for ECD led to the inclusion of ECD in the Sustainable Development Goals in 2015 (UNESCO, 2015). Since India is a signatory to these goals, ECD has started receiving attention at the policy level. Therefore, the findings and recommendations of this research have a ready audience and will continue to be of significance for further planning and policymaking as is evident in the fact that these were specifically sought by the committee constituted by the government to draft the new National Policy on Education in India. This is no mean achievement.

Evidence generated from the IECEI study regarding the significant association of school readiness levels with levels of learning in primary grades establishes the importance of a sound foundation for children through investing in good quality ECCE. While ECCE's policy framework is supportive, advocacy is required with the government at all levels to convince it to prioritize and enhance financial provisions for this foundational stage of education by acknowledging it to be a productive investment with significant rates of return rather than simply an expenditure**.**

The study also underlines the imperative need to develop strategies and mechanisms to reach out to parents and communities to inform them about the critical significance of the first eight years of life and the positive contribution of home language based, developmentally appropriate, and stimulating environments and play opportunities for children's foundational learning and development during these years. This will not only enable parents to create more responsive environments for their children at home in the early years but also help make more informed choices for preschool. An indirect gain would thus be that with a shift in the nature of demand, the nature of supply, that is, services will also change for the better.

Implementation/Monitoring

Ensuring equity with quality in provisions for ECE to reach out to the approximately 158 million children below six years in the country is a phenomenal challenge. The two major providers are the private sector and ICDS. On the one hand, while 1.3 million ICDS anganwadis are already in place across the country, ICDS' multisectoral design with a single worker and a helper, handling six diverse services, has proven to be an unrealistic expectation from the perspective of offering quality preschool education. Given the recent realization at the policy level of the

need for convergence under the Samagra Shiksha Abhiyan, alternative scalable yet equitable models of service delivery in convergence with primary schools need to be explored, contextually validated and supported to ensure that children, especially from underprivileged communities, get the early stimulation and learning opportunities that they need and deserve. On the other hand, private schooling, which is undoubtedly filling a distinct gap in public provision, is currently running as a parallel, independent stream which will require regulatory and supportive measures to be instituted by the government for quality assurance.

Issues of nonavailability of trained personnel with professional capabilities in ECCE abound in this sector. While ICDS personnel, particularly AWWs have no professional training and very limited on-the-job training, private preschool teachers are largely untrained for ECCE. With an inequitable distribution of ECCE teacher training institutions in the country (CECED, 2011), the priority for the sector is mainstreaming preschool teacher education as an integral part of the teacher education sector in the country; supporting the establishment/strengthening of resource networks at decentralized levels of governance; and expanding and strengthening institutional capacity for preparing, implementing, and monitoring ECCE programs and personnel.

A major output of the research is the development and standardization of tools for measuring quality and school readiness levels of children at the early childhood stage. While these are a significant contribution, particularly in the context of the need for such measures to meet the demands of accountability and international comparisons under the SDGs, these tend to support a standardized "one size fits all" approach, which runs counter to the developmental and contextual appropriateness professed as an imperative for ECCE programs. While the compulsions of globalization may require adherence to international standards, there is a need to explore and empirically examine the more local "funds of knowledge" that the children bring with them from their diverse contexts, with a view to helping them establish possible linkages/connections with the given curriculum and making their preschool and school experience more meaningful and productive. In addition, given the diverse economic, social, and political contexts in the different states in the country, it is also critical to understand the larger political economy and governance structures within which early childhood programs operate, and to encourage states to develop and test methods and models that best suit their individual contexts and priorities.

Research

Based on our experience with the IECEI study as well as our frustration with the dearth of information on various key dimensions of early childhood education, we end this Epilogue with a few possible thrust areas for future research:

- Collecting and consolidating nationwide information on free-standing and composite preschools in both the government and private sectors attached to primary schools and enrolment patterns. The Annual Status of Education Report (ASER)

provides one part of this information in the form of enrolment trends for children age 3 and up for rural India, but comprehensive information on ECE providers by location and institution type is not available.
- Creating a network of researchers interested in ECCE to coordinate a set of independent research studies on small scales with modest funding but common objectives and tools. This will enable building a sound database in contrast to single discrete studies whose findings are hard to generalize from.
- Developing valid and reliable tools to measure school readiness from a more holistic perspective and in different regions in the country, going beyond translating a common tool.
- Examining the relationship between institution type (standalone AWCs or composite preschools attached to primary schools) and children's school readiness and early grade learning.
- Action research to explore diverse models of ECCE practices in terms of their effectiveness in ensuring developmentally appropriate learning environments for children and determining their school readiness and later learning levels.
- Examining different models of multilingual and bilingual curricular approaches and practices in classrooms to understand how these mediate children's learning processes and impact their performance in preschools/schools.

We have come to the end of our narration describing the journey we began with much excitement in 2011. We have halted to recapitulate and chalk the course of our onward journey. For the journey must go on, carrying the wisdom of the right turns we took and the lessons from the wrong turns. On the way other travelers will join. Some will share wise counsel and others will join the bandwagon. Regardless, our destination remains the same: quality early education that we owe the young children of today and tomorrow.

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