2013

Cross-Country Review of Public Primary Education in Rural Brazil, China, Indonesia, and Mexico: Suggestions for Policy and Practice Reforms in India

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Cross-Country Review of Public Primary Education in Rural Brazil, China, Indonesia, and Mexico:
Suggestions for Policy and Practice Reforms in India

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Model Districts Education Project[2]

CGC | SA Working Paper No. 10
July 2013

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EXECUTIVE SUMMARY

Currently, world leaders are engaged in discussions about the unfinished aspects of the Millennium Development Goals (MDG). Sharing lessons learned is critical to the process of reaching global consensus on the post-2015 agenda. Obstacles and best practices from the Global South need to be voiced during these panels and discussions to address various dimensions of social development and guide the way forward, particularly in education. We need to understand what the unfinished MDG agenda comprises of and the challenges that are yet to be addressed. This information will shape the plan for implementing policies and reforms to address these issues moving forward.

Common indicator trends emerge from the Global South. National governments have put in a tremendous effort to improve access to schools. Net Enrolment Rates have improved drastically over the last decade, as a result of the unprecedented global consensus on the MDG framework. However, school quality still remains an issue in most countries. In India, learning level trends have been particularly disheartening; the indicators show a downward trend in learning levels. In 2011, ASER test reports showed that not only did children not perform at grade level, but also that overall learning levels had decreased over the previous several years (ASER, 2011). ASER reports show that 50 percent of the children in Std.[3] 5 are not even able to read a Std. 2-level text (Chavan & Banerji, 2012). This means that after three additional years of schooling, half of the students had not even learned the basics. To address the learning crisis, the 12th Plan incorporates a focus on learning outcomes; this is the first time learning outcomes have been explicitly stated in a policy planning document in India. Government of India continues to increase support for education, as shown by the increase in public spending on education as a percentage of total government expenditure[4] from 2005 to 2010. However, learning levels have not kept pace with this increase in public expenditure in the domain of education. If we compare the language literacy rates from the same period, we find that 38.7 percent children in Std. 5 could not read a Std. 2-level text in 2005 (ASER, 2005). In 2010, the percentage of children in Std. 5 could not read a Std. 2-level text had increased to 46.3 percent (ASER, 2012a). The language literacy rate continued to plummet in 2011 and 2012; the percentage of Std. 5 children who could not read a Std. 2-level text rose to 51.8 percent in 2011 and rose again to 53.2 percent in 2012 (ASER, 2012b).

What steps should be taken to focus on the issue of education quality in India to turn these learning trends around? A comparative analysis of countries with similar development indicators widens the base of the menu of interventions from which best practices can be drawn to improve quality in primary schools. As a part of the Model Districts Education Project (MDEP), the purpose of which is to gather evidence and best professional practices to improve

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[3] Grade level is called Standard (Std.) in India.

[4] During 2004-05 to 2009-10 state contributions to education have increased from Rs. 70,000 crore to Rs. 150,000 crore and the central government contribution also matched the increase from Rs. 15,000 crore to Rs. 40,000 crore (Kapur, 2011).

the quality of primary education, facilitate student learning, and lower grade repetition and dropout rates, this paper uses a comparative lens to analyze well-documented and proven interventions that have shown success in countries similar to India. These countries are Brazil, China, Indonesia, and Mexico. The selection of the countries was based on similar trends in socio-economic indicators, as well as other structural trends such as development efforts in rural areas and degrees of decentralization in education systems. The focus is mainly on rural contexts within these countries.

We define "quality" in education as a situation in which: learners are at the core of constructing knowledge relevant to their own local context, and growing into economically and socially productive citizens with a global vision; and the learning environment and teachers enable and facilitate the learning process in a collaborative, constructive, creative, and supportive atmosphere, preparing students to be active participants in democratic life. Given this definition, this paper elaborates on four main themes that underpin intervention options that have emerged as best practices to improve quality in education in the comparison countries. These thematic areas are: curriculum, teacher training, community participation, and monitoring.

Thematic analysis of curriculum-related trends suggests that targeted programs, such as accelerated learning, remedial education, and alternative education alongside the main curriculum, are essential for improving learning. Like India, comparison countries emphasized decentralization in education. However, decentralization should be accompanied by meaningful changes at the state and local levels to make education culturally relevant. Localization of this nature resulted in textbook provision in local languages for China and Mexico, a strategy that has also been employed in India. Supplemental curricula were created at the state level to target literacy support where it was most needed in early primary grades in Brazil and Indonesia. The localization process meant empowering teachers to be an integral part of the process of making content relevant to students, especially targeting low-resource rural settings. Decentralization thus came with a focus on making local context relevant and making teachers' voices heard, with the sole purpose of making education more meaningful.

Multiple models of teacher trainings have been experimented within India, and this multi-country analysis adds to that pool of information. The examples drawn from the selected countries highlight that careful and intentional follow-up to ensure the implementation of what teachers gained from training is as important as the training itself. Also, teacher trainings are far more effective if each teacher receives a greater support network within his /her school. Comparison countries handled this by training school principals, as well as teachers, and creating opportunities for teachers to incorporate feedback from trainers and peers into their teaching. Use of technology has been shown to be effective. Like Indira Gandhi National Open University (IGNOU) in India, distance-learning programs using technology have boomed to meet teacher-training needs in the comparison countries. This technology-based model, when complemented with follow-up and teacher collaboration at local and regional levels, has proven to be very effective. Teachers receive support from experts and other teachers, and belong to a "learning community." Other successful models include trainings explicitly addressing and

targeting pedagogical strategies for multi-grade classrooms and large classrooms in remote and rural settings.

Best practices in community participation in the comparison countries closely resemble India's challenges and successes in this area. Successful interventions support parents to: acquire better understanding of their children's schools and education; receive training to be knowledgeable about the running of the school and the school system; and become entrusted with committee responsibilities. Even non-parent community members can become empowered to exercise better oversight of schools, and various community programs situate learning as a communal endeavor that is not confined to students within schools. Community engagement and ownership of student performance could be keys to bringing more accountability to the Indian education system. Additionally, building on existing local culture or traditions through community participation in schools helps to encourage more and broader ownership of those schools. Therefore, engaging the community beyond mere delegation of responsibilities will be crucial to more meaningful community participation in India.

Collecting large-scale data and encouraging use for educational planning is a process on which multiple countries are currently working. India collects annual data on a large scale, but using outcome-based data to plan education interventions has not become a reality in many states in India. The findings of this paper suggest that building EMIS and using data to inform student performance on a large collective level will likely continue as national and educational endeavors. There is also a focus on sharing data widely among multiple stakeholders to inform ongoing efforts, identify areas of collaboration, and target efforts to improve educational performance and systems.

India is not alone grappling with the issue of improving education quality. However, India needs to take a much more proactive role to learn from the successes and challenges experienced in other similar countries. Brazil, China, Indonesia, and Mexico have diverse, multi-lingual, multi-cultural populations with large disparities between urban and rural settings. Given India's similar background, the comparison countries highlight interesting cases and various ways to tackle the quality issue. There are unique and relevant lessons to be learned on the localization of education. This paper especially targets curriculum, teacher training, community participation, and education evaluation and monitoring as themes that are critical components to improve learning. Throughout the paper, specific examples give a practical sense of realistic interventions that are potentially relevant to the Indian context.

Some specific trends that India could benefit from are highlighted in this study. First, although the national frameworks have unanimously pushed for decentralized education services, in practice teachers need to be engaged in designing curricula based on local and relevant examples. Second, teachers need constant encouragement and support; networks of teachers need to be encouraged and supported by school principals and trainers. Third, India has been at the forefront of community participation. Cases from efforts in other countries show that shared, collective understanding of student learning and the school system can help engage communities, teachers, principals, and educators, especially when numerous community

members are equipped and empowered with specific knowledge to know how the school functions and how to support their children. Fourth, data-driven education planning can help shape interventions that promote learning. Sharing school and student learning data is particularly useful for guiding focused discussions on issues and areas of improvement related to in-school operations, such as financing information linked to interventions, and community knowledge to hold all stakeholders accountable for the education system.

We hope this paper can help guide the interventions required to promote "quality" education. This paper pushes India to learn from the Global South, as the interventions that most matter have already have been attempted in similar contexts. What remains is to build solid knowledge about what has been implemented, what the results are, and how India can learn from these experiences to avoid re-inventing the wheel. The 2009 landmark Right of Children to Free and Compulsory Education Act (RTE) is the Government of India's formal commitment to continue supporting education. However, the solution to achieve "quality" will not be an Act—it will be a collective experience of learning from multiple countries.

SUMMARY OF MAIN FINDINGS / RECOMMENDATIONS[5]

CURRICULUM
Ensuring learning improvement and content relevance with:
- Targeted content and programs (accelerated, remedial, and alternative education) accompanying main curriculum
- Supplemental curriculum to target specific areas, such as literacy support, with teachers' involvement
- Flexibility in decentralized contextualization of curriculum to local setting (textbook language and content) with teacher input
  - National Ministry of Education and provincial office of education develop content for curriculum
  - Multi-version textbooks that accommodate linguistic, cultural, and economic diversity

TEACHER TRAINING
- Careful and intentional follow-ups are critical to ensure implementation of what the teachers gained from trainings
- Teacher training is far more effective if each teacher receives a greater support network within his/her school
  - Accompanying training of principals
  - Supervisors monitor instruction
  - Opportunities for teachers to incorporate feedback from trainers and peers into their teaching
- Exponential growth in use of technology (distance learning) for teacher training should be complemented with follow-up and collaboration between teachers at local and regional levels
  - Cluster or local resource centers
- Modernizing teaching methods through action research and inclusion of teachers and community in the process, fostering stronger school-community relationships
- Targeted pedagogical strategies for multi-grade classrooms and large classrooms in remote and rural settings
  - Implement pedagogical models in schools

COMMUNITY PARTICIPATION
- Parents' active involvement (beyond mere presence) with committees
  - Train parents to better understand their children's schools and education, acquire knowledge about the running of school and system; and entrust them with responsibilities
- Synergy in school-based management mechanisms: principals democratically elected by school officials, active school councils/committees with various stakeholder actors, and financial autonomy of schools

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[5] A list of the interventions can be found in Appendix B on page 62.

- Community learning programs that actively engage learning and literacy of children, parents, and the community as a whole

EVALUATION and MONITORING

- Outcome-based data to plan education interventions and build Education Management Information Systems to generate data that can inform student performance
- Share data widely among multiple stakeholders to inform ongoing efforts, identify areas of collaboration, and target efforts to improve educational performance and systems
    - Use data to generate specific and relevant reports to inform appropriate stakeholders and influence policy

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LIST OF ACRONYMS

AJEL	Active, Joyful, Effective Learning
AGE	Apoyo a la Gestion Escolar
AECOFABA	Associationes Escuela Familia Bahia
BOS	Bantuan Operasional Sekolah
IDEB	Basic Education Development Index
BERMUTU	Better Education through Reformed Management and Universal Teacher Upgrading Project
CAI	Computer-Aided Instruction
CAL	Computer Assisted Learning
CCE	Continuous and Comprehensive Evaluation
CENPEC	Center for Studies and Research in Education, Culture and Community Action
CEPS	School Social Participation Council
CGEIB	General Coordination for Bilingual Intercultural Education
CINVESTAV	Center for Research and Advanced Studies of the National Polytechnic Institute
CLCC	Creating Learning Communities for Children
CONAFE	National Council for Education Development
CREFAL	Regional Cooperation Center for Adult Education in Latin America and the Caribbean
DBE	Decentralized Basic Education
DEFA	District education financial analysis
DISE	District Information System for Education
DIETs	District Institutes of Education and Training
EIMLE	Integrated Strategy for the Improvement of Educational Achievement
EMIS	Education Management Information System
ENLACE	Evaluación Nacional de Logro Académico en Centros Escolares
FUNDEB	Fund for the Maintenance and Development of Basic Education
FUNDEF	Fundamental Education and Valorization of Teaching

ICT	Information and Communications Technology
IGNOU	Indira Gandhi National Open University
INEE	Instituto Nacional para la Evaluación de la Educación
IVP	Indigenous and Vulnerable People
LRC	Learning Resources Center
MDEP	Model Districts Education Project
MDG	Millennium Development Goals
MoNE	Ministry of National Education
MoRA	Ministry of Religious Affairs
NCERT	National Council of Educational Research and Training
NCTE	National Council for Teacher Education
NSSO	National Sample Survey Office
NRHM	National Rural Health Mission
NUEPA	National University of Educational Planning and Administration
OPAM	Opera di Promozione dell'Alfabetizzazione nel Mondo / Institution for the Promotion of Literacy in the World
PDE	Plano de Desenvolvimento da Escola / School Development Plan
PEC-FIDE	Program of Strengthening and Direct Investment in Schools
PTA	Parent Teacher Association
PROOF	Public Record of Operations and Finance
REAP	Rural Education Action Program
RTE	Right of Children to Free and Compulsory Education Act
SEP	Secretariat of Public Education
SAEB	National Basic Education Evaluation System
SIMAVE	Sistema Mineiro de Avaliacao da Educacao Publica / Quality of Education and School Evaluation System
SMC	School Management Committee
SMEC	Municipal Board of Education and Culture
SPAECE	Evaluation System of Basic Education

SSA	Sarva Shiksha Abhiyan
TLRC	Teachers' Learning Resource Center
UPEPE	Unidad de Planeación y Evaluación de Políticas Educativas
USAID	United States Agency for International Development
VEC	Village Education Committee

I. INTRODUCTION

Purpose of the Study

In an increasingly global and interconnected world, developing countries can share important lessons across various sectors. Quality education and healthcare services are unanimously believed to be crucial to the comprehensive and sustainable development of a nation and the alleviation of poverty. In this context, this paper offers policymakers, scholars, and development practitioners a comparative perspective on experiences with quality education enhancement in selected developing countries. This paper uses comparative insights on rural education reforms across the globe to address the questions, "What does quality education look like in rural, developing country contexts?" and "What lessons can be learned through comparing experiences across national contexts?"

This paper explores the lessons learned from rural contexts in selected countries working towards the goals of the Model Districts Education Project (MDEP). The MDEP's purpose is to gather evidence and best practices to improve the quality of primary education by developing and testing a multi-level, evidence-based model that is "locally owned and generated," yet readily adaptable for other locales. Specific outcomes include improving the quality of student learning and lowering grade repetition and dropout rates. In addition to identifying progress towards enhanced educational quality in the countries selected, this paper focuses on four main areas aligned with the MDEP project priorities: (1) curriculum and pedagogy; (2) teacher training; (3) education accountability (through community participation and school-based management mechanisms); and (4) education evaluation systems that inform education efforts.

Objective of the Paper

In investigating the four main MDEP project priority areas, the primary objectives are: (1) to understand the public primary education structures and educational priorities and policies in rural contexts in Brazil, China, Indonesia, and Mexico; (2) to identify comparable rural regions from the selected countries and explore how educators, policy makers, and communities in somewhat similar rural contexts deal with challenges to the provision of quality public primary education; and (3) to draw from the research findings specific lessons and best practices that could be relevant to MDEP sites in India and present suggestions that might inform policy and practice-related reforms at the district, state, and national levels.

II. CONCEPTUAL FRAMEWORK AND METHODOLOGY

Indicator research and findings on rural education development efforts guided the rationale for the selection of comparable states and districts within these countries. The four countries examined in this paper—Brazil, China, Indonesia, and Mexico—share a common educational vision as members of the E9[6] initiative to improve educational quality, and the governments of

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[6] Formed to achieve Education for All goals while promoting South-South cooperation, UNESCO's E-9 Initiative countries include Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria, and Pakistan, which together account for more than 50 percent of the world's population. The E-9 Initiative provides its member countries with opportunities to collectively address

these countries face similar challenges promoting social and economic development in their respective countries. These four countries also share a common perspective in identifying rural development, specifically educational development, as a key element in the greater initiative of national progress. The four governments' education systems and strategies place specific emphasis on extending basic education to remote, rural areas and ensuring relevant educational content in rural settings.

Given the objective of the paper to inform the improvement of rural education in India, effort was made to conduct this comparative analysis in regions in the four countries that resembled the states in which MDEP works in India: Andhra Pradesh (Medak district) and Assam (Morigaon district). "Comparability" was defined by indicators believed to be most reflective of the degree of rural levels, as well as a state's income, poverty level, and size. Due to limitations in gathering sub-state data (such as standardized information on year, currency, measure of wealth, data sources, etc.), information was collected at state levels for urbanization rates, per capita spending, poverty (based on national standards), and population size. The most important factors for comparison were states' urbanization rates and per capita spending.

State-level data on indicators were arranged by country and the median was taken to gauge where Andhra Pradesh and Assam stood within India. On all indicators except literacy rate, Andhra Pradesh falls above the national median, whereas Assam falls below or at the median. As such, states in the four comparison countries generally fall within a similar range of where Andhra Pradesh and Assam stand in relation to the median. This information is organized in Appendix A, and the state level data in Appendix A should be referenced to situate the states and regions discussed throughout the paper.

Exploring the various national and sub-national initiatives and interventions in rural areas revealed that rural development programs were mostly based on respective countries' indicators and census information on poverty and population characteristics. Most interventions and programs mentioned in the paper are part of national efforts to develop rural areas and rural education in the regions and states that have been deemed most in need of government support.

The data on indicators provided a general understanding of the overall characteristics of the states and provinces in each country; however, the examples rely heavily on the availability of information on rural education development with some degree of evaluation to illustrate the effect of interventions and programs on enhancing the quality of education. The specification of selection in interventions and states is primarily meant to illustrate their pertinence to rural education development and relevance to the rural context.

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education issues of common interest through exchange of information, experiences, and best practices (UNESCO, 2000; UNESCO Task Team on South-South Cooperation, 2011).

Background

As the global initiative for sustainable development moves toward the post-2015 agenda while reflecting on the progress made on Millennium Development Goals (MDGs), it is sobering to reflect on the realities of prevalent poverty around the world. There are still about 1.4 billion people living on less than US$1.25 per day and more than 70 percent of the world's poverty exists in rural areas, with children and youth comprising a large portion of the poor (UN, 2011). The limitations in providing quality education in these vulnerable and poor rural environments are unfortunate, yet not unexpected. In addition to limited resources, many critical gaps exist in research on government schools in rural contexts. Despite the limiting conditions in rural settings, a cursory look into the available literature on cross-country comparisons reveals that very little has been done to compare rural educational contexts between two or more countries with the objective of each country learning from the other(s) about educational problems and strategies to overcome these problems.

As global development efforts continue, it will be invaluable to apply more context-specific lessons learned thus far, and MDEP believes many countries of the Global South have accumulated a great deal of expertise in implementing successful and effective programs in rural schools. It is within this overall framework that we aim to look at the best practices and lessons learned from select countries in appropriately comparable rural regions, states, and provincial units or districts.

Defining Quality of Education

As this paper explores countries' strategies to improve the quality of education, it is necessary to note how educational quality is conveyed in literature and in global discourse. According to Robeyns (2006), education can be intrinsically important and also play instrumental roles in personal, collective, economic, and non-economic ways. Greater emphasis is placed on individual learning under human rights and human capability frameworks, which view education as an entitlement and enabler of growth and well-being at a personal level, with implications for societal well-being at the collective level. Under this scope, curriculum and instruction should cater to learners' needs, with assessment as a tool to gauge individual progress and teachers facilitating learning (UNESCO, 2004). Education's relevance to socio-cultural circumstances at the collective level, in terms of the power of education to enable social practice and social change, implies that local design of curriculum, pedagogy, assessment, and learning should move beyond the confines of classrooms through non-formal and lifelong learning activities that draw from, as well as inform, local environments (UNESCO, 2004).

Common elements frequently arising in the discussion of quality include curriculum content aligned with learning, and qualified teachers using appropriate assessment and engagement of learners, influenced by the greater environment (beyond classrooms) of the community and society. MDEP and this paper's views on quality reflect a combination of views, with learners at the core of constructing knowledge in consideration of the local context in which they are based, growing into economically and socially productive citizens with a global vision. The learning environment and teachers enable and facilitate the learning process in a collaborative,

constructive, creative, and supportive atmosphere, preparing students to be active participants in democratic life.

Education quality under the MDG framework entails practical considerations for access to education, as well as the attainment of knowledge and learning. With 2015 fast approaching, discussions of a post-MDG framework are intensifying with a debate on the limiting nature of the MDG framework, including the indicators and their targets (Waage et al., 2010). The debate recognizes progress in enrolments, but also notes insufficient emphasis on the learning levels of children who attend school regularly (Center for Universal Education at Brookings, 2011). The debate includes what learning benchmarks are for school-going children around the world, how much learning is sufficient, and what children should learn at each grade.

India's research-based assessment organization ASER conducts "floor" tests for millions of children each year in India. The reports in 2011 showed that children were not only unable to perform at grade level, but that overall learning levels have *decreased* over the past years (ASER, 2011). As mentioned previously, ASER showed that 50 percent of children in Standard (Std.) 5 were not even able to able to read a Std. 2-level text (Chavan & Banerji, 2012), meaning that after three additional years of schooling only half of the students were reading at the basic level. ASER's 2011 data also showed that 65 percent of the children enrolled in Std. 4 were at least three years below grade level, even after four years of schooling (Chavan & Banerji, 2012). This holds negative implications for the lag in the levels of learning that will most likely occur in subsequent years of schooling.

The learning levels displayed by ASER bring to light the challenges and complexities involved in improving education quality. There are barriers to meeting even the minimal functional definition of "quality" with basic literacy. Teachers in most classrooms face the challenge of completing the required curriculum with a group of students of varied ages and varied learning levels, and attempting to adopt principles of child-centered pedagogy with often limited resources and training. There is a serious learning crisis in schools that needs to be addressed. This is not a one-country phenomenon; recent evidence on learning levels shows that this trend is evident in more than just a handful of countries (Beatty & Pritchett, 2012). This comparative study helps to draw lessons on best practices in comparable countries to inform policy and practice about "what works."

Overview of Trends in Education in India

This section presents an overview of recent trends in curriculum and pedagogy, teacher training, community participation, and education evaluation systems. This overview aims to situate the suggestions for each thematic area that will be presented in the subsequent country comparison findings section.

Curriculum and pedagogy

Curriculum (what is taught) and pedagogy (how it is taught) have always been contested issues in the education history of India post-independence, owing to the immense diversity in the country's population. Mahatma Gandhi's vision for education awakening the nation's

conscience to the realities of Indian society came to be translated as a recommendation to use immediate environment and mother tongue to socialize the child into a transformative agent (MDEP, 2013). Gandhi's educational philosophy focus on national development was reflected in successive post-independence National Commissions on Education (NCERT, 2005). In the subsequent years, the country saw much debate on the education framework, level of centralization and decentralization, and emphasis of majoritarian views reflected in education.

In 2005, the National Curriculum Framework proposed a more holistic approach to education based on five guiding principles for curriculum development:

"… (i) connecting knowledge to life outside the school; (ii) ensuring that learning shifts away from rote methods; (iii) enriching the curriculum so that it goes beyond textbooks; (iv) making examinations more flexible and integrating them with classroom life; (v) nurturing an overriding identity informed by caring concerns within the democratic polity of the country." (NCERT, 2005, p. viii)

The document proposes the promotion of integrated knowledge and insists on textbook revision for further contextual relevance and child-friendliness. After criticisms surfaced on rote learning (NCERT, 2005), the Department of Education formulated new testing and learning evaluation called Continuous and Comprehensive Evaluation (CCE), aimed at reinforcing a continuous year-round evaluation of a child's progress in school, to be followed-up with remediation throughout the year rather than once at the end of the academic year. With proper implementation, this method is expected to make teaching and learning more activity-based and personalized to each individual student's needs and pace (MDEP, 2013).

In practice, the National Curriculum Framework guides textbook design, teacher trainings, and teaching-learning materials with some state-level variations to contextualize content to reflect local needs and opportunities. Despite efforts to simultaneously develop and interlink curriculum and pedagogy, gaps between the two remain. MDEP's preliminary findings from ongoing research reveal a major disconnect between policy and the actual implementation of curricular reforms at the state and sub-state levels. At the two MDEP sites, Assam and Andhra Pradesh states, there is a mismatch between pedagogic practices, processes of teacher training, and the expectations laid out by respective curricula. While both states have made significant attempts to revise textbooks and provide pre-service and in-service teacher training, curricular and pedagogic quality remain problematic. Hurdles continue to arise from local policy and administrative obstacles arise as policy travels from policy makers in New Delhi to village schools. However, opportunities for decentralized curricular design, implementation, and reform have enabled a much wider variety of stakeholders to participate in and impact learning in schools (MDEP, 2013).

Teacher training
The complexity of India's diverse educational landscape is reflected in the ongoing challenges and efforts to improve teacher training and the quality of the teaching force, as well as in the 1978, 1988, 1998, and 2009 revisions to the teacher education curriculum (Pandey, 2011). Over time, a traditional teacher preparation approach based on the philosophical, sociological, and

psychological orientation of courses changed to curriculum design based primarily on theoretical, empirical knowledge and student teachers' experiential knowledge (NCFTE, 2009 as cited in Pandey, 2011). The focus on decentralizing educational reforms in recent years reflects the need to facilitate the development of a more responsive, inclusive, and democratic educational system. Initiated with the 1986/92 National Policy on Education, the District Institutes of Education and Training (DIETs) are meant to restructure and revitalize teacher education, and improve the responsiveness of training programs to teachers' training needs (Dyer et al., 2002). DIET in each district was designed to "train pre- and in-service teachers, pursue curricular innovations, and plan and manage educational development" (Dyer et al., 2002). Various projects in the 1990s aimed to provide more child-centered teaching methods, and some projects have successfully expanded their scope to include higher-order skill development, as well as developing personal and social skills (Black et al., 1993 as cited in Taylor & Mulhall, 1997). A comprehensive study done in the early 1990s showed that teachers felt trainings should further support innovative teaching methods and methodologies for contextualizing relevant teaching and learning. The study also highlighted that trainings should be accompanied by support of curriculum and textbooks, which are primarily knowledge-centered, with occasional reference to activities of a practical nature (Seshadri, 1993 as cited in Taylor & Mulhall, 1997). These recommendations came to form the backbone of how teacher trainings should be conducted, and are still valid for any teacher professional development program in India.

With the national framework pushing for teachers to be facilitators or mediators in the learning process, as opposed to instructors (NCTE, 2010; NCTE & NCERT, 2006), a teacher's role demands participation in the construction of syllabi, textbooks, and other teaching and learning materials. NCTE's (2010) framework requires that teachers have adequate understanding of the curriculum, subject content, and pedagogy. The guidelines further state that these skills should be matched with local knowledge, as well as classroom management skills. NCTE (2010) also treats Information and Communications Technology (ICT) as an integral part of teacher education if ICT skills can enable teachers to improve student learning in multiple subjects with the use of appropriate ICT software. The most recent revision (2010) of teacher training content at the national level envisions more comprehensive teacher education, combining a teacher preparation program with four-year integrated teacher education courses. The idea is to provide ample time and opportunity for self-study, reflection, hands-on experience, and practicum with classroom, students, and pedagogic activities (Pandey, 2011).

Community participation
Multiple models of community participation have been documented in India recently. Institutional support for community participation in education was brought about by the 73rd and 74th Amendments to the Constitution, which established Panchayati Raj Institutions (PRIs) (Govinda & Bandhopadhya, 2010). As a part of the PRI community participation strategy, Village Education Committees (VECs) were formed to be responsible for primary and secondary schools through oversight on the functioning of the schools. Community involvement is also encouraged through the *Sarva Shiksha Abhiyan* (SSA) policy framework in the form of School Management Committees (SMCs) and Parent Teacher Associations (PTAs). Support for SMCs

and PTAs was provided through credit finance training, educational materials, material procurement, and training to maintain proper records and receipts for expenditure and accountability procedures (Uemura, 1999). The functionality of the VECs and community structures was demonstrated by various small-scale experiments on accountability that resulted in positive findings, exemplifying and the ability of the community to address education barriers and strategize accordingly (Pailwar & Mahajan, 2005).

Another important strategy that uses community participation to increase accountability is to link school budgets with student performance. Janaagraha, which is based in Bangalore, initiated Public Record of Operations and Finance (PROOF) with other NGOs and citizen-based organizations. PROOF administrators conduct site visits to city schools to collect school performance indicators through questionnaires. Information is then compiled into School Report Cards[7] that are shared with Education Department officials and school administrators. Follow-up visits and discussions about findings provide rapid feedback for improvement efforts, as well as budget updates for the next financial year. This process aims to situate the quality of education at a school with the respective budgeted amounts for the teaching and learning materials supplied to the school. Thus, performance measures are linked to the budget cycle, which demands more accountability. This way of understanding a school's inputs and outputs sheds light on the school's weaknesses, and community ownership of the school is then leveraged to initiate customized reforms.

Information sharing is another strategy to build accountability. However, there are mixed findings regarding the impact of information on improving school functions and student performance. Banerjee, Banerji, Duflo, Glennerster, and Khemani (2006) found in their survey of households and schools that institutional structures in the form of VECs or SMCs are not sufficient to improve student learning; the researchers found that campaigns and information sharing about the schools are needed to fill the gap and this combination of factors has the potential to improve accountability. Another experiment found that providing information on existing institutions and training community members in testing tools for children did not lead to higher levels of community participation or student learning (Banerjee, Banerji, Duflo, Glennerster, & Khemani, 2010). There are varying results on information campaigns and student outcomes (Pandey, Goyal, & Sundararam, 2008), which suggest that simple information provision is not enough to provoke community participation.

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[7] Other extensive uses of report cards in India include: 1) PAHELI (People's Assessment of Health, Education and Livelihoods), which is built around four domains: life and livelihoods, water and sanitation, education and literacy, and mother and infant health care. Based on MDGs, household surveys are conducted to observe basic service provision at village levels through government social schemes. "The schemes covered in PAHELI are Sarva Shiksha Abhiyan, ICDS, public health services, PDS and MGNREGS. The PAHELI toolkit can be used to assess and understand the status of human development in any given area" (ASER, 2011); 2) PAISA studies in accountability include data collection through school surveys collated for annual district-level and national-level reports on fund flows and program implementation; data is accessible at district, block, and village levels (Accountability Initiative, 2013); and 3) The government of India uses School Report Cards; the most recent upload featured 1.36 million schools in the 2010-2011 data collection period.

Evaluation and monitoring with data

India has undertaken a plethora of massive-scale data collection to inform the status of the country's education. A flagship program of SSA, for example, includes a computerized management information system of school facility data called District Information System for Education (DISE). The program is jointly managed by National University of Educational Planning and Administration (NUEPA), Department of School Education and Literacy, Ministry of HRD, Government of India, and UNICEF. It consists of an annual census of more than 1.4 million primary schools and 205,000 secondary and higher secondary schools. Census data is recorded, processed, and displayed each year in the form of School Report Cards.[8] Individual data that is compiled at the district, state, and national levels include the school-going population, number and type of schools, status of infrastructure at schools, medium of instruction, grants received and utilization status, total number of teachers, and training of teachers, along with other indicators (DISE, 2012).

Other large-scale data collection projects in India include The Ministry of Human Resource Development's Educational Statistics Survey on key thematic areas such as educational expenditures (MHRD, 2013); National Council for Education Research and Training's All India Educational Survey at the village and school levels, which covers availability of schooling facilities in rural areas, as well as physical and educational facilities in schools, incentive schemes and beneficiaries, enrolment figures, number of teachers, content of teaching, such as medium and languages of instruction, and academic and professional qualifications of teachers, etc. (NCERT, 2013); and National Sample Survey Office's household-level surveys, which are conducted to provide a sense of the demand side of education (NSSO, 2013).

Existing data collection offers information on facilities and certain household-level indicators; however, India lacks a systematic process of collecting information on child-level indicators on learning achievement. Hence, while aggregates can be drawn from a school to identify districts that are performing above or below the average, there is no way to relate achievement to specific child-level characteristics, such as socio-economic background, health and nutrition, attendance, etc. Furthermore, there is a lack of coordination between different government agencies engaged in data collection related to schools and children. The list below outlines some of the most common public systems of data collection that coexist in several states in India. However, they do not work together nor do they attempt to match each child/student using unique identification numbers. There is no systematic procedure in place to connect these different sources of data or monitor the overall holistic progress of a child through his/her academic life.
   1. Evaluation of school districts by DISE
   2. Survey of household-level data by NSSO
   3. Evaluation of student progress at school by school teachers
   4. Evaluation of student health under the School Health Programme by NRHM
   5. Census of India

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[8] For details of School Report Card use in Brazil, please see the School Management and Communal Accountability section of this paper.

6. Occasional surveys for specific research interests by NCERT and NUEPA

The situation is likely to improve over the next few years because the Government of India is in the process of issuing Unique Identification Cards to all citizens, which should allow for connecting different points of data collection to relate the possible impact of various policies to a child's social and academic progress. Nevertheless, at present, the scope and emphasis of the existing education management information system (EMIS) is geared more towards monitoring and evaluating larger systems without necessarily relating them to individual-level factors.

III. FINDINGS ON SELECTED COUNTRIES

Background on Education and Rural Development in the Comparison Countries
The following sections discuss how the four selected countries have prioritized and given special attention to embedding rural education improvement into broader development efforts.

Brazil. Though more than half of Brazil's population resides in urban areas, given the country's diversity**,** basic education has a mandate to be especially concerned with the particularities of rural life in every Brazilian region. This mandate includes defining curricular content, methodologies, school organization, and a school calendar that are appropriate to the real needs and interests of the rural population, including the agricultural cycle, climate conditions, and the nature of rural work (UNESCO & IBE, 2010).

China. About half of China's population lives in rural areas. Government strategies to promote education equity include reforming the central rural education finance system, providing more funds for scholarships and school infrastructure, and providing ICT support in rural areas. Each of these initiatives has helped reduce the burden of education for rural families. In attempts to guarantee nine years of compulsory education, China's government significantly increased expenditure in rural education in western and central China (Jing & Hu, 2007). In 2001, the State Council issued a key legal document called "the Decision on the Reform and Development of Basic Education," which covers important aspects of basic education and highlights efforts in rural areas for curriculum and personnel reform, improvement of the quality of education, and changes to teacher education (Jing & Hu, 2007).

Indonesia. Approximately 70 percent of Indonesia's population lives in rural areas with agriculture as their main source of income. Poverty is prevalent in these areas and especially concentrated in the more remote eastern islands populated by indigenous communities. To address the need for development, the government set forth Indonesia's National Long-Term Development Plan 2005-2025 to reduce poverty and push for development efforts and equitable development focused on disadvantaged communities, education, health, and agricultural development, which are formal national priorities (IFAD, 2013).

Mexico. At approximately 36 percent, Mexico has the largest rural population in the OECD. Despite their significant size in terms of area and population, rural areas constitute only a small portion of the economy and have much lower living standards than urban areas. The spatial differences and variations in these areas call for a place-based policy approach and the Mexican government invested significant efforts to establish a multi-sector rural policy and coordination between various ministries and levels of the government (federal, state, and municipal) for holistic rural development. Similar to Brazil and China, the government mandated a legal requirement for a concerted rural development plan that includes a specific "rural budget" for the initiatives and requires integrated programs of different ministries that target rural areas (OECD, 2007).

Table 1 gives a broad macro level overview of the economic and education landscapes of India and the four comparison countries.

Table 1: National-Level Overview of Comparison Countries

	INDIA	BRAZIL	CHINA	INDONESIA	MEXICO
GDP per capita [a] in current $	1,509	12,594	5,445	3,495	10,049
Population	1,210,193,422	190,755,799	1,339,724,852	237,556,363	112,336,538
Average Life Expectancy	77	74	76	74	77
Male Literacy Rate (%)	82	90	97	96	94
Female Literacy Rate (%)	65	90	91	90	92
% GDP Spent on Education	3.3	5.6	3.3	3.0	5.3
Net Enrolment [b] in Primary Edu.	92	95	99.5	96	98
% Private Primary Enrolment	17	14	5	17	8

SOURCES.
GDP: World Bank, 2011
Population: India (Census, 2011); Brazil (Census, 2010); China (NBSC, 2010); Indonesia (BPS, 2010); Mexico (INEGI, 2010)
Average Life Expectancy: WHO, 2011
Male Literacy Rate: India (Census, 2011); Brazil (World Bank, 2009); China (World Bank, 2010); Indonesia (World Bank, 2009); Mexico (World Bank, 2010)
Female Literacy Rate: India (Census, 2011); Brazil (World Bank, 2009); China (World Bank, 2010); Indonesia (World Bank, 2009); Mexico (World Bank, 2010)
% GDP Spent on Education: India (World Bank, 2010); Brazil (World Bank, 2009); China (OECD, 2007); Indonesia (2010); Mexico (World Bank, 2009)
Net Enrolment in Primary Education: India (World Bank, 2008); Brazil (UNESCO, 2011); China (Ministry of Education, 2007 as cited in UNESCO & IBE, 2010c); Indonesia (World Bank, 2010); Mexico (World Bank, 2011)
% Private Primary Enrolment: India (World Bank, 2003); Brazil (World Bank, 2011); China (World Bank, 2011); Indonesia (World Bank, 2010); Mexico (World Bank, 2011)
NOTES.
[a] "GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars" (World Bank, 2011).
[b] "Primary net enrolment rate refers to the ratio of children of official primary school age who are enrolled in primary school to the total population of official primary school-aged children" (UNESCO Institute for Statistics as cited in World Bank Data, 2013).

Background on the Organizational Structure of Education in the Comparison Countries

This section provides a macro level view of the organizational structure of schooling in the countries under comparison. Providing a background on institutional context is important to situate best practices that will be described in subsequent sections. Brazil, China, Indonesia, and Mexico all have nine years of compulsory basic education, comprised of primary and lower/junior secondary schools. Schooling is mandated for children ages 6 to 14 in Brazil and China (UNESCO & IBE, 2010a; UNESCO & IBE, 2010c), ages 7 to 15 in Indonesia (UNESCO & IBE, 2010b), and ages 6 to 11 (or up to age 15 for children who enter primary school late) in Mexico (UNESCO & IBE, 2010d). In Indonesia, Jakarta is in the process of extending compulsory primary education to 12 total years; children up to 18 years of age will be in school (Satu, 2012). The four countries have made efforts over time to decentralize their education systems for better efficiency; however, the degree and extent to which authority is delegated to local levels differs by country.

Brazil is relatively liberal in its devolution of power to the decentralized levels. Brazil's system includes the Ministry of Education at the federal level, secretariats of education in each state, and secretariats of municipal education in each municipality. The education system consists of 27 state education systems and approximately 5,600 autonomous municipal education systems; more and more municipal education secretariats and councils continue to be created (UNESCO & IBE, 2010a). Most financing decisions occur at the federal level; Brazil's Federal Constitution requires that states and municipalities spend at least 25 percent of their income from tax revenues, and 60 percent of this expenditure must go to primary education (UNESCO & IBE, 2010a). Under the government's Fund for the Maintenance and Development of Basic Education (FUNDEB) strategy, investment allocations are made according to the number of basic education students based on school census data from the previous year. Authority over compulsory primary education is primarily in the hands of municipalities and states. All three levels—federal, state, and municipal—have some administrative roles and the educational and disciplinary organization of schools is regulated by bylaws approved by each system's standards body. Educational activities and units are regulated by the standards-setting body, and managed by the central executive body (UNESCO & IBE, 2010a). Though primary education enrolment in Brazil is within the average for the region (around 95 percent in 2008), the repetition rate is 24.5 percent in the first grade of primary education, which is quite high for the region (UNESCO, 2011).

The education system in **China** is more centralized, though decentralization efforts have been made. Departments of education at each level (central, provincial, prefecture, municipal, and county) are responsible for the administration of education (UNESCO & IBE, 2010c). Compulsory education is guided by State Councils and principally managed at the county level, but implementation is carried out in accordance with the overall planning of provincial, regional, and municipal governments. The new Compulsory Education Law (2006) gives county governments the main responsibility for basic education services and requires that provincial governments help allocate funds, especially in poor areas (Jing & Hu, 2007). Though

miscellaneous fees were allowed previously, the new law stipulates that no official or miscellaneous fees can be charged. Another aim of the law is to reform the student evaluation system and involve all three levels—national, local, and school—to partake in curriculum management to give local governments and schools more autonomy. The remaining challenge is how to set up an accountability system to implement the reforms stated in the law, in a context of limited funds, a shortage of teacher training opportunities, and discrepancies between the new curriculum and existing system of evaluation for teachers and students (UNESCO & IBE, 2010c). Though improvements in rural education have been made, the gap between urban and rural areas continues to widen with respect to rates of enrolment, literacy, and educational attainment (UNESCO & IBE, 2010c). Net enrolment in primary schools reached 99.5 percent in 2007, according to the Ministry of Education, but efforts for educational equity continue because the Ministry of Education found that some counties—especially in western China—have not yet achieved universal nine-year compulsory education or effectively combatted illiteracy (UNESCO & IBE, 2010c).

The school system in **Indonesia** is the third largest education system in Asia and fourth in the world after China, India, and the United States. Indonesia's school system is comprised of over 50 million students, 2.6 million teachers, and more than 250,000 schools. The two ministries responsible for managing the education system are the Ministry of National Education (MoNE), which manages 84 percent of schools, and the Ministry of Religious Affairs (MoRA), which manages the remaining 16 percent. More affluent districts have universal enrolment in primary school, whereas rates are below 60 percent in poor districts. Indonesia's education system actively grants and elicits direct community involvement in the education system. Although authorities at the national level shape the administrative, planning, implementation, teacher training, and curriculum framework and guidelines, the provincial and district levels cater to local needs in operations and management, and adaptation of ministerial policies. Schools can also develop their own curricula based on national curriculum guidelines and negotiation with local stakeholders; regional educational administrators approve these adjustments (World Bank, 2013).

Education decision-making was decentralized in 1992 to the state level for **Mexico**'s 32 states; however, the function is primarily administrative (Santibanez, Vernez, & Razquin, 2005). Education services and organs functioning at decentralized levels are largely extensions of the federal system. The Secretariat of Public Education (SEP) is the key body for education at the federal level, with local education authorities at the state levels. At the municipality level, a council consists of parents, representatives of associations, teachers, and school principals. The SEP holds regular national and regional meetings between education authorities of the states. They coordinate actions and programs, disseminate federal regulations, provide advice, support improvement and development of programs in the states, and seek information that supports decision-making in substantive areas of the Secretariat. Although states cannot choose their own curriculum, textbooks have been translated into 25 different indigenous languages and there are variations in the versions used by various communities (Santibanez et al., 2005). Under SEP, there are five subsystems: urban public, urban private, rural public, indigenous education, and community courses. Indigenous and community education are run by a

government agency called the National Council for Education Development (CONAFE), which delivers education services to rural marginal populations as an alternative education option (IADB, 2003).

Some of the main roles and responsibilities at each level are displayed in Table 2.

Table 2: Devolution of Authority in Comparative Country Education Systems

	BRAZIL	CHINA	INDONESIA	MEXICO	KEY	
Funding	⊙	⊙■ □ county, not municipal	⊙■	⊙	⊙	Federal/ Central/ National
Policy decision	⊙	⊙	⊙	⊙	■	State/ Province
Teacher Training	⊙■□	⊙ □ county, not municipal	⊙■ □district, not municipal	⊙■	□	Municipality
Curriculum and Textbook	⊙■	⊙	⊙■○	⊙○	○	School/ Community
Monitoring/Regulation /Supervision	⊙■□○	⊙	⊙○	○		
School management committees	○	○	⊙○	○		
Standards Setting	⊙■□	⊙	⊙	⊙		

NOTE. The devolution of authority identified at each level was drawn from multiple sources and general observation, with emphasis on the main actors/drivers on the given education topic. This categorization may differ from a specific source or from specific governments' formal assignments of authority at various levels.

Various layers of additional decentralization will be discussed in the subsequent thematic sections exploring best practices: 1) curriculum and remedial education support; 2) teacher training; 3) community participation; and 4) education evaluation systems.

IV. CURRICULUM

The reform of the four countries' education systems from centralized implementation of education services into more decentralized systems involved delegating from the national level to the local level greater responsibilities for various educational services, including curriculum reform. Curriculum reform in these four countries offered ways to address gaps in educational achievement that exist within heterogeneous, multi-lingual, and multicultural communities to achieve greater positive outcomes through localized interventions, thereby improving the quality of education to meet the needs of the local education system's beneficiaries.

Through the decentralization of curriculum, communities at the district and local levels gained greater ownership of the development of education strategies and materials based on the local needs of the community. This system created a platform where the students gain knowledge of

national curriculum content but also have the opportunity to develop competencies with local characteristics. In this setting, teachers become empowered to serve the curriculum needs of their school, while students benefit from localized curricula that assist in personal development related to the social and cultural contexts of the region.

Need-Based Curricula for Rural Communities

Indonesia began decentralizing the education system in 2001. The central government became responsible for developing the national curriculum, setting standards for measuring student achievement, and developing learning materials. The provincial government took the responsibility of contributing to the provision of textbooks and educational materials. Through this system reform, regency government (one level below the provincial government) bodies now have the ability to oversee the development of education in their respective regions, while central and provincial authorities focus their time on developing national standards for examinations and national curricular reform. Due to the limited human capacity that existed at the regency level, the Ministry of National Education helped to build the capacity and skillsets that were lacking, as presented in Box 1.

Textbox 1: Curricular Relevance in Indonesia

The central government guides the development of competency-based, school-level curriculum through the Curriculum Center at the Office of Educational Research and Development (part of the Ministry on National Education). The Curriculum Center also provides curriculum models that schools can implement. Support is given to principals and teachers via training sessions in curriculum development. In the training sessions, teachers have the ability to develop relevant learning activities based on the needs of their students, their school's resources, and the local environment.
The central government directs the basic framework and structure of the curriculum, while individual school-level committees and Madrasah Committees (both part of the public education system) develop the specifics of the school-level curriculum. The process is supervised by the District Office of Education at the local government level (or in the case of Madrasah, the Ministry of Religious Affairs).

Source: Dharma, 2008 as cited in UNESCO & IBE, 2010b

Basic education in Indonesia includes grades 1 through 6. Within these grade levels the curriculum includes a national component, developed by the central government at the Ministry of National Education, as well as local content developed by the Provincial Office of Education. The local content aspect allows teachers to include activities and curriculum that develop each student and community's unique identity by incorporating characteristics of the local region (Dharma, 2008 as cited in UNESCO & IBE, 2010b). Though contextually relevant material is clearly important to the Ministry of National Education, it is unclear what proportion of the curriculum is national and what proportion is local.

China's educational system, although relatively more centralized, does provide the means for teachers to make different choices about the types of textbooks offered to their students,

depending on the cultural and economic standings of their respective regions. Previously, one standard textbook was distributed across the entire country. The participatory approach of allowing choice of textbooks is a key aspect of the New National Curriculum, which was implemented in 1999 and completed at the primary and junior secondary levels by 2005. Multi-version textbooks give minority groups the ability to utilize bilingual curricula and offer teachers a means to adjust the curriculum to reflect the social and cultural context of their school and wider community. Prior to distributing the multi-version textbooks, the Chinese government used in-service workshops to train all teachers to build the teaching capacity needed to implement the new curriculum nationwide (Wang & Zhao, 2011).

Textbox 2: Textbook Choice in China

In 1999, China undertook the New National Curriculum Reform to improve the quality of education. Textbook development changed from one book to multiple versions, to better accommodate cultural and economic diversity. Some aspects of the new curriculum included greater flexibility to meet the diverse needs of students, including bilingual education for minority populations and participatory methods to ascertain how best to reflect distinct cultural identities in textbooks. Another program sought to improve the quality of compulsory education by incorporating active learning and child-centered teaching methodologies, such as self-learning that uses students' experiences, problem-solving, and learning interests.

Source: Wang & Zhao (2011)

The New National Curriculum "[takes] into account students' own experience and learning interests, as well as real ability in self-learning, problem-solving and information skills" (Jing & Hu, 2007, p. 7). In remote rural settings, concentrated efforts have been initiated to cater to children's leaning needs and make the curriculum more contextually relevant. Through one rural education improvement project funded by the Rural China Education Foundation and Global Giving, reading classes in Shanxi Province's Yongji County catered to rural children in 2nd through 4th grades. Due to a lack of educational resources, libraries were set up in rural village schools and local teachers got support to develop curricula to engage children beyond the few available textbooks. The four steps utilized in the reading classes involved: 1) pre-reading to engage students in the topic on which the reading is based, using materials such as simple photos of their own village or surroundings; 2) prompting comprehension through writing story predictions before comparing predictions to the actual text, and using illustrations or pictures as visual aids; 3) building speaking and comprehension skills through retelling the whole story and sharing with the class; and 4) applying knowledge by having students investigate their own village and members of their community. Though no formal evaluations were documented, the project reports that the method and materials used in the reading classes cultivated student interest in reading, improved reading skills, and enhanced students' ability to analyze problems (Global Giving, 2013).

Mexico's education system is similar to China's in terms of centralized development and distribution of multi-language textbooks. Mexico's 25 indigenous communities are given a national primary textbook in their own language through the translation and publication office of the Secretary of Education. Libraries are also stocked with indigenous language textbooks. Concerning content, at the primary level all schools must use the national textbooks. Though indigenous schools were decentralized in 1992, the federal government still maintains control of the curriculum. At the SEP (Mexico's education secretariat), the General Direction of Indigenous Education deals specifically with the education needs of indigenous populations. This unit is one of the largest offices at the SEP and it functions alongside another unit, the General Coordination for Bilingual Intercultural Education (CGEIB), which exists to promote tolerance and cultural diversity in schools, and also to support indigenous students in non-indigenous schools (Santibanez et al., 2005).

Brazil's National Educational Plan (Law No. 10.172) states that it is the responsibility of the states to provide indigenous education with the involvement of municipalities (UNESCO & IBEa). Through Brazil's decentralized primary education system, bilingual intercultural education was developed within the local curriculum to promote the cultures of Brazil's indigenous populations and sustain the ethnic diversity that exists within the nation. Some communities have taken initiatives to adapt the national curriculum to cater to local learning needs in agrarian rural areas. Box 3 highlights an interesting case of basic education provision in the rural area of Bahia state.

Textbox 3: The "Family School" Model in Rural Brazil

The State of Bahia, located in northeast Brazil, is a relatively poor state[9] that has an agriculture-based economy with some chemical, petroleum, and pharmacological industries. Investment for development disproportionately favors urban areas over rural areas, which has led to mass migration of the rural population to cities, where migrants hope to find a better life.

In an effort to counter rural migration, an association called *Associationes Escuela Familia Bahia* (AECOFABA), started to run about 30 Family Schools in Bahia. The objective of the Family Schools is to educate youth to follow the customs and culture of their family and community. The schools are located in rural areas and accept young farmers from different parts of Brazil.

AECOFABA is in charge of managing and coordinating school programs, engaging teachers, and guaranteeing available learning materials. The program is assisted by an Italian NGO, *Opera di Promozione dell'Alfabetizzazione nel Mondo* (OPAM), which translates to Institution for the Promotion of Literacy in the World. Because the Brazilian federal government provides only the first four years of primary school, Family Schools offer an affordable alternative for farmers' children to continue their studies.

With a specific aim to serve the rural population, the Family Schools' schedule rotates work and school. Students alternate two weeks studying at school and two weeks working at home, so they stay engaged with their community and family. The rotation is well-received by families because the

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[9] See Appendix A for state-level comparisons of GDP in Brazil.

children can continue to help with family chores and duties. Family Schools can also enroll a larger number of students because of this shift schedule.

Students spend three years studying practical and theoretical subjects, including social science, mathematics, and agriculture. The afternoon schedule includes three hours in the school's orchard and garden, where students learn the skills of sowing, cultivating and harvesting crops, breeding small animals, and bee keeping. Produce generated at the school feeds the students and is also sold to purchase additional supplies in the local market. At the end of each two-week session, any additional cost of purchased goods is divided among the students, and this is the only cost they pay for their education.

The Family Schools are closely tied to agricultural sustainability and the conservation of environment and natural resources. Students study topics that include soil control, water preservation, and energy use. They return to their home communities with a good grasp on knowledge related to agriculture and with social consciousness.

Source: Emiliani & Gasperini, 2002 as cited in Atchoarena & Gasperini, 2003

Specific attention has also been placed on problem areas with the curriculum. In the states of Acre and Ceara, grade repetitions were noted in 1st and 2nd grade in primary school. To tackle this issue, these states developed curricula with teachers ("It's Time to Learn" in Acre, and "Learning at the Right Age" in Ceara), focused on literacy development that targets 1st and 2nd grade and also has relevance for grades 1 through 5. The curricula became part of teacher training programs and the overall initiative is monitored by state supervisors. External assessments on the results of this approach showed that students were learning more than they had before the introduction of the curriculum (OECD, 2010).

Additional Support: Remedial Education

Children are expected to master required academic content through basic education and apply it to their future academic and professional pursuits. Unfortunately, not all rural students are able to achieve this minimum level of achievement due to a variety of factors that hinder learning. Limiting factors include learning disabilities, truancy, gender disparity, large classrooms, teacher absenteeism, unqualified teachers, discriminatory school practices, irrelevant curricula, outdated teaching methods, and limited school resources. These factors can inhibit students' ability to progress to the next level of schooling or, in some cases, push students out of school. Students who drop out often view school as a poor investment given the socioeconomic labor demands in many rural contexts. All of these factors are significant in the four countries of analysis, particularly in rural settings.

To prevent students from falling behind grade level, government bodies have established remedial education programs to give students who lag behind in their grade-specific educational achievements the ability to participate in programs that address gaps in their learning. Remedial education also provides an opportunity for drop-out and overage students to start school where they left off, attain core subject knowledge up to their expected age-

specific grade level, and enter the appropriate grade level thereafter.

In **Brazil**, local governments' partnerships with philanthropic foundations have led to innovative methods to implement remedial learning programs. In 2009, the municipality of Rio de Janeiro launched a large-scale program called "*Reforço Escolar,*" testing all children before the start of the school year to determine their comprehension of grade-appropriate curriculum. Those students who were identified as not being at grade level were provided two weeks of intense tutoring, including reading and math reinforcement. In 2010, *Reforço Esolar* provided these remedial learning programs to over 200,000 students (Bruns, Evans, & Luque, 2012).

In 1995, a similar accelerated learning program was initiated through a partnership between the state of Sao Paulo and the non-profit Center for Studies and Research in Education, Culture and Community Action (CENPEC). The program targeted overage students in their final three years of primary or secondary school, seeking to have them re-enter at their age-appropriate grade level by offering a test and subsequent learning reinforcement course before the start of the school year. This program currently operates in 16 states, including Acre, Pernambuco, Amazonas, and Rio de Janerio (Bruns et al., 2012).

Another accelerated learning program, Se Liga, offered by the non-governmental *Ayrton Senna Institute*, was specifically developed to provide remedial courses for students in primary school who have not mastered reading skills. *Ayrton Senna Institute* also developed the program *Acelera Brasil* for primary school children who have the capacity to read but are at risk of failing; these children attend a one-year accelerated course that condenses two years of content in half the time. This program currently operates in Paraiba, Piaui, and Tocantins (Bruns et al., 2012). Though broad in scope and ambition, these three programs in Brazil lack proof of efficacy (Bruns et al., 2012). Some anecdotal evidence suggests that there are some success stories, but does not acknowledge often high dropout rates and high costs.

In **China**, poor rural schools are targeted for support due to lack of quality education and remediation assistance. Following the ambitious government plan of putting computers in all rural schools, ongoing programs such as Rural Education Action Program (REAP) through Stanford University have implemented Computer Assisted Learning (CAL) to research and investigate effects on educational performance. REAP was implemented in rural boarding schools in five "poverty counties" in Shaanxi province (as designated by the government). This program aims to develop a curriculum and accompanying training manual for China's disadvantaged youth in the rural setting. If proven effective, the CAL package will be disbursed to national and state foundations for scale-up. Components will include math content linked to the national curriculum, guides for students and teachers, and training material. Results after 13 weeks of the CAL program involving 20 hours of computer time show that standardized math scores have improved by nearly 0.15 standardized deviations for 3rd graders, and the range is 0.11 to 0.12 standard deviations for 5th graders (REAP, 2013).[10]

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[10] "With respect to the perceived impact of CAL on their studies, 90 percent of the intervention students believed CAL had at least moderate positive impact. Over half expressed increased interest in their studies after the CAL program, revealing additional positive spillover effects that can further boost student engagement and performance in school" (REAP, 2013).

Indonesia's Functional Literacy Program, which operated from 1966 to 1979, taught learners literacy and vocational skills. The Package A Program, which was implemented from 1970 to 1990, focused on teaching reading through daily life issues and later expanded to incorporate community issues. The program was very community-based in practice, as well; one literate person was assigned to teach ten illiterate people. Through a 100-book package, in addition to other print materials such as leaflets and posters, this program was able to decrease illiteracy significantly (Jalal & Sardjunani, 2005). In 1990, Indonesia focused education reform efforts on achieving nine years of compulsory education. As a result, the literacy program was condensed into a pilot program in nine provinces with a focus on "discussion strategy, reading, writing, calculating and problem solving skills" (Jalal & Sardjunani, 2005, p. 12). Through a partnership between the government and NGOs, the Literacy Movement was launched as a commitment to eradicate illiteracy within the nine provinces with the highest rates of illiteracy. One of the four goals of this program targeted youth through formal and non-formal education aimed to increase access to quality education in remote and isolated areas, prevent high drop- out rates by providing scholarships, implement retrieval efforts for students who dropped out, and provide equivalency programs related to academic and life skills at the primary education level for students who could not enroll in formal schools. Another approach of the Literacy Movement policy was to "retain literacy competence" (Jalal & Sardjunani, 2005, p. 13) by having a community library in each village. The successful partnership between all stakeholders in the Literacy Movement pilot project is reflected in Indonesia's 50 percent drop in illiteracy from 15.4 million illiterate individuals in 2004 to 7.5 million in 2010 (Census Statistics, as cited in Ministry of Education and Culture, 2012).

In all four countries examined, on the surface, decentralization efforts in education led to a mandate allowing for some degree of modification and contextualization of the national curriculum to better cater to the diversity of an educational landscape marked by different regional and cultural characteristics. However, a mandate allowing for modification to the national curriculum and textbooks can be superficial if no meaningful changes occur to make content relevant to diverse and rural settings. In China and Mexico, the government provides textbooks in various languages and versions to cater to its diverse population; in Brazil and Indonesia, supplemental curricula were created at the state level to target literacy support where it was needed in early primary grades. Teacher input in creating the curriculum, as well as teacher training linked to the new curriculum content, can help ensure changes in teaching practices targeted towards modified learning content. The literacy support curriculum created in states in Brazil involved teachers in the curriculum design process. Teachers play an instrumental role in creating content relevant to students and deciding how the information is delivered. Even in low-resource rural setting of China, teachers have found simple ways to engage students through extensive examples and discussion of the local setting in classrooms (Global Giving, 2013). In more remote rural settings with limited public education provision in Brazil, educational needs were met by supplementing the national curriculum with agricultural education and knowledge that is practical and useful for children in the rural setting. The

impact of targeted programs, such as accelerated learning, remedial education, and alternative education alongside the main curriculum should not be underestimated; these targeted programs are often the only mechanisms and methods that directly engage individual learners before they fall further behind in learning and schooling.

V. TEACHER TRAINING[11]

Relevant learning content for learners in multiple settings is enabled through effective delivery of information by teachers who facilitate learning. Literature has consistently shown that the role of teachers has the most profound impact on student achievement. John Hattie's (2005) meta-analysis, which systematically analyzed prior studies that estimated the degree of influence of various factors on student achievement, revealed that of the 22 influencers identified, the top influences with greatest effect-sizes—such as feedback to learners, direct instruction, and quality of teaching—were associated with teachers.

A qualified teaching force is ensured by providing solid and relevant teacher education that equips teachers to address learning needs through skillful instruction. Studies show that both subject knowledge and pedagogical knowledge need to be strengthened simultaneously, but teacher training (pre- and in-service) often falls short of offering robust content and practice in these two areas (UNESCO, 2012).

UNESCO's (2004) EFA Global Monitoring Report on the quality of education discusses various measurable factors found to increase effective classroom instruction, giving thought to what elements and content should be at the core of ideal teacher preparation. Teachers should have expertise: aligning the curriculum to assessment and keeping subject matter aligned with the intended curriculum for all grades and classes; optimizing time usage by maximizing learning time and allocating ample time for active learning and instruction; properly structuring instruction with engagement of learners, frequent monitoring, and feedback on learning progress with reinforcement related to assessment outcomes; and leading an orderly classroom environment with a task-oriented climate and appropriate discipline factors, and the fostering of mutual respect among and between learners and educators (Scheerens as cited in UNESCO, 2004). Table 3 provides an overview of the teaching force at the primary level in the selected countries.

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[11] Appendix C presents an overview of some commonly used teacher training models and their usefulness and limitations. Aspects of these models are evidenced in various components of the teacher training programs and examples mentioned in the paper.

Table 3: Primary Teaching Force Data for Comparison Countries

	BRAZIL	CHINA	INDONESIA	MEXICO
% of Teachers in Primary Education with Required Certification/ Qualification [a]	73	98 (only 5% have both Bachelor's degree and certification)	60	96
Average Monthly Teacher Salary [b]	$745	$1,108 (base)	$2,733 - $3,941 (starting salary)	$1,018
Teacher Preparation Requirements and Related Policies	National exam for all candidates; Bachelor's degree	High school diploma; subject area and pedagogy/license/ exam required upon employment; pre- and post-degree trainings	At least a Bachelor's degree or four years for S1 certification (equivalent to a Bachelor's degree); two semesters of training; certification test for in-service teachers	Four-year teacher training schools (after completing nine years of compulsory education), as well as license degree programs (various options)
Rural Teacher Policies and Incentives	Teacher salary increases with introduction of Fund for Maintenance/ Development of the Fundamental Education and Valorization of Teaching (FUNDEF); teacher training priority for primary teachers in rural areas, plus equipment, materials, and transportation; "Open University" for those with limited access to tertiary education	Six universities offer free education for those signing up to work in basic education for 10 years; in-service training for rural teachers; 10% salary increase for rural teachers; teacher rotation; increased salary for new teachers with three years of rural deployment	Increased chance of tenure; professional and "location incentives" to upgrade qualifications and serve in remote locations; general trend of female teachers working in their home villages; tripled salaries in remote/ disadvantaged areas	Salary differentials that reward teachers in rural areas

SOURCES.

% Teachers Qualified: Brazil (UNESCO & IBEa); China (Ingersoll, 2007); Indonesia (Jalal et al., 2009); Mexico (World Bank, 2011)

Teacher Salary: Brazil PPP adjusted (MTPS, 2004 as cited in World Salaries, 2008); China (NBSC, 2003 as cited in Abroad China, 2013); Indonesia (World Education Indicators, 2007 as cited in Jalal et al., 2009); Mexico PPP adjusted (INEGI, 2005 as cited in World Salaries, 2008)

Teacher Requirements and Related Policies: Brazil (Bruns et al., 2012); China (Ingersoll, 2007); Indonesia (Jalal et al., 2009); Mexico (Rowling, 2006)

Rural Teacher Policies and Incentives: Brazil (OECD, 2010); China (China Delegation, 2009); Indonesia (UNICEF, 2010; World Bank, 2010b; Suryahadi & Sambodho, 2012); Mexico (Vegas, 2005)

NOTES.

[a] Defined by UNESCO as "the number of teachers who have received the minimum organized teacher training (pre-service or in-service) required for teaching at the primary level in a given country, expressed as a percentage of the total number of teachers at the primary level".

[b] The FTI (EFA's fast track initiative) indicative framework suggests that for the recruitment and sustenance of a high quality teaching force, teacher salaries should be 3.5 times the average GDP/capita.

Government Efforts to Address Teacher Training Needs in Rural Education

It is challenging to establish the adequate supply of trained and effective teachers in rural contexts. Rural contexts are often characterized by teacher shortages (teachers prefer urban areas), overcrowded classrooms, multi-grade classes, and limited resources. Teachers in rural contexts require additional training on the skills needed to manage rural conditions and ongoing support. A study of national program to improve teacher quality in Mexico revealed that teacher training is most effective when the training targets an increase in teachers' practical experience, as well as developing teachers' content-specific knowledge (Lopez-Acevedo, 2002). To address challenges related to the teaching force, governments in the four countries of this study have taken initiatives in recent years to specifically strengthen teacher preparation and teacher quality with financial and technical inputs, with teacher trainings being a major component.

In **Brazil**, almost 80 percent of teachers teaching 1st to 4th grades do not have a tertiary education degree, and this number reaches 95 percent when teachers in rural areas are counted; similarly, almost 24 percent of teachers in grades 5 through 8 do not have a higher education degree, and this number becomes 55 percent when counting teachers in rural areas (Rega et al., 2006). The primary mode of instruction tends to be teacher-directed with an emphasis on basic literacy skills. This method is problematic in settings with a wide range of student abilities and ages due to grade repetitions, particularly if training in how to effectively utilize multi-grade and multi-level methods is absent.

Brazil's 1996 Law of Directives and Bases of National Education mandated that all teachers have at least a Bachelor's degree by 2006, raising educational requirements to become a teacher. Additionally, the law implemented no-fee pre- and in-service trainings. Each state and municipality also established career paths and standards for teachers, ranging from pre-service assessment for influencing entry into teaching to career paths linking salary to expertise, as well as other incentive programs[12] (OECD, 2010).

Textbox 4: Teacher Improvement Efforts in Brazil

Individual states are using different strategies to address teacher quality in Brazil. Some states are working with federal universities and NGOs to develop effective in-service training for teachers.

The states of Ceará and São Paulo have organized coaches to work with teachers in the classroom, using the state's instructional materials to help teachers improve their practices.

The state of Acre, one of Brazil's more rural states, raised teacher salaries to more competitive with other states. Subsequent success attracting teachers to the state suggests important implications regarding how to bring more qualified teachers to more rural areas and states, which often have fewer qualified teachers than more urban areas and states with higher educational performance. Details of the reforms are found on page 27.

Source: OECD, 2010

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[12] Incentives included improvement of teacher salaries, selection of principals based on expertise rather than politics, school-wide rewards, and technical support for low-performing schools.

Brazil's previous Minister of Education (in office until 2012) worked on creating standards for a career path based on credentials and a new examination for teachers that covers both content and pedagogy. This led to a new form of accreditation for new teachers, which meant teacher candidates had to pass the exam before entering the profession. Teacher education institutions previously focused on the theory and philosophy of education, rather than the knowledge and skills needed to be an effective teacher (Shwartzman, 2003). "What exists now in Brazil is a proliferation of new initiatives in teacher education courses provided by universities in partnership with the State Secretariats of Education or by the universities themselves" (Shwartzman, 2003) (see the Initiatives to Train Teachers subsection for examples of these initiatives).

There is a notable shortage of qualified teachers in **China**'s remote areas, especially female and minority teachers, due to harsh living conditions. This affects the quality of schooling, as well as access to education for girls and minority children. In rural areas, substitute teachers who lack proper training often take the place of fully-trained teachers due to local governments' inability to pay regular teacher salaries. Trainings for rural teachers, especially in-service training opportunities, are limited and the quality is unsatisfactory. The government established a teacher qualification system called the "Regulation of Teachers' Qualification," as well as "Teacher's Law." Some of the requirements include financial incentives, such as pushing county governments to pay teacher salaries on time, incentivizing teaching in remote or minority areas with subsidy allowances, and requiring that the average salary of teachers should be no less than the average salary of other civil servants. Substitute teachers were to be either upgraded or dismissed based on qualifications, and additional programs were implemented to support rural teachers and rural schools, such as Rural Teacher Special Posts**,** which encouraged university graduates to work in rural schools for three years. The government also funded regional-level teacher trainings to accompany the launch of the new curriculum (Wang & Zhao, 2011).

Rural areas in **Indonesia** hire teachers locally but these teachers are usually unqualified, with only about 50 percent of teachers holding a teacher-training certificate or diploma. The need has been identified to include classes and experiential opportunities that prepare new teachers to work with special needs children in rural and urban settings, and with both mono-grade and multi-grade classrooms. Indonesia's 2005 Teacher Law mandated various reforms to improve teacher quality. All teachers are now required to meet two conditions: first, they must acquire an academic qualification of at least four years of post-secondary education; second, they must pass exams (a portfolio test for in-service teachers and one or two semesters of professional training for pre-service teachers, plus the successful completion of a certification exam before entering the teaching profession). To pair certification with financial incentives, the government mandated that certified teachers (1) receive a teacher allowance (which is approximately double the base salary of the civil service); and (2) receive a special allowance in remote and disadvantage areas (equal to base salary), meaning that certified teachers deployed in remote or disadvantaged areas can earn up to three times what their non-certified counterparts in the

teaching force earn. This is the first time such a comprehensive and unified strategy was adopted by the Indonesian government (Jalal et al., 2009. p. 24).

As with other countries, teachers in rural areas of **Mexico** are less qualified and teachers with higher test scores and training evaluations are concentrated in urban and low-poverty municipalities. This holds important implications for rural-urban disparities, as well as for professionalizing the teacher workforce (Luschei, 2012). Factors deemed to be important in teacher effectiveness in basic education have been found to be largely absent in Mexican classrooms (Schmelkes, 2000). These missing factors include detailed lesson plans, adequate teaching on reading comprehension and writing, cooperative learning and individual attention, stimulation of higher-order thinking, effective time management, and teacher support from superiors. There is a general lack of collegial work, school support for successful teaching, feedback, proper supervision, and accountability for teachers—all factors that are key for effectiveness, as highlighted by local and international research. Additionally, in-service training opportunities are scarce, particularly in rural areas (Schmelkes, 1997; World Bank, 2000 as cited in Lopez-Acevedo, 2002). Continuing efforts are being made to address shortcomings in the quality of education by decentralizing the education system, creating a Carrera Magisterial (program of incentives and professional development for teachers), and providing and reorganizing formal and informal education for youth and adults. Key remaining issues at national and state levels include: (1) weak teacher training; (2) lack of research and evaluation that can inform school improvement efforts; (3) inadequate teacher preparation incentives; and (4) lack of efforts to decrease teacher absenteeism (part of Programa Escuelas de Calidad, one of the government's four major programs) (Santibanez et al., 2005).

Instituted in 1992 and designed jointly by the federal and state education authorities and the teachers' union, Mexico's *Carrera Magisterial* is one of the pioneer teacher incentive programs with a horizontal promotion system that rewards teachers with performance-based salary bonuses. Teacher performance is evaluated using criteria such as, "seniority, educational attainment, professional development, teacher performance, and student achievement" (Santibanez et al., 2007, p. iii). The aim of the program is to "help improve educational quality by rewarding and stimulating the work of the best teachers . . . and reinforcing teacher interest in professional development and continuous improvement" (Santibanez et al., 2007, p. xiii). Though the program has not been formally and independently evaluated, a national professional development course for teachers was associated with an increase of 0.04 and 0.05 of a standard deviation in the average student and teacher test scores, respectively (Santibanez et al., 2007).

Similarly, in a sample from rural schools, students with a teacher in the program achieved slightly better scores than their peers. The findings from the study suggested that in regards to teachers and policy, it is most important to invest in practical experience for primary school teachers and develop content-specific knowledge in teacher training. Additionally, teachers' enrolment in the program positively correlated with student achievement, but the teacher's promotion / level within the *Carrera Magisterial* program negatively correlated with student

achievement, so caution must be taken to avoid perverse incentives related to how teachers are promoted (Lopez-Acevedo, 2004).

Teacher Training Initiatives

The government's systemic support is crucial for improving the quality of the teaching force. Teacher trainings are typically supported by both national government and sub-national divisions. Pre- and in-service trainings are simultaneously emphasized because the governments of these four countries recognize the importance of improving, updating, and maintaining teacher certification and qualifications (Jalal et al., 2009; Cheung, 2008).

Brazil's government provides materials and resources (booklets, videotapes, and a booklet for teachers called "Teacher Advisors") on specific teaching areas to accompany the in-service teacher training course. Specific thematic areas are outlined in Table 4.

Table 4: Thematic Materials for In-service Teacher Training in Brazil

Literacy: Key concepts that support the design of literacy and language teaching, including main literacy capabilities to be developed by students during early schooling.

Linguistics: Evaluations through formative assessment strategies and continued assessments, which include suggestions of activities to be developed in the classroom to reach some of the capabilities listed under literacy.

Organization of Time, Pedagogical Planning and Education: Analyzes situations of teaching and learning from the point of view of the organization of school time and planning activities by the teacher through experience reports. Special attention to the practices of reading and writing in school routine, recovering and developing the notion of literacy

School Library or Reading Room: Analyzes the importance of reading and libraries, as well as different methods of reading, diversity of media texts, relevance of the dictionary in the day-to-day classroom, and critical mediation of teachers along the literacy process.

Playful Classroom: Projects and Games: Examples of games and activities undertaken by teachers of public schools in the state of Pernambuco. In all games and activities, students practice skills directly related to Portuguese language development (the production of an almanac in play activities of reading and writing, singing and speaking and understanding the alphabetic writing system, etc.).

Textbook Classroom: Presents issues related to the use of the textbook *Literacy and English Language* in the classroom. Discusses the process of textbook modification under PNLD (National Textbook Program under Ministry of Education), the selection process and the characteristics of new textbooks, and teachers' usage of textbooks in their teaching practices.

Ways of Speaking / Writing Modes: Explores integration between practices and teaching/learning writing. Analyzes the work of a school teacher in reading activities and production of texts that take into account students' communicative competence.

Tutor, Teacher Training, Essentials for Work Mentoring: Information and notes that discuss issues related to adult education, distance education, and the formation of study groups to help prepare and organize the supervisor of studies regarding the work to be developed along with participant teachers.

Supplementary Volume: Issues related to the teaching and learning of written language, in series or cycles in early elementary school, from accounts of pedagogical action developed with the topic "History of Life." Includes questions about reading and textual production in language training for students.

Source: Brazil Ministry of Education, 2013

Brazil's reforms exemplify the focus placed on teacher training. Initiated in 1998, the Fund for

Maintenance and Development of the Fundamental Education and Valorization of Teaching (FUNDEF) prioritized teachers by devoting 60 percent of the fund's resources to recruiting and training more teachers in poorer states and using remaining funds to maintain and develop basic education (Menezes-Filho & Pazello, 2004). A study on FUNDEF's effectiveness showed that on average, the program raised teachers' relative wages and improved the relative performance of public school students (Menezes-Filho & Pazello, 2004). Qualified teachers helped reduce grade repetition and dropout, and also facilitated students entering 1st grade on time (Vegas, 2007; EFA Global Monitoring Report, 2003-2004). In recent years, while giving technical and financial support to state and municipal systems of education, the Ministry of Education in Brazil has prioritized developing in-service training activities for teachers and providing high-quality teaching and learning materials to school systems. Some examples are cited below.

Brazil's School Improvement Project (Fundescola II, the second of three projects designed to improve public primary education) comprehensively targeted school improvement efforts in poorer, often rural areas, by emphasizing teacher training. The goal of this sub-component was to implement pedagogical models in 2,000 rural schools. The results far exceeded this target; implementation occurred in more than 5,000 rural schools. The government's willingness to meet high demand contributed to the results (World Bank, 2006a). The pedagogical models used in the project are described in Box 5.

Textbox 5: Pedagogical Models Promoted under Fundescola II

Escola Ativa (Active School) provided teaching methodology for rural multi-grade classes. The introduction of multi-grade methodology to rural teachers in Brazil has been essential because there was very limited prior training on how to handle classrooms of this nature.

GESTAR (Management of School Learning), a distance learning component of the school improvement program, provided continuous pedagogical training in mathematics and Portuguese language for 1st through 4th grade teachers. The pre-requisite to this training was submitting a school development plan (PDE) to express the need for this intervention. The program was piloted, evaluated, and disseminated under FUNDESCOLA II to schools in states and municipalities that were undergoing the Strategic Plan for the Secretariat (PES in Portuguese) program. As of 2004, GESTAR is being used to train 5th through 8th grade mathematics and Portuguese teachers as well.

PRALER (Program for Reading & Writing Assistance) was developed in 2003 to focus on improving pedagogical techniques around literacy for 1st and 2nd grade teachers who have finished the above-mentioned GESTAR training. According to the pilot in four states: Bahia, Roraima, Goias, and Mato Grosso, PRALER has had a positive impact on the professional development of teachers.

Source: World Bank, 2006a

After teacher training was identified as a crucial component of education reform, various states in Brazil integrated training into their broader plans for education quality improvement. In-

service teacher training for primary school teachers in the state of Rio Grande do Sul has been recognized as a best case, innovative practice. In the municipality of Ijui, which has 14 urban and 23 rural schools, a partnership with the local university (UNIJUI) and the Municipal Board has provided teachers with various training activities, including consultations, special courses/seminars, periodic meetings, and opportunities to author texts and materials. The program is developed according to a theme with grade-level and subject variations within the theme. The aim of the program is to reduce the student dropout rate and boost teachers' capacity, along with systemic support and financial provisions to address difficulty in rural children's access to schools and the prevalence of multi-grade classes due to teacher shortages. UNIJUI professors, personnel from the Municipal Board of Education and Culture (SMEC), educators, principals, and school coordinators act as staff developers and teacher trainers. The course covers content areas, learning theories, and teaching strategies. Each participant takes specialized roles: principals study and discuss pedagogic approaches, "participative management, and administrative issues"; school coordinators discuss schools' roles, learning theories, and teachers' pedagogic actions (UNESCO & UNDP, 1997, p. 13). Teachers discuss their practices with SMEC and UNIJUI consultants and then also with peers. The back-and-forth process enables teachers to explore and design their curriculum, set goals, define basic lesson concepts, and implement theory-based projects. The key point is that the program is an integral part of schools' weekly working hours so schools organize activities around the teacher development courses, according to the needs of teachers and school administrators in the program. The success of this program has been cited as redeeming teachers' credibility through authorship of education materials, better school-community integration, and self-esteem of rural workers, and results showed that student dropout rate decreased from 8 percent to 3 percent (UNECO & UNDP, 1997).

The Brazilian state of Acre focused on the primary curriculum with training provided by supervisors who monitor instruction. Additionally, coordinators for administration and pedagogy supported the staff of larger schools so that principals could lead the instructional teams at the schools. More specifically, the education office led by the Secretary of Education in the state created a career plan for teachers while working with teachers and raised salaries to 26 percent above the national minimum starting salary. In a collaborative effort with the federal university in Acre, the teacher education program was developed to provide training for teachers from urban districts to smaller cities and towns. These efforts complemented the national FUNDEF program previously mentioned, which disbursed funds to raise teacher qualifications, especially for teachers without a Bachelor's degree. Although there weren't sufficient funds to improve school infrastructure, special attention was given to creating feasible budgets in urban, rural, and indigenous areas in dire need. Among education improvements, Acre was able to reduce illiteracy from 25 percent in 2000 to under 14 percent in 2010 (OECD, 2010).

Improvements to teacher education also got a boost from a partnership between the city and a NGO to provide teacher training for municipal and state schools. The reach to both municipal and state schools was instrumental in maximizing the improvement effort, because this approach increased access into the schools at multiple levels of the education system. Teachers

in Brazil were also closely linked to the learning materials through their role in developing curriculum for children lagging behind in literacy, as mentioned in the previous Curriculum section (OECD, 2010).

In another Brazilian state, Ceará, the teaching program for primary grades focused on giving teachers close supervision and support. Working with Federal University's Center for Assessment and Education Development, the program prepared and certified 100 professionals to work with teachers, principals, and headmasters. All municipalities at the sub-state level worked with teachers to use the curriculum, develop lesson plans, and conduct assessments structured for effective teaching with explicit focus on literacy and numeracy in 1st and 2nd grade, due to repetitions noted in 1st grade. The state contracted an external assessment company to create reading exams and teachers subsequently received formative assessments. Following these steps, the state formed a partnership with municipalities to expand the curriculum and support better teaching, including incentives to improve teacher salaries, select principals, and shape effective school organization. Since 2005, federal test results have been used to guide management reforms, which have included setting improvement goals for schools and providing required support services (OECD, 2010).

Indonesia's Teacher Law of 2005 mandates that all teachers develop competencies in four areas: 1) pedagogical (teaching ability); 2) personal (character and example); 3) professional (training and education); and 4) social (community participation) (Jalal et al., 2009). The law sought to raise the quality of the teaching force and called for large national efforts, such as a program initiated with the Government of Indonesia and the World Bank called Better Education through Reformed Management and Universal Teacher Upgrading Project (BERMUTU). This program highlighted pre-service teacher training tailored to special needs children and both rural and urban settings with variations of graded and multi-grade classrooms. The project design supported a case study approach to general and specific teaching situations, such as sharing teaching and learning materials, tailoring content to special needs children, and working with students in isolated settings and multi-grade classrooms. The program also included Distance Learning Development Grants, which were meant to have an indirect impact on Indigenous and Vulnerable People (IVP) by providing teachers in remote areas with a cost- and time-efficient option to upgrade their qualifications (World Bank, 2007b).

The World Bank's impact evaluation revealed that the program reduced teacher absenteeism and increased teachers' subject mastery and pedagogical knowledge, as well as students' participation in classroom instruction (Tutuka, Neneng, Amanda, & Karyadi, 2008). BERMUTU focused on six areas for teacher development: "(1) school curriculum and lesson plan development; (2) test development, analysis and test item banking; (3) classroom action research (CAR); (4) subject materials and clinical review; (5) teacher mapping and performance evaluation; and (6) study visits, internships, and teacher exchange program" (Jalal et al., 2009, p. 121). Each of these activities is undertaken within a subject context.

Based on teacher training best practices, the BERMUTU outline suggested accreditation criteria to be included in university accreditation for teachers. The criteria include: assessment of

students and teachers on classroom performance against continually improving standards of practice; combination of theory and practice in pre-service trainings (within BERMUTU, at least 20 percent of pre-service education was to be on observation and practice in school); establishing practicing teachers' roles to entail supervising student teachers, instructing in pedagogy, and collaborating in action research (BERMUTU funded local working groups of teachers for this purpose); and creating training content for new teachers that includes consideration for special needs children, rural and urban settings, and graded and multi-grade classrooms (World Bank, 2007a).

A training model used in Indonesia's Decentralized Basic Education 2 (DBE 2) program, funded by USAID, offers an example of a modular approach created with consideration of the national training requirements. In the DBE 2 training model, preference is given for a local approach to meeting teacher training needs and the aim is to provide additional resources. The model contains five steps, which are outlined in Table 5.

Table 5: Five Step Module of Indonesia's DBE 2 Program for Teacher Training

Step	Activity
1. Training of Modular Development Team and Field Staff	Training on effective training and training package development
2. Training Package Development	Modular Development Team that consists of university teacher educators, practitioners, and ICT specialists develop training packages
3. School Development Training 4. Cluster Working Group Training 5. School Level Support and Applications	One training package contains: • Three-day district-level School Development Workshops • Two primary principals' working group modules with school-based follow-up support • Two primary teachers' working group modules with classroom-based follow-up support • School-driven projects or applications of content based on training package topics

Source: Jalal et al., 2009

The involvement of university staff in the development and delivery of training content and modules meant that, at the completion of each module, teachers were able to attain university credits towards teacher certification. Additionally, the themes and topics presented in the modules are comprehensive, offering training in both "what to teach" and "how to teach" specific academic subjects (literacy, numeracy, sciences, and civics), as well as pedagogical training (teaching strategies, multi-grade teaching, curriculum and instruction, how children learn, active learning, etc.). The DBE 2 modular approach has proven to be successful in participating districts where the working groups and schools engaged in in-school activities to ensure that training materialized into classroom practice (Jalal et al., 2009). The technology component of the DBE 2 program will be further explained in Box 6.

In **China,** professional development called Xingdong Jiaoyu (Action Educaton) uses a model of in-service teacher training called Keli (Exemplary Lesson Development). Keli gives teachers concrete methods, instruction, and feedback to effectively design lessons. The process of the Keli mechanism is outlined in Figure 1.

Figure 1: Xingdong Jiaoyu (Action Education) supported by the Keli (Exemplary Lesson Development) Process
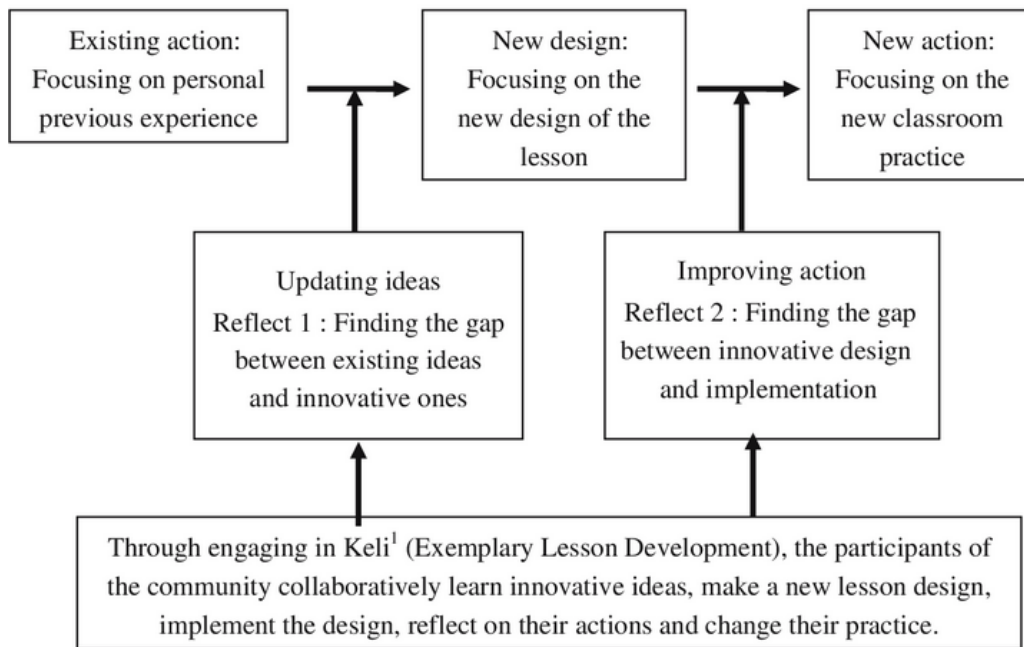
Source: Gu & Wong, 2003 as displayed in Huang & Bao, 2006

The model materializes the idea of school-based teaching and teachers' research activities, enabling collaborative professional development, lesson planning, and frequent classroom observation and post-lesson reviews. The model provides an environment where teachers receive encouragement, enforcement, and support to implement innovative curriculum and lesson planning in the everyday classroom (Huang & Bao, 2006).

China also has teacher training schools that are specifically geared to providing continuing education for primary school teachers. Structurally, the teacher training schools contain a teaching building, library, laboratory, equipment, dormitories, and dining rooms. However, where resources are scarce, some provinces shared resources from other teaching research or educational technology centers. The training materials developed by experts and/or full-time teachers display regional diversity. The training is guided by the national standards and covers the following: "professional ethics and political education; educational theories, curriculum and pedagogy, educational practice and basic teaching skills; new knowledge and technology; vocational knowledge and skills useful for community development and indigenous education" (UNESCO & UNDP, 1997, p. 16). The combination of theory and practice has shown successful results, based on assessment of trainees' performance as reported in national journals and meetings. Effective teaching skills have been demonstrated and school principals have

expressed satisfaction with teachers' progress upon receiving training. The training process contributed to improved school quality, teaching reforms, and a lower teacher turnover rate. Continuing education has been especially useful for basic education improvement in rural and mountain areas, where teachers are able to become permanent teachers (UNESO & UNDP, 1997).

Rural China Education Foundation has launched extensive and diverse programs to address rural China's educational needs. Rural China Education Foundation programs in Shanxi Province, including the county of Yongji, offer professional development for teachers, but also broader reforms, such as: school environment improvement through repairs; camps designed to engage students in topics relevant to their lives through books and movies; creating a Community Education Center where educational activities can be hosted; and reading classes for rural children in 2nd through 4th grades. Best practices from other areas are disseminated through publications with partner schools and teachers. Rural China Education Foundation has noted that ideas shared through the program have motivated and improved the morale of teachers and school principals (Global Giving, 2013).

Mexico has used action research to update and modernize teaching methods. The "Action Research on Concept and Attitude Formation in Preschool and Primary Education" (IACAE) targets change in teaching practice from the perspective of attitude, work, and concrete classroom methodologies. The program was provided in school zones based on indicators (dropout rate, absenteeism, efficiency, and geographic, socio-economic and cultural factors) and the primary contents included: action research methodology; teaching methodology for various subjects; participatory teaching techniques; design and production of low-cost educational material; and school-community linking strategies (UNESCO & UNDP, 1997). The five steps of the program are: contract with community authorities; participatory diagnosis with the community; planning of activities; implementation; and evaluation (UNESCO & UNDP, 1997). The program entails workshops, seminars, group learning, and research activities accompanied by participants exchanging and sharing ideas, as well as designing and preparing didactic materials derived from workshops and discussions. The technical meetings involve professors' colleges working in teams to propose ways to support teachers. This program has been well received for including teachers and community members in the action research process, and fostering teaching-learning linkages and school-community relationships (UNESCO & UNDP, 1997).

Teacher Support and Resource Centers
Trainings focused on teaching skills and content alone cannot sufficiently address the multitude of challenges teachers face, especially in rural contexts with limited resources, encouragement, and support. Teachers reap many benefits from coaching, mentoring, and accessible resource centers.

Programs like China's Educational TV have established regional study centers where teachers can meet with a staff member or tutor who has some level of expertise in the subjects teachers are studying. Beyond in-person support, these study centers offer media and materials; in some

cases, centers also have features that allow teachers to complete courses by using Computer-aided Instruction (CAI) and conducting research. "Open Classrooms" are also available, where teachers create lessons and invite colleagues, and in some cases parents and teachers from other schools, to observe the lesson and provide structured feedback in a post-observation session with colleagues. The teacher typically incorporates feedback into a future lesson (Burns, 2011). Similarly, Indonesia's Cluster Resource Centers offer drop-in hours during which teachers can receive assistance from a master teacher, distance education program person, or another certified teacher. Attesting to the importance of in-person support, Indonesia's two pilot programs of school-based coaching had positive benefits on teacher practice (Burns, 2011). Of approximately 300 teachers across six Indonesian provinces, 98 percent implemented at least one technology-based, learner-centered activity, and in addition to attaining higher degrees of confidence and self-efficacy, all teachers reported gains in their knowledge of new instructional practices and the use of technology to support student collaboration (Ho & Burns, 2010).

Textbox 6: DBE 2: Teacher Training in Indonesia

The USAID-funded Decentralized Basic Education (DBE) 2 program in Indonesia used technology to expand the reach of the program but also provided participants with in-person support and training.

This program arose in response to persistent challenges with cascading model approaches (see Appendix C) to assuring quality implementation of innovations in the classroom. With the DBE 2 approach, educators (content area supervisors and general supervisors) received two weeks of face-to-face instruction in coaching techniques, such as how to conduct classroom observations. These educators were then paired and assigned to a school, where they spent four months helping teachers integrate into their classrooms four models of one-computer, learner-centered activities. Additional support was provided through 10 online learning sessions in the course of 21 weeks, where coaches learned a particular strategy and, together with his or her school-based coaching partner, applied this coaching technique with teachers.

Areas of support included: holding productive meetings, helping teachers design a lesson plan, co-teaching a one-computer classroom activity with teachers, and observing and providing feedback to teachers. Teachers who participated in the blended approach (online learning and face-to-face, school-based coaching) reported higher levels of technology proficiency, better understanding of learner-centered methodologies, and greater confidence in integrating one computer into the classroom than teachers who participated in the purely online approach (Ho & Burns, 2010).

The DBE 2 project's online coaching program organized coaches and learners into small virtual learning teams with required periodic interaction and group assignments that required mutual support and feedback. The coaches' online instructors, who had matriculated from the same coaching program the previous year, also served as mentors for the new coaching candidates.

Source: Burns, 2011

A strong takeaway from Indonesia's DBE 2 case study is the recommendation to organize learners into learning teams, cohorts, or a community. The DBE 2 school-based coaching

program organized online learners into four-member, cross-provincial learning teams. The completion rate for online learners was 78 percent, and research and qualitative results indicate that learning community/cohort was a contributing factor to teacher completion of the course (ETLO, 2010; Ho & Burns, 2010).

In China's Gansu[13] province, the Joint Innovative Project (JIP) improved rural schools by focusing on staff development, pedagogical training, community-based advocacy, and mobilization. The project was evaluated and received extensive recognition for its success. The project utilized the model of scaling up by clustering schools at different levels and cascading the effects of training (FAO & UNESCO, 2003).

One aspect to give attention to in providing teacher support systems is the sufficient staffing of competent individuals. In the case of China, the "Teaching Research Office" or "Teacher Continuing Education Centre" in each county is often understaffed; sometimes five to ten teacher research staff members serve thousands of teachers with weak staff training. The Chinese government plans to integrate the "Teaching Research Office" and "Teacher Continuing Education Centre'" at the county level to avoid duplication and strengthen the support system and staff (Wang & Zhao, 2011).

Effective Use of Technology to Support Teacher Training

With increased demand for teacher support and training for large teaching forces and education systems, distance education using technology has potential for both developing and developed countries (Robinson & Latchem, 2003; Perraton, Robinson, & Creed, 2007 as cited in Robinson, 2008). Effective use of technology can overcome challenges of geography, demographics, and resources to provide knowledge and opportunities to those who most need them, assisting in the upgrade of knowledge, skills, and qualifications with pre- and in-service teacher education. Additionally, teachers can reap more benefits when distance-learning programs are paired with face-to-face support and coaching (Burns, 2011).

In Brazil, Proformação, a program for training in-service teachers, was developed by the Ministry of Education in 1997. Coordinated by an administrative unit of the Ministry, it is a distance teacher certification course aimed at upgrading 27,000 uncertified teachers who taught the first four primary grades in 15 states in the North, Northeast, and Midwest regions of Brazil. Combining human and technical resources, the program employed a distance education model through Training Agencies located in each Brazilian State. The components combined: self-study, school-based practice, local bi-weekly meetings held locally for tutors and teacher-trainees, as well as a supportive communication network to assist tutors and teacher-trainees (Bof, 2004). This strategy helped cut down on the large administrative staff that would typically be employed for content, design, and resource delivery. An information system was implemented to monitor and support program activities and results. Program details are listed in Box 7.

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[13] See Appendix A for urbanization and poverty rates as compared to Assam.

Textbox 7: Proformação: Brazil's National In-Service Teacher Training Program

The main objectives of *Proformacao* are to: improve primary school children's learning and performance in state and municipal public schools; certify new teachers teaching literacy in the first four years of primary school; and upgrade the qualifications of current teachers.

Course design includes: 3,200 hours of training in four modules (semesters); individual and group activities; in-person sessions held at local Training Agencies (usually held during teachers' vacation period); activities outlined in study guides; workbook exercises on course content; and journal entries to record observations, progress, problems, and experiences in the classroom.

The course also includes: learning support provided by a local tutor (who was guided by Training Agencies); follow-up evaluation of teaching practice at school after participation in the program; bi-monthly tutorial meetings (conducted on weekends) on guiding and monitoring the teacher-trainees' work in progress; school projects; and additional support, such as videos related to each Study Guide unit, a forum for discussion, and dialogue to clarify any problems or questions. Bimonthly tests are given on all content areas, and ongoing support for questions or additional information is accessible without charge through Training Agencies via toll-free phones.

Proformação operates at three levels. At the federal level, technical, pedagogical, and material design takes place, along with devising implementation strategy, monitoring/evaluating process and results, and support to states. Each state is responsible for creating a management coordination team to manage the program, including staff and provision of infrastructure for Training Agencies. Municipalities are responsible for payment and provision of tutors' wages and transport for visits to teacher-trainees' schools, as well as transport, meals, and accommodation for both teacher-trainees and tutors during the in-person sessions.

External evaluations on 2,500 participants revealed positive impact on pedagogy; improved course planning; better awareness of needs and differences of students and use of techniques to stimulate students; improved use and management of classrooms; and greater and more effective teacher participation in schools. Further, performance data shows that 85.7 percent of teacher trainees achieved certification/promotion. In contrast with the high dropout rates typical of distance learning programs, these results are positive. Results in teacher performance in each of the content areas show that the majority of teacher-trainees performed well above the minimum required for promotion (World Bank, 2006). **"***Proformação* represents a different way of organizing a system to deliver education at a distance. By establishing a highly structured system, engaging local partners by investing in their training and continuous motivation, and having a good support and monitoring system, it shows that it is possible to provide good training opportunities to those who live isolated or in rural areas" (Bof, 2004, p. 13).

Source: Bof, 2004

As a joint effort to improve the quality of basic education as a means of alleviating rural poverty in Gansu Province, the European Union and Chinese government jointly invested 17 million Euros to support 41 of Gansu's 86 counties. The provincial government implemented the EU-China Gansu Basic Education Project, with emphasis on teacher development that included head teachers and administrators. Focus was placed on the new national curriculum, new teaching methods, usage of ICT, and educational management. In addition to trainings, scholarships were given to 13,550 poor children and the biggest component of the project was the creation of the ICT-supported Teachers' Learning Resource Centers (TLRCs) mentioned previously. One hundred thousand rural teachers and head

teachers were trained under the TLRCs. The TLRCs provided a wide range of resources, including: current information on new curriculum and teaching methods; observation and discussion about lessons taught by other teachers shown in class, via real-time satellite, or on recorded CD-ROMs; lesson planning with colleagues, discussion with other teachers and trainers, and finding and creating educational resources to be used in teaching (Burns, 2011).

Use of television and radio

Canada, China, Mexico, and Brazil have been global leaders in using television for teachers' pre- and in-service instruction (Burns, 2012). Indonesia's education channel, Channel 2 of TV Edukasi30 (or TVE2), began in August 2008 to help pre- and in-service teachers across the country obtain advanced degree and content and methodology competencies. Broadcasted six days per week, eight hours a day, the Universitas Terbuck (UT) provided programmatic content and also awarded credits for participating teachers. The process typically involved watching programs in school or in one of UT's 37 learning centers, as well as reading print-based materials. Teachers created a portfolio based on what they learned and a local university tutor assessed the portfolio. Portfolio grades were then sent to UT and the teacher received credit (Burns, 2011). To address limited capacity in rural settings, Banten, one of the nineteen municipal regencies in the seven provinces with insufficient basic infrastructure, a Learning Resources Center (LRC) was created, providing a solar panel, parabola dish, and LAN (with server and digital content) as an access point for the learning center (Nizam & Santoso, 2013).

In the Brazilian State of Paraná, videoconferencing has been used to train teachers. Course design and curriculum content for the course meet the guidelines of the National Council of Education and individual State Councils of Education. The Secretariats of Education in each state and the higher education institutions are responsible for curriculum design and the curricula are subject to central surveillance and approval by the National Council of Education; and the National Council of Education approves pedagogical subjects that the Faculties of Education or similar higher education institutions offer. Pedagogical subjects and teaching practice for elementary school subjects are compulsory components of in-service training courses. The study of school subjects (Portuguese, History, Geography, Mathematics and Sciences) is not legally compulsory, but in practice most programs have made them compulsory, offering more comprehensive training in all subject areas (Schwartzman, 2003; Figueiredo & Cowen, 2003). The provision of training on both school subjects and pedagogical knowledge offers better grounding for teachers, and research has shown that provision of both is essential for improving teaching practices (UNESCO, 2012).

A partnership between China's Central Radio and Television and Jiangsu Radio and Television University resulted in the provision of a multimedia in-service teacher training program to upgrade teachers' qualifications and competencies in English-language instruction. Though results were not focused on evaluating teacher knowledge and skills, Zhang and Hung (2007) found that the multimedia program helped lower the rate of teacher attrition, increase learner satisfaction, and improve learner outcomes (Burns, 2011).

Radio programs have also been used to tackle specific issues such as literacy. In Brazil, the School Radio Programme, a partnership between the Ministry of Education's Secretariat for Distance Education and the Literacy Solidarity Programme, aimed to train literacy teachers for youth and adults. By using radio programs and printed materials, the program reached 22,000 teachers responsible for teaching and building literacy of 550,000 young people and adults in the North and Northeast regions (Ministry of Education of Brazil, 2003).

Continued interaction with teachers is vital for all trainings, especially with distance learning. From a review of various studies, Burns (2011) found that opportunities for in-person meetings via frequent study groups, co-planning, observation sessions have been key elements of successful print- and audio-based distance education courses. Such strategy for ongoing support and collaboration have lowered attrition rates and boosted teacher satisfaction (Perraton, 1993; Robinson & Latchem, 1997; Dimock et al., 2001; Perraton, Creed, & Robinson, 2002; Burns & Dimock, 2007 as cited in Burns, 2011).

Another radio program highlighted as a successful case study amongst E-9 countries is Indonesia's Radio In-service Training (Diklat SRP) for primary school teachers. Designed to improve primary teachers' teaching method, content knowledge, and competencies, the program is particularly meant for those in rural and remote places. The program is jointly managed by central-level and provincial-level teams, with relevant units of Directorate of Primary Education as designated staff. The instructional team develops program content that incorporates a comprehensive team of curriculum, subject, media, and evaluation experts, as well as teachers, studio teachers, cast, radio producers, etc. The central government funds the program, with routine funds allocated for staff and a development budget for the design and production of the program and associated materials. The broadcast and printed learning materials guide the program, with additional video recordings and sound-slides accessible at local implementation units. The program was advertised through print and radio spots and the teachers willing to participate formed learning groups in each school. Activities include listening to radio programs (20 minutes, twice a day), reading supplemental print materials, and discussing relevant topics. Activities are reported monthly to the local implementing unit. Any issues or problems encountered during individual or group sessions are addressed by visiting supervisors and/or local implementing units in the provinces. Subsequent broadcasts give feedback to questions or issues raised by teachers. The final stage includes examinations teachers take, with the school principal's recommendation, and a performance assessment carried out by test expert and technical staff. Though teachers' performance and student learning outcomes have not been measured, 70 percent of teachers who participated in the program successfully earned a certificate of completion (UNESCO & UNDP, 1997).

The Importance of Follow-up Support

The importance of supporting teachers and their training is uncontested, yet systems often lack continuous and close supervision, feedback, and support for teachers. The examples of success drawn from the selected countries contain some aspect of systemic and close support during the process of providing training for teachers, as well as careful and intentional follow-up to ensure effective implementation of what teachers gained from training. Often, good training involves building a greater support network within schools, typically by training principals through teacher training coaches or by deploying instructors to schools for assistance. Even in distance-learning programs using technology, which have boomed to meet teacher training needs in these countries, good training design consisted of follow-up and teacher collaboration at local and regional levels; teachers thus received support from experts and other teachers and belonged to a "learning community." Follow-ups and supervision allow teachers to continuously incorporate suggestions and what they learned into their classrooms and teaching practice. Successful training components explicitly addressed and targeted pedagogical strategies for multi-grade classrooms and large classrooms in often remote and rural settings. In some Brazilian states, as previously described, teachers are additionally linked to curriculum development and thereby not only receive teacher education but also become an integral part of the educational process.

VI. COMMUNITY PARTICIPATION

Curriculum, pedagogy, and teacher training reforms are key elements that directly affect the quality of learning and instruction in classrooms and schools; however, these inputs are most effective when the school system runs with proper oversight and accountability. It is crucial to recognize that children are linked to and interact daily with the world outside their schools (Clune, 1994). As a result, education is not an independent endeavor but an integral part of the community, and community ideas and values constantly permeate the school grounds and impact school processes. To more comprehensively approach educational issues, developed and developing countries have undertaken various accountability reform strategies at the community level to improve schools and children's learning. A cross-country analysis of OECD countries that have adopted these strategies shows that countries with greater accountability and local decision-making have better learning outcomes (Fuchs & Woessmann, 2007; Woessmann, 2003 as cited in Bruns, Filmer, & Patrinos, 2011).

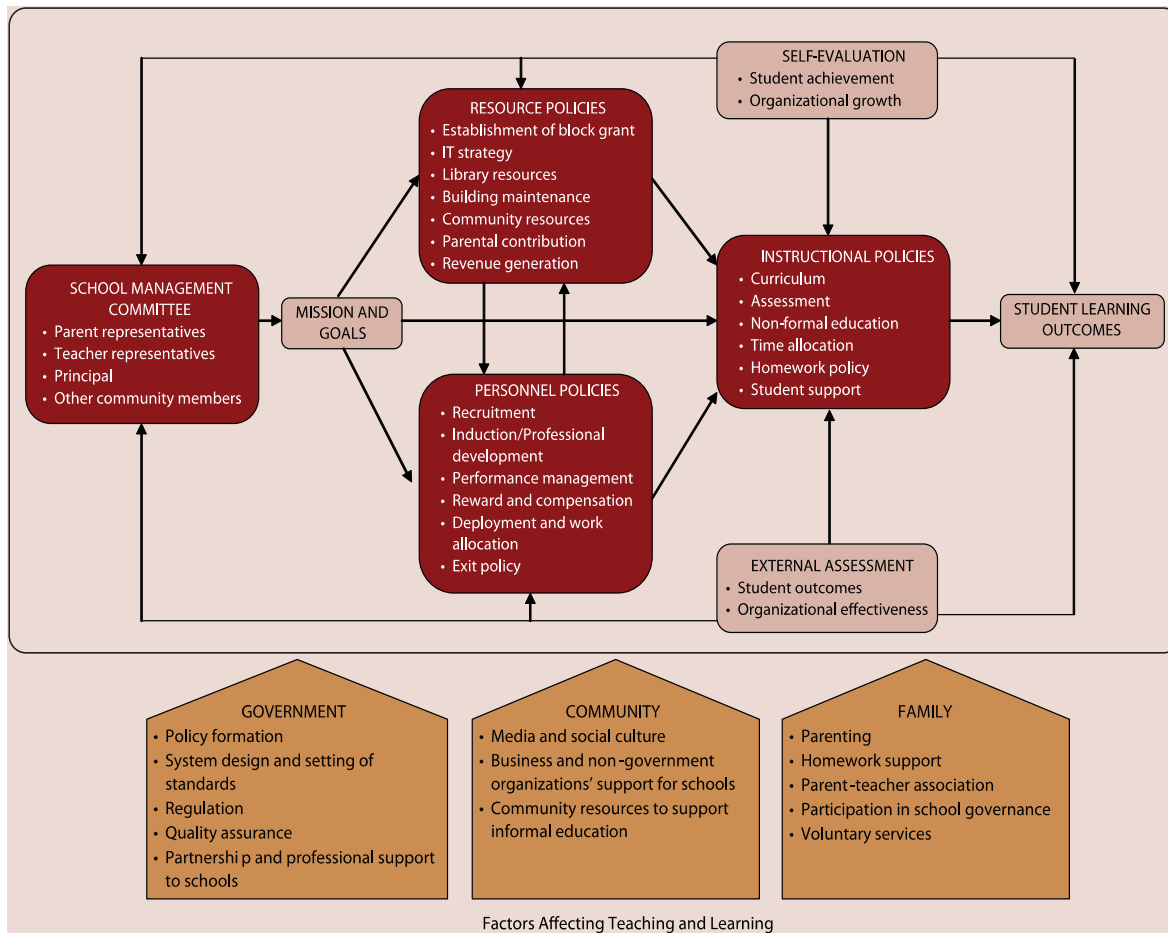### School-based management (SBM)

One of the dominant strategies to build education accountability is school-based management (SBM), which can be defined as decentralizing authority in the education system from a central level to lower and multiple levels, and down to school levels (Bruns et al., 2011). Decentralization of education authority is meant to bring decision-making closer to stakeholders at the ground level so that the preferences of individual communities or groups can be better reflected in policy (Oates, 1972; Lockwood, 2002; Besley & Coate, 2003; Besley & Ghatak, 2003). The idea behind the strategy is that local decision-makers are better able to adapt the appropriate mix of inputs and education policies to local preferences, realities, and needs; furthermore, it is argued that delegating power to local stakeholders will make educational actors more accountable to their constituencies (Oates et al. as cited in Gertler, Patrinos, & Rubio-Codina, 2008). However, decentralized decision-making policies such as SBM may not improve school quality (Galiani et al., 2008 as cited in Gertler et al., 2008) when parents lack the ability to make their voices heard, when local elites capture public resources (Bardhan & Mookherjee 2005, 2006 as cited in Gertler et al., 2008), or when SBM groups are less technically able than higher levels of government to administer schools (Smith, 1985 as cited in Gertler et al., 2008).

SBM strategies are especially relevant in the rural education context, where remote areas are marked by scarcity of human, financial, and educational resources. In these settings, parental participation can be effective and essential (Shoraku, 2008), especially if these direct stakeholders are empowered with the authority and capacity to take ownership of their education system. As reflected in the following sections, distinct countries and states/provinces choose varying levels and forms of parental and community participation as a strategy of SBM (Bruns et al., 2011). Overall, there has been an increase in the number of developing countries introducing SBM reforms that aim to empower principals, teachers, and parents, and strengthen their sense of school ownership. In addition to issues of funds, human resources, and school and staff performance, SBM may also devolve authority over issues such as curriculum development, procurement of educational materials, infrastructure improvement, and monitoring teacher and student performance and outcomes (World Bank, 2009).

School Management and Communal Accountability

Figure 1 highlights the connectedness and the degree to which school management committees are linked to educational issues inside and outside classrooms. Effective accountability and oversight of schools and the education system, therefore, require proper engagement of the community in children's learning, as well as systemic inputs from government.

Figure 2: : School Management Committee Mechanism to Influence Student Learning Outcomes

Source: Advisory Committee on School-based Management, 2000, as cited in World Bank, 2010.

In Indonesia, the development of the education sector is a joint responsibility between the government and the community. Although parents contribute to educational financing through admission fees or monthly payments, rural/poor community schools are exempt from collecting payments from parents. The community is involved in the education system and process through partnerships with educational community-based organizations and private schools, as well (Jalal, Sardjunani, Musthafa, Purwadi, & Suharti, 2003).

In 2005, through Indonesia's government program, Bantuan Operasional Sekolah (BOS), school committees were set up to run SBM programs with the concept of utilizing social pressure from informed local community members to control corruption in the school system. This empowered and cemented roles of school committees and parents. The school committee was to be comprised of at least nine members (parents, community leaders, educational professionals, private sector members, education associations, teachers, NGOs, and village officials), with a chairperson who is not employed at the school (Chen, 2011).

Similar to Mexico's SBM model, Apoyo a la Gestion Escolar (AGE), which will be discussed in the next section about parental involvement, school committees in Indonesia had control only over non-salary operational expenditures. Over the years, school personnel were involved in the committee for more accountability and responsiveness to parents and students (Bruns et al., 2011). The committee enabled natural and more frequent communication that linked parents and the community with the schools. The program included various components, such as: (1) block grants that incentivized student enrollment and participation based on a per-student formula; and (2) fund disbursement directly to schools, empowering school managers to allocate resources on school-committee decided areas, such as scholarship student selection and oversight of school committee spending. Though results have not been subject to rigorous evaluation or standardized measures, in a survey of 1,250 schools, 68 percent of respondents reported that their schools were implementing principles of SBM, and of those respondents, 95 percent claimed to have observed positive benefits in terms of grade improvement, attendance, and discipline (Bruns et al., 2011).

Box 8 highlights some specific case studies of variations of SBM strategy that resulted in more community participation and support for education in rural districts of West Sulawesi and West Java.

Textbox 8: Indonesia's Creating Learning Communities for Children (CLCC) Program

Decentralization paved the way for UNICEF, UNESCO, and the Indonesian Department of Education to launch the Creating Learning Communities for Children (CLCC) program in 1999. Designed to improve primary school education quality, CLCC's school-based management (SBM) component aims to increase community support for children's education, especially parent support, while the program's active, joyful, effective learning (AJEL) component aims to strengthen children's critical and creative thinking.

CLCC's impact was examined in two schools of Polman district, the second largest district of West Sulawesi province. Residents in Polman number about 500,000; they work primarily in agriculture and most are Muslims who belong to the Bugis-Mandar culture indigenous to South and West Sulawesi provinces. The rural school targeted by CLCC in the Tinambung sub-district is poor. The better-off urban school adopted CLCC on its own.

Accountability of school management improved at the urban school, due largely to the school's democratic headmaster, but SBM failed at the poor school largely because of an autocratic headmaster and passive parents and School Committee members. This holds implications for the capacity of headmasters in efficacy of programs. In both schools, AJEL dramatically changed teaching methods and increased student and parent participation, due to the support of both headmasters and the effectiveness of AJEL tools. For poor parents, reliance not only on formal communication via the School Committee, but on informal communication (including an innovative school radio program) was a key to success. Other methods of disseminating information included formal School Committee meetings and informal methods, such as radio programs and students' chats with their parents. One of the institutes involved, BIGS, whose mission is information dissemination, uses multiple modes: training sessions, workshops, books, posters, journals, the press, and the radio.

There were no changes in national exam scores or drop-out rates, relative to neighboring non-CLCC schools; however, school attendance and teaching methods improved, and students and parents became more involved in school. The lack of improvement in national exam scores is may be a result of a mismatch between AJEL tools and exam subjects, or the national exam may not capture the type of knowledge gained from AJEL.

Since 2001, the district has expanded CLCC to 70 new schools using its own funding; local innovators have spread it to about 30 additional schools. Greater community support is crucial for financial sustainability, particularly at the poorer schools. The introduction of AJEL to secondary schools may be the key to ensuring sustainable impacts. For institutional sustainability, the District Bureau of Education, ostensibly in charge of the program but unenthusiastic about it, must be convinced. Better monitoring of program impact might help to bring this reluctant agency on board.

Source: World Bank (2006b)

Textbox 9: GELIPA: Creatively Engaging the Community, Parents, and Schools

The sub-district of Ciracap in Indonesia's rural West Java province has been an area undergoing overall development efforts that range from private-public partnership (PPP) on cost-effective public communications to creative decentralized school management programs (GPOBA, 2008).

The Five-Kilo Coconut Sugar Cake Donation Scheme (GELIPA) was conducted with a SBM program by utilizing local economic potential and resources. Building on the local wisdom of saving for the future, the district population's common practice is to save the profits from the local production of coconut fruits (turned into sugar cake). The profit, however, is generally used for consumptive purchases rather than for educational investment. GELIPA built on this local culture of saving to encourage parents to partially invest in their children's education. As a result, the cooperatives joined with the schools and started utilizing savings collectively for educational expenses.

After two years of GELIPA implementation, the number of children staying in school and transitioning to junior high school improved. Furthermore, the strategy of combining economic empowerment with educational investment increased awareness amongst residents in Ciracap regarding the importance of education for bettering their children's futures, and the importance of saving for education while facilitating economic activities that enable parents to send their children to school through the junior high school level.

GELIPA was an effective program because it addressed the problems faced by schools and encouraged wide participation from the community and parents in decision-making, which empowered local residents while fulfilling children's right to education.

Source: Sapa'at, 2013

Since 1982, several Brazilian states have experimented with three different models of SBM. The models for these reforms were characterized by: 1) financial autonomy for schools; 2) principals who were either elected democratically by school officials, parents, and students; competitively appointed by local governments through examinations; or selected through a combination of election and appointment; or 3) councils established in schools to coordinate and evaluate

pedagogical, administrative, and financial activities (school councils were comprised of the principal, representatives of teachers and other staff, and representatives of parents and students). (Santibanez, 2007; Bruns et al., 2011)

Four states implemented all three reforms in a coordinated way: Minas Gerais, Mato Grosso do Sul, Rio Grande do Norte, and Espirito Santo.[14] A study[15] examining the effectiveness of the three elements of Brazil's SBM forms revealed that financial autonomy reforms did not lead to better student performance; however, education performance fared better in places where "principals were elected by school officials, parents, students (over 16 years old), where schools had been given financial autonomy or where school councils had been established" (Paes de Barros & Mendonca, 1998 as cited in Bruns et al., 2011, p. 109).

Textbox 10: Brazil's School Improvement Project with SBM Components

> Of the various states that participated in the *Fundescola I* initiative, observational evaluations indicated that classrooms in Goias state performed better than most. In addition to inputs, schools in Goias benefitted from a large number of supervisors and trainers who were available to follow-up with trainees and to follow-up project actions with schools. This finding reiterates the importance of empowering parents for effective school improvement and oversight, and building the capacity of schools and stakeholders through proper training and follow-ups.
>
> Source: World Bank, 2002

Another set of SBM reforms called *Plano de Desenvolvimento da Escola* (PDE or School Development Plan) began in 1998, supporting self-evaluation and school plan development on defined "efficiency factors," including effective teaching and learning as one of the requirements. A complementary program by the Ministry of Education called *Fundescola* (Fund for Strengthening the School) provided funds to support PDE schools. More specifically, *Fundescola* was designed to better channel resources to schools and to integrate state and municipal authorities while strengthening school-based management. *Fundescola I* "established micro-regions of intervention, comprised of densely populated urban areas along with associated peri-urban and rural areas encompassing both state and municipal schools served by agencies of the micro-region" (World Bank, 2002, p. 9). *Fundescola I* targeted north and central states and the process began with the schools assessing their own needs and deficiencies through an extensive questionnaire.

With parental involvement as a key element, funds were distributed to schools and audited on a sample basis. For small rural schools with multi-grade classrooms, teacher training and special instructional materials were provided to enable students to form groups and study on their

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[14] See Appendix A for comparison on state-level per capita and urbanization rates as compared to Andhra Pradesh.

[15] The study used census, household survey, and evaluation data from National Basic Education System for empirical investigation to observe effects of three initial SBM innovations; state-level analysis was undertaken, comparing states' performance of various outcomes by using time variation in terms of when innovations were implemented by each state.

own. *Fundescola I* operated in 178 rural schools, expanding to about 1,225 schools in 19 states, benefiting 42,719 students and 1,838 teachers (World Bank, 2002).

To improve school performance, materials and resources were requested through a *Projeto de Melhoria da Escola* (PME). The development process has been very popular, serving 1,724 schools rather than the planned 401. The states of Acre, Mato Grosso, Goias, Tocantins, and Ceara have adopted this model for all schools. The World Bank Operations Evaluation Department visited state secretariat offices and schools to empirically assess project effects, including: municipal schools and outlying schools in poor municipalities in Sao Paulo; and peri-urban and rural schools in Ceara, Rio Grande do Norte, and Alagoas. Almost all the schools visited had received some benefit from the projects, either in terms of physical inputs or in-teacher training (World Bank, 2002).

Mexico's Program of Strengthening and Direct Investment in Schools (PEC-FIDE)[16] was a pilot project implemented in 2008. PEC-FIDE was a collaborative effort between the federal Secretariat of Public Education and the state governments of Coahuila, Chihuahua, Quintana Roo, Hidalgo, Guanajuato, and the State of Mexico[17]. The goal of PEC-FIDE was to elicit "collective work in the schools to generate processes of school improvement and inclusion through greater alignment between resources and school activities" (Bruns et al., 2011, p. 14). Impact evaluations suggested favorable effects regarding increased pass rates and test scores, particularly in reading (Abreu et al., 2010 as cited in Bruns et al., 2011).

Textbox 11: AGE: Parental Involvement with Training as an Empowerment Tool in Mexico

Mexico's AGE program consisted of multi-faceted support to engage parents with their children's education and schools. Parents received training to manage funds, as well as training in participatory skills to increase their involvement in school activities. Additionally, parents received information on the role of the school and parent association, as well as information about children's educational achievements and how to support their children.

Qualitative results of AGE suggest that the factors most critical to enabling improved student performance were increased parental participation in school matters and improved relations and communication between parents and teachers. Parents in schools with AGE were more likely to observe and vocalize complaints about teacher absence and poor quality teaching. Parents were also more aware when their child was not performing well and many took corrective action.

Source: Gertler et al., 2008; Bruns et al., 2011

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[16] The PEC-FIDE program is a variation of the PEC program Programa Escuelas de Calidad, implemented in 2001. The program granted up to $15,000 to urban schools to improve education quality by involving parent associations in the design, implementation and monitoring of infrastructural and teacher training efforts. The PEC program is credited with preventing and limiting corrupt practices in education fund management because school councils became accountable to both central educational authorities and the school community/donors (Transparency International 2005; Patrinos & Kagia, 2007 as cited in Bruns et al., 2011, p. 112). PEC participation decreased drop-out, failure, and repetition rates, though data comparison was not done with non-PEC schools. In the state of Colima, changes were observed in the amount of time teachers devoted to supporting students.

[17] Appendix A shows where these states fall within the range of state-level indicator rates.

Parent associations to improve school quality

In 1992, Mexico's decentralization of educational services from the federal to the state level, known as the Compensatory Education Program, focused on rural and indigenous schools. The program's design aimed to equalize resources and educational standards across all schools. The program included a SBM component called Support to School Management or *Apoyo a la Gestión Escolar* (AGE). In addition to the AGE SBM intervention, the Compensatory Education Program consisted of the following elements: infrastructure improvement; provision of school equipment, educational materials, and stationery for students; pedagogical training for teachers; and performance-based monetary incentives for teachers (Gertler et al., 2008). Between 1992 and 1995, the poorest municipalities of the poorest 23 states, as defined by the CONAPO index (National Population Council), received the program. In 1998, the program expanded to disadvantaged schools in all states in Mexico. Each state decided which sub-interventions would be allocated to each school based on the school's budgetary and logistical capacity (Bruns et al., 2011).

The AGE intervention, introduced in 1996/1997, supported and financed school parent associations by providing small monetary grants of around $500 to $700 per year, depending on school size, to invest in infrastructure or materials deemed important for the school. Pay for teachers, however, was not permitted with these grants. Parent associations that existed purely by mandate without much activity changed into parent associations with purpose when investment decisions and fund disbursements required greater parent involvement. AGE enabled parents to spend more time in the school and increased parent interactions with school directors and teachers; parents also gained the ability to monitor school activities like teacher absenteeism and children's attention in class. AGE was the first program that gave parents any authority over school matters in Mexico and by 2005, more than 46 percent of primary schools in Mexico had AGE. A study sampling over 6,000 rural non-indigenous primary schools showed that AGE helped reduce grade repetition and grade failure with improved school outcomes[18] (Gertler et al., 2008).

Focus groups included both parents and school directors. A larger qualitative survey was done on school directors in 115 randomly selected AGE schools in the states of Campeche, Guerrero, Michoacán, Sinaloa, and Tamaulipas—with the exception of Tamaulipas, these states have a higher proportion of population in rural areas than the average for Mexico's states; average state-level urbanization rate is 74 percent in Mexico (see Appendix A). The parent survey revealed that parents believe AGE resulted in better educational outcomes via improved interaction and communication with school directors and teachers. In addition to closer monitoring of children's performance, parents reported that teachers instructed them on how to improve their child's performance. Parents also thought AGE improved teacher efforts, with teachers staying longer hours in schools to help students needing remediation. These findings resonate with previous qualitative evidence in the state of Tabasco, which showed AGE's

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[18] Based on crude measures of school performance, quantitative empirical evidence suggests that AGE reduced grade repetition and grade failure by 4 to 5 percent. The study was conducted between 1998 and 2001 using a sample of 6,038 rural non-indigenous primary schools that included some AGE and some non-AGE schools (Gertler et al., 2008).

positive impacts on increasing parental participation in school activities, improving parent-teacher relations, and reducing teacher absences (World Bank, 2000 as cited in Gertler et al., 2008)

The ongoing follow-up evaluations for the AGE program include the most recent study of 250 rural schools in Chiapas, Guerrero, Puebla, and Yucatan.[19] Though the study is ongoing, the main findings highlight the importance of training parents to improve outcomes and the power of parental empowerment as a mechanism for generating interest in and oversight of education in poor, rural, and remote communities (Gertler, Patrinos, & Rodruguez-Oreggia, 2012).

Teacher absenteeism and accountability

Community participation is instrumental in holding multiple actors accountable and addressing crucial issues, such as teacher absenteeism. Excessive teacher absence is "consistent with the idea that teachers are extremely unlikely to be fired for absence, but that their decisions about whether to go to work are influenced by the working conditions they face" (Chaudhury et al., 2006 as cited in Suryahadi & Sambodho, 2012, p. 92). As commonly believed, teachers' welfare influences teacher absenteeism and this implies the need for policies to improve teachers' welfare, as well as overall support and accountability measures. Efforts toward this end include: providing allowance for remote and inaccessible areas, supervision and monitoring by education office and school committees, and community involvement (Suryahadi & Sambodho, 2012).

Empirical findings from Indonesia show that the following factors increase teacher absenteeism: rural schools and schools located far from the government education office; non-permanent/contract teacher status; and being male (male teachers are absent more often than female teachers). In the case of Papua Province in Indonesia, where teacher absenteeism is higher (at 33.5 percent) than the national average (14.1 percent), a combination of factors has been shown to reduce teacher absence (Suryahadi & Sambodho, 2012). Regional/city government policies that were shown to reduce teacher absence include: a supervisor within a multi-school complex; a work performance subsidy increase; and the implementation of regulation requiring teachers to live in the region where they work. The same research points to the positive effect of the following school-level factors in reducing teacher absenteeism: 1) school principals' presence at schools; 2) facilities (electricity, toilet, etc.) and sufficient classroom availability; 3) regular inspection by school supervisors; and 4) regular school committee meetings. Additionally, inconsistencies in policy implementation, as occurred with the allowance program for teachers in remote areas, hindered improvements in teacher absenteeism (Toyamah et al., 2009 and UNCEN et al. as cited in Suryahadi & Sambodho, 2012). The case of Papua produced several recommendations: 1) involvement of the community in monitoring teacher absence, specifically school committees taking an active role; 2) flexibility given to local and school level initiatives in constraining teacher absences through means of schools or committees providing financial incentives (or disincentives) related to teachers' attendance; and 3) facilitation of teacher recruitment from areas that are relatively close to the

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[19] Appendix A shows where these states fall within the range of state-level indicator rates.

school's location to ensure teachers in remote areas do not feel as isolated (Suryahadi & Sambodho, 2012).

School Report Cards for accountability.[20]

In Brazil, efforts to simplify information delivery have been found to be essential. School Report Cards were used in the state of Parana (from 1999 to 2002) to capture: 1) learning outcomes; 2) student flows; 3) numbers of teachers and students; and 4) feedback from surveys conducted at the school level (with responses from parents and students to questions about the school's functioning). All of these data points, except learning outcomes, come from regular school-level data gathering sources, such as education management information systems (EMIS) that target infrastructure, and specialized surveys.

The level of specificity of information and content was found to best utilized if tailored to the needs of the school and how the report cards would be used. For example, if report cards were used as a planning tool, a large scope of data from EMIS proved useful. Given that at the community level, parental involvement and stakeholder mobilization was the primary objective, community-specific and school-specific information was relevant. The goal was to increase parental knowledge about quality of instruction in schools and raise parent voices in school matters at school council and state levels. Report cards were also used to raise awareness among school personnel about their school's instructional quality and academic performance in terms of learning outcomes. In the state of Parana, information contained in report cards included: test-based performance (4th and 8th grade test scores); student flows (promotion, retention, and dropout rates); school characteristics (average class size and teachers' qualifications); and parental opinions and level of satisfaction (Winkler, 2004).

Although no systematic evaluations have been conducted for accountability reforms under Education Minister Saliba's administration—Minister Saliba was the official who initially pushed for report card usage—School Report Cards have taken off and spread to other states (Winkler, 2004). The state of "São Paulo has already begun using internally-oriented report cards, and the state of Ceara is developing report cards for all municipal services" (Winkler, 2004, p. 5).

Community learning in Mexico

In addition to community engagement through the management, monitoring, and accountability mechanisms in the education system, community members and parents can be engaged through learning projects and programs that have built-in structures to involve the community.

In the case of a small village in the western part of Zacatecas, Mexico, innovative projects have begun to engage the entire community in learning. The Learning Community Project is in operation in 600 rural schools and expected to expand to nearly 7,000 rural and urban schools (Elmore, 2011). The project's model involves multiple layers, beginning with students choosing a project from various curriculum materials to begin an individual study. Adult tutors support

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[20] India's use of report cards was described on page 6.

the students, and the tutors themselves are trained by a network of other tutors and "network leaders" who all have expertise on the topic of the students' choice. Student projects culminate in a formal exhibition to other students, tutors, and parents. Once the student develops mastery in the topic area, he/she begins to tutor other students who chose the same topic from the curriculum materials.[21] In this process, students learn content and gain experience and practice during tutorials. The idea is to build a transferable "fund of knowledge" from one school to other schools in the network overtime, with what students and tutors learn, along with the trainings tutors receive in the broader network. Adult tutors are mostly recruited from within the rural communities where they serve, and a mutual understanding exists between both students and tutors that primary learning will take place as they learn to teach others (Elmore, 2011; Rincon-Gallardo, 2011).

Another program, the Family Literacy Programme, led by the Regional Cooperation Center for Adult Education in Latin America and the Caribbean (CREFAL) in partnership with various government departments of Mexico, has worked to support the Ministry of Public Education's programs in areas with high rates of marginalization. The program is housed under the Integrated Strategy for the Improvement of Educational Achievement (EIMLE) in Mexico. The program has been introduced to nine locations around Mexico, seven of them in rural areas with high rates of marginalization; six of the sites are based in indigenous communities in the states of Chiapas, Veracruz, and Guerrero.[22]

The broader EIMLE program objectives include: supporting literate communities through solid basic education and connecting knowledge gained from school with family and community activities; increasing family involvement in schooling and awareness of each family's role as the first source of education; creating tutoring networks and School Social Participation Councils; and creating the Family Literacy Programme. Similar to the Learning Community Project described previously, tutoring networks—comprised of school volunteers, families, and community members—provide a platform to share knowledge and tutor others on specific expertise areas in informal ways (UNESCO, 2012b).

The School Social Participation Council (CEPS) organizes the Literacy Programme in each community, providing important support and resources. The Council and its sub-committees are involved in setting up and coordinating additional resources, such as libraries. Teachers use library spaces, learning areas or classrooms for family use and new games and activities are created in collaboration with families. Educational materials, such as books and audiovisual materials, are available to schools and families to promote literacy with supervision by regional coordinators (UNESCO, 2012b).

Lessons from the community learning programs highlight the importance of inter-institutional relationships and their proven positive results for the community they serve. One example is

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[21] No specification has been found on whether the curriculum strictly follows formal curriculum; however, the project model has been adopted in over 7,000 schools with Mexico's Ministry of Education assessing the project (Rincon-Gallardo, 2011).

[22] See Appendix A to compare urbanization rates and per capita income in these states with Assam.

the government-run collaboration program, OPORTUNIDADES[23] (conditional grant program) run by the Ministry for Social Development that enabled families to enroll in scholarships and study grants program in marginalized areas (UNESCO, 2012b).

Community participation in the education process can be instrumental in improving the quality of education for learners, as well as improving the quality of the school and education system. In the examples presented in this section, parental involvement in education was most meaningful when community involvement went beyond parents' mere presence in the educational sphere to encompass: better understanding of their children's schools and education; training to understand the running of school and system; and being entrusted with and assuming responsibilities on various committees. Appropriate training for parents (and often for other non-educated community members) on education issues can be an empowerment tool eliciting better oversight of schools; various community programs have successfully situated learning as a communal endeavor that is not confined to students in schools. School leaders, such as headmasters or principals, are essential to the accountability and success of SBM. Indonesia's case showed how democratic headmasters facilitated the success of SBM interventions, and Brazil displayed improved education performance in schools where financial autonomy or school councils were accompanied by principals who had been elected by school officials, parents, and students. School leadership, supervision, and community involvement also help mitigate other educational issues, such as teacher absenteeism. Additionally, building on existing local culture or traditions helps create more durable and sustainable systems; building on existing development initiatives in other sectors, such as rural, agricultural or health development programs, can further push collective education efforts.

VII. EDUCATION EVALUATION SYSTEMS AND MONITORING

Various measures to improve the quality of education can be most meaningful with the application of information to better inform current and future planning, based on observed needs. One method of accessing the efficacy of the education system is through developing an evaluation system to measure the impact of the education process, the results of which can be a stimulus for change in policy and program reform. Results can thereby provide policy makers and program developers with recommendations to reform education-related curriculum,

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[23] "Oportunidades is the principal anti-poverty program of the Mexican government. (The original name of the program was Progresa; the name was changed in 2002.) Oportunidades focuses on helping poor families in rural and urban communities invest in human capital—improving the education, health, and nutrition of their children—leading to the long-term improvement of their economic future and the consequent reduction of poverty in Mexico. By providing cash transfers to households (linked to regular school attendance and health clinic visits), the program also fulfills the aim of alleviating current poverty . . . The three chief components of Oportunidades are education, health, and nutrition. Under the education component, grants are provided for primary through high school . . . The results of the evaluation of IFPRI show that after only three years, poor Mexican children living in the rural areas where Oportunidades operates have increased their school enrollment, have more balanced diets, are receiving more medical attention, and are learning that the future can be very different from the past." (World Bank, Mexico's Oportunidades Program). A comparable conditional cash program is Brazil's Bolsa Escola, later named Bolsa Familia, which has shown positive effects on enrolment and grade promotion rates (Glewwe & Kassouf, 2010).

teacher training, and pedagogical processes.

Prior to 2007, **Brazil** used the National Basic Education Evaluation System (SAEB) to measure educational access and quality. For measuring access to basic education, access rates and school rates were collected through a national pupil sample on an annual schedule. Additionally, data was collected to measure efficiency of the system through productivity rates, transition rates, and internal efficiency rates. For measuring the quality of the system, the following four concepts were observed: product, setting, process, and input. The product was the pupil's performance (content learning and skills and competency development). The pupil's socio-economic status served as the context for observing study habits, working conditions of the teachers, type of school, organizational structure, and level of school autonomy. The process measured quality through utilization of school time, teaching strategies, planning lessons, and school activities and pedagogical performance. Finally, the inputs that were measured to access quality included: infrastructure, equipment, educational resources, and teaching materials. SAEB gave rise to the Basic Education Development Index (IDEB), which combines measure of performance averages and the flow of students in school (Gatti, 2009; OECD, 2010).

The Brazilian state of Parana, influenced by the national SAEB system, expanded their state's evaluation system and included data collection requirements to measure reading procedures, linguistic variance, expressive resource, meaning effects, and coherence and cohesion. Through these additional measurements, the state was able to develop the SEEPR Report with detailed analysis of the type of gaps that existed in the existing system and develop recommendations to improve pedagogy (Gatti, 2009).

Other states followed suit. In 1992, the state of Minas Gerasis developed *Sistema Mineiro de Avaliacao da Educacao Publica* for Quality of Education and School Evaluation System (SIMAVE) to measure the quality of education and evaluate the school system. The evaluation system collects data at the school level, allowing for education system analysis at the school level (Gatti, 2009). The state of Sao Paulo also developed its own indicator, SARESP, to evaluate all pupils in the state, providing more detailed measurements of their own state's education development status and each school's progress. Permanent Evaluation System of Basic Education (SPAECE) was developed in the state of Ceara to measure academic performance and performance of the system. The academic performance evaluation included socio-economic data, pupil study habits, and teacher and staff practices, while the institutional evaluation administered teacher self-evaluations and analyzed management performance. This evaluation encouraged efforts to improve relationships between all school system stakeholders, quality of services provided, and performance outcomes (Gatti, 2009).

In **Mexico**, educational evaluations fall under the purview of *Unidad de Planeación y Evaluación de Políticas Educativas* (UPEPE) within the SEP. However, the *Instituto Nacional para la Evaluación de la Educación* (INEE) is an additional national body with a specific focus on educational assessments and evaluations. INEE assessments include standardized assessments of student learning; the primary assessment, *Evaluación Nacional de Logro Académico en*

Centros Escolares (ENLACE), has been used since 2006. ENLACE assesses Spanish, Mathematics, and one other selected subject from grade 3 to grade 9. ENLACE results also supply information for performance appraisal and there are potential rewards for teachers and for school performance. Additionally, the Educational Quality and Achievement Tests (EXCALE) also focus on learning outcomes in Mexico. Assessments are not only derived from the national level; state-level education institutions also conduct assessments and evaluations when feasible, as they are responsible for providing education within their state. In the future, teachers will be assessed through *Evaluación Universal de Docentes,* a program currently being developed. SEP created education databases to house the data accumulated from this array of assessments, which is obtainable by the public (OECD, 2012).

Data is also collected to inform education content design. The education think tank Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV) in Mexico was created in 1961 to research qualitative ethnographic data regarding learning and school processes. Research foci include cognitive development, curriculum, teaching practices, pedagogy, and methodology processes. CINVESTAV's research aims to inform various education dimensions, such as how curricula should be shaped and what teaching content should entail, in consideration of learning needs set forth by the educational system (Cantoral & Farfan, 2003).

The power of data to inform day-to-day educational issues and bring about change should not be underestimated. Patrinos and Kagia (2007) suggest in their study on education systems that teacher absenteeism and other corrupt practices can be curbed with closer oversight and EMIS at the school level that documents the extent of ghost teachers and inspections; this would require increased frequency and quality of audits followed-up with corrective actions. These authors also suggest ongoing learning assessments:

> "Not only is there is a need for learning assessments, benchmarking, and evaluations to increase school accountability but authorities cannot manage the education system well without proper measurement of inputs and outputs. One possible way to manage accountability is to require standardized tests. Mexico, for example, expanded the use of assessments, both national and international, to hold the system accountable" (Patrinos & Kagia, 2007, p. 80).

In **China**, although monitoring systems with the government exist, data is mostly confidential and not always reliable (H. Yao, personal communication, June 8, 2013). Outside the jurisdiction of the government, other smaller-scale data gathering and report progress is done for education, such as the China Rural Education Development Report released by scholars from Northeastern Normal University. The report is based on a survey of a limited population (213 villages in 2011) (H. Yao, personal communication, June 8, 2013). The report combines information from the Annual Progress Report, which uses national statistics released by the government, policy texts, and publicly accessible academic literature to assess overall rural education progress, as well as career/policy/academic/practical development areas. The report also uses Special Research Report, which addresses rural education issues, such as quality and

equity of basic education, spread and redistribution of rural schools and preschools, and investment in vocational education in rural areas (Zin & Peijun, 2013). The report is meant to generate policy suggestions that pertain to rural education improvement (Zin & Peijun, 2013).

In **Indonesia**, the Decentralized Basic Education 1 (DBE 1) program was supported by the Ministry of Education's EMIS. The EMIS contains school-level information (certification, drop out, repetition, enrolment, etc.) on teachers and students (Government of Indonesia, 2013). In 2008, district education financial analysis (DEFA) was conducted in 28 districts, including school unit cost analysis. In 2005, DBE 1 helped with MoNE's EMIS assessment and data management system, which includes a database inventory of all DBE schools and districts, as well as GIS interactive maps. This was put into very practical and meaningful use after the 2006 earthquake, when the Ministry of Education's Centre for Education Statistics and DBE1 collaborated to map out the extent of the destruction and determine school needs (Mitchell Group, 2008).

The process of investigating selected countries' education data and information systems showed that none have been as rigorous and accessible as the systems currently employed in India.[24] As in India, the comparison countries do not yet have a strong systematic channel for collecting data on a large scale or using students' individual performance to guide and inform policy and reforms. The building of EMIS and usage of data to inform student performance on a large collective level will likely continue as national and educational endeavors. Mexico continues to improve data quality, access, and transparency, and Brazil has been expanding data collection and EMIS to more rural states (Cassidy, 2005). Data collection is meaningless without the intentional and strategic use of data to inform education efforts. Purposeful plans for data usage should guide data collection and the setting of appropriate indicators for that purpose (Van Roekel, 2013). Additionally, data should be widely shared and used among multiple parties and stakeholders to inform ongoing efforts, identify areas of collaboration, and target efforts to improve educational performances and systems.

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[24] This may also lend to the limitation of resources that are not accessible in English.

VIII. CONCLUSION

For countries with a vastly diverse, multi-lingual, multi-cultural population and large disparities between urban and rural settings, efficiency and improvement in the education sector presents a wide array of challenges. The four comparison countries—Brazil, China, Indonesia, and Mexico—have been identified for investigation to inform India's educational endeavors because of the shared complexities these countries face in tackling the issue of improving quality of education, especially rural education. Although all of these countries have pushed toward decentralization of education services, in practice, the design, implementation, and evaluation of education policies and programs require a strategic and fine-tuned balancing act.

The key element of success in efforts to improve rural education seems to be the degree to which the educational provisions can align with and inform the greatest needs of the teachers, students, and communities they are meant to serve. This point is iterated in the findings in the topic areas of curriculum, teacher training, community participation, and education evaluation and monitoring, where targeted interventions with a narrow focus area for improvement provided solid grounding and support for individual or cohorts of teachers and students. Thus, the examples in this paper suggest the importance of: extensive and continuous support to follow-up with teachers, teams of teachers, principals, and schools; training models that incorporate self-improvement, as well as peer and ongoing reviews with ample opportunities to apply trainings into practice; curriculum content that is relatable to rural children and accompanied by appropriate pedagogical methods, remediation, and accelerated learning to keep students engaged and up-to-speed on basic skills; and building on and developing existing capacity of parents and community members, while keeping these critical stakeholders frequently engaged in the educational sphere.

Although areas of expertise vary between teachers, educators, and community members, more transparency and involvement in the education process is effective; for example, teachers were not curriculum experts, but when states or schools devised curricula for literacy support and remediation for students repeating grades, teachers were part of the successful curriculum design process. This useful method of including various stakeholders might mitigate the curriculum and pedagogy disconnect found in India. Similarly, coaches to support teachers in schools took on a more holistic role to assess and support teachers and principals. In community involvement initiatives, parents became more engaged but also got trained to understand the educational process and operational mechanisms of schooling. The approach of involving teachers in local curriculum development and ensuring ample opportunities to train and practice new teaching methods with the support of coaches and peer teachers can help address the lack of context and support teachers feel when presented with innovative teaching methods in India.

India has been at the forefront of community participation and education information/data sharing to engage the community and local governments. Cases from the comparison countries show that shared, collective understanding of student learning and the school system can help engage the community, teachers, principals, and educators, especially when all community

members are equipped and empowered with specific knowledge to know how the school functions, and how to support their children. Sharing student learning and school data is particularly useful in guiding focused discussions on how/where to improve school operations, such as financing information linked to interventions and community knowledge to hold all parties accountable for the success of the education system.

The interconnectedness of the topic areas attests to the need for holistic education and rural development. Single and separate interventions are limited in their impact. In order to address low quality education in rural areas, simultaneous effort needs to happen at both micro and macro levels, including: in-class support of teachers and students, strengthening community knowledge on matters of education, and financial and systemic support with constant feedback mechanisms and strategic use of data.

Suggestions for Further Study

This paper provides background on selected countries' educational frameworks on the thematic areas of curriculum, teacher training, community participation, and education information systems that can help improve quality of education in rural contexts. Despite the effort to bring the interventions and case studies within more confined parameters based on indicators and selection of comparison regions/districts and interventions in those locales, limitations of secondary data collection led to a broader scope of the given topics than originally intended. Data availability thus shifted the focus to state-level and national education and rural development initiatives.

This paper offers a broad base of information on which further, more specific investigations can take place, both by topic and by region/sub-state region, preferably with primary data collection or access to data in the native languages of the countries examined. There is limited literature on rural education efforts that have been formally and independently evaluated for impact, calling for more impact studies on these themes within the rural areas in these countries. With the global focus on educational quality, continuing rural development initiatives, and countries developing more nuanced data systems to better inform future planning, the education topics and rural context framed in this paper can be a base to help launch deeper independent investigations of each educational issue discussed.

APPENDIX A: Selected Indicators for Comparison Countries, Including India

Key:
Note. States that are under special administrative units have been removed from the list.

Median
"Median of a Median" for sectioning the list based on the median
Andhra Pradesh comparisons
Assam comparisons
National Average Literacy Rate (for Literacy tab)

URBANIZATION RATE

INDIA	31% (2010)	BRAZIL	85% (2011)	CHINA	51% (2011)	INDONESIA	51% (2011)	MEXICO	78% (2011)
Goa	62.2	Rio de Janeiro	96.7	Guangdong (2010)	65.4	Jakarta	100	Nuevo León	95
Mizoram	51.5	Sao Paolo	95.9	Liaoning	64.1	Yogyakarta	70.2	Baja California	92
Tamilnadu	48.4	Goiás	90.3	Zhejiang	62.3	Banten	67.2	Coahuila	90
Kerala	47.7	Amapá	89.8	Jiangsu	61.9	East Kalimantan	66.2	Colima	89
Maharashtra	45.2	Mato Grosso do Sul	85.6	Fujian	58.1	West Java	66.2	Quintana Roo	88
Gujarat	42.6	Paraná	85.3	Heilongjiang	56.5	Bali	64.7	Tamaulipas	88
Karnataka	38.6	Minas Gerais	85.3	Jilin	53.4	Riau	56.6	Jalisco	87
Punjab	37.5	Rio Grande do Sul	85.1	Hubei	51.8	East Java	56.5	Baja California Sur	86
Haryana	34.8	Santa Catarina	84	Shandong	50.9	Central Java	56.2	Sonora	86
Andhra Pradesh	33.5	Espírito Santo	83.5	Hainan	50.5	Bangka Belitung	52.2	Chihuahua	85
West Bengal	31.9	Mato Grosso	81.8	Shaanxi	47.3	North Sumatra	50.1	Morelos	84
Uttarakhand	30.6	Pernambuco	80.2	Shanxi (2010)	47	North Sulawesi	49.8	Yucatán	84
Manipur	30.2	Amazonas	79.1	Qinghai	46.2	West Nusa Tenggara	48.8	Aguascalientes	81
Nagaland	29	Tocantins	78.8	Jiangxi	45.7	South Kalimantan	46.7	Tlaxcala	80
Madhya Pradesh	27.6	Rio Grande do Norte	77.8	Hebei	45.5	South Sumatra	42.9	Oaxaca	77
Jammu & Kashmir	27.2	Roraima	76.6	Hunan	45.1	Bengkulu	41	Campeche	75
Tripura	26.2	Paraíba	75.4	Anhui	44.8	Central Kalimantan	40.7	Sinaloa	73
Sikkim	25	Ceará	75.1	Sichuan	41.8	West Sumatra	39.8	Puebla	72
Rajasthan	24.9	Alagoas	73.6	Henan	40.6	Gorontalo	37	Guanajuato	70
Jharkhand	24.1	Rondônia	73.6	Gansu	37.2	Jambi	36.5	Nayarit	69
Chhattisgarh	23.2	Sergipe	73.5	Yunnan	36.8	South Sulawesi	35.3	Michoacán	69
Arunachal Pradesh	22.7	Acre	72.6	Guizhou	35	Aceh	34.3	Durango	69

Uttar Pradesh	22.3	Bahia	72.1
Meghalaya	20.1	Pará	68.5
Orissa	16.7	Piauí	65.8
Assam	14.1	Maranhão	63.1
Bihar	11.3		
Himachal Pradesh	10		

Lampung	33.3	México state	69
West Kalimantan	31.1	San Luis Potosí	64
North Maluku	30.6	Veracruz	61
Maluku	26.9	Zacatecas	59
Southeast Sulawesi	25.6	Guerrero	58
Central Sulawesi	22.9	Tabasco	57
Papua	22.8	Hidalgo	52
East Nusa Tenggara	20.7	Querétaro	52
		Chiapas	49

India: Census, 2011

Brazil: IBGE, 2010

China: Provincial Yearbook, 2011

Indonesia: 2010 (data unavailable for Riau Islands, West Sulawesi, and West Papua provinces)

Mexico: INEGI, 2010

GDP PER CAPITA*

INDIA	$ at PPP	BRAZIL	2008 (R$)	CHINA	$ at PPP	INDONESIA	(million Euro)	MEXICO	$
Goa (2008)	7,406	São Paulo	24,457	Jiangsu	13,714	Java	2,726,252,675	Nuevo Leon	16,342
Haryana	5,326	Rio de Janeiro	21,621	Zhejiang	12,876	Sumatra	1,055,936,450	Campeche	15,175
Maharashtra	4,743	Santa Catarina	20,369	Guangdong	12,074	Jakarta	757,696,594	Quintana Roo	13,342
Punjab	4,267	Espírito Santo	20,230	Shandong	10,914	West Java	689,841,314	Coahuila	12,474
Gujarat	4,132	Rio Grande do Sul	18,378	Liaoning	10,772	Banten	686,847,558	Chihuahua	12,338
Himachal Pradesh	3,781	Mato Grosso	17,927	Fujian	9,969	DI. Yogyakarta	397,903,944	Baja California	11,365
Tamilnadu	3,549	Paraná	16,928	Jilin	8,346	Riau	297,173,028	Baja California Sur	10,820
Kerala (2008)	3,350	Minas Gerais	14,233	Hebei	7,276	East Kalimantan	285,590,822	Aguascalientes	10,663
Karnataka	3,199	Mato Grosso do Sul	14,188	Shaanxi	7,187	North Sumatra	236,353,616	Sonora	10,336
Andhra Pradesh	3,047	Amazonas	14,014	Hubei	7,009	Sulawesi	207,577,905	Tamaulipas	10,200
Uttarakhand	3,032	Goiás	12,879	Heilongjiang	6,777	Nusa Tenggara, Maluku & Papua	174,986,007	Querétaro	9,940
Chhattisgarh	2,813	Rondônia	11,977	Shanxi	6,581	Central Java	152,556,216	Jalisco	8,631
Sikkim (2008)	2,646	Roraima	11,845	Hunan	6,474	Bengkulu	137,331,848	Colima	8,618
West Bengal (2008)	2,429	Amapá	11,033	Henan	6,402	Southeast Sulawesi	99,954,590	Durango	8,140
Meghalaya (2008)	2,269	Tocantins	10,223	Qinghai	6,117	Riau Islands	88,934,861	Morelos	7,902
		Acre	9,896	Hainan	6,117	West Papua	76,886,679	Yucatán	7,160
Arunachal Pradesh (2008)	2,263	Sergipe	9,779	Jiangxi	5,671	West Sumatra	76,752,938	Sinaloa	7,046
Orissa	2,161	Bahia	8,378	Sichuan	5,350	Aceh	71,986,954	San Luis Potosí	6,935
Rajasthan	2,093	Rio Grande do Norte	8,203	Anhui	5,261	Jambi	63,892,937	Guanajuato	6,794
Mizoram (2008)	2,074	Pernambuco	8,065	Yunnan	4,280	Bali	60,292,239	Mexico State	6,251
Tripura (2008)	2,014	Pará	7,993	Gansu	4,031	West Kalimantan	54,281,172	Puebla	6,091
Nagaland	1,913	Ceará	7,112	Guizhou	3,335	South Kalimantan	51,460,176	Tabasco	5,802
Jammu & Kashmir (2008)	1,847	Paraíba	6,866			South Sumatra	44,127,006	Veracruz	5,417
Assam	1,843	Alagoas	6,227			Lombok	44,014,619	Nayarit	5,252

India		Brazil			Indonesia		Mexico	
Jharkhand	1,695	Maranhão	6,104		East Java	41,407,049	Michoacán	5,147
Uttar Pradesh	1,586	Piauí	5,373		Central Kalimantan	37,161,800	Zacatecas	5,132
Madhya Pradesh (2008)	1,494				North Sulawesi	33,033,610	Hidalgo	5,119
Manipur (2008)	1,440				South Sulawesi	32,461,332	Guerrero	4,981
Bihar	1,019				West Sulawesi	25,655,941	Tlaxcala	4,928
					Lampung	22,997,899	Oaxaca	4,003
					Papuan	18,144,493	Chiapas	3,657
					Gorontalo	9,403,379		
					Central Sulawesi	7,069,054		
					North Maluku	4,691,161		

*Where data was unavailable, Gross Regional Domestic Product by state was used to show state income/wealth.
India: The Economist, 2010. 2009 otherwise noted ; All-India Per Capita NNI (2004-2005 base)
Brazil: The Economist, 2010
China: The Economist, 2010
Indonesia: BPS, 2009. GRDP at current prices (million euro)
Mexico: INEGI, 2007

POVERTY: Percentage of Poor*

INDIA	29.8	BRAZIL	21.4	CHINA	18	INDONESIA	13.3	MEXICO	46.2
Bihar	53.5	Piauí	4.22	Qinghai	50	Papuan	36.8	Chiapas	78.4
Chhattisgarh	48.7	Bahia	3.77	Guizhou	45	West Papua	34.9	Guerrero	67.4
Manipur	47.1	Maranhão	3.59	Yunnan	43	Moluccas	27.7	Oaxaca	67.2
Jharkhand	39.1	Paraíba	3.49	Gansu	41	Gorontalo	23.2	Puebla	61
Assam	37.9	Sergipe	3.16	Sichuan	37	East Nusa Tenggara	23	Tlaxcala	60.4
Uttar Pradesh	37.7	Alagoas	2.94	Henan	33	West Nusa Tenggara	21.6	Zacatecas	60.2
Orissa	37	Pernambuco	2.87	Hebei	31	Aceh	21	Veracruz	58.3
Madhya Pradesh	36.7	Para	2.53	Xingiang	30	Lampung	18.9	Tabasco	57.2
West Bengal	26.7	Rio Grande do Norte	2.4	Shanxi	28	Bengkulu	18.3	Hidalgo	54.8
Arunachal Pradesh	25.9	Amazon	1.73	Hainan	28	Central Sulawesi	18.1	Michoacán	54.7
Rajasthan	24.8	Rondônia	1.52	Shaanxi	26	Southeast Sulawesi	17.1	San Luis Potosí	52.3
Maharashtra	24.5	Acre	1.48	Heilongjiang	23	Yogyakarta	16.8	Durango	51.3
Karnataka	23.6	Amapá	1.38	Jilin	22	Central Java	16.6	Campeche	50
Gujarat	23	Roraima	1.33	Jiangxi	17	South Sumatra	15.5	Guanajuato	48.5
Andhra Pradesh	21.1	Minas Gerais	1.31	Liaoning	16	East Java	15.3	Yucatán	47.9
Mizoram	21.1	Holy Spirit	1.24	Fujian	16	West Sulawesi	13.6	Morelos	43.6
Nagaland	20.9	Mato Grosso do Sul	1.01	Anhui	15	South Sulawesi	11.6	México	42.9
Haryana	20.1	Paraná	0.99	Guangxi	15	North Sumatra	11.3	Querétaro	41.4
Uttarakhand	18	Goiás	0.98	Hubei	14	West Java	11.3	Nayarit	41.2
Tripura	17.4	Mato Grosso	0.97	Hunan	11	West Sumatra	90.5	Tamaulipas	39.4
Meghalaya	17.1	Rio Grande do Sul	0.95	Shandong	9	North Maluku	90.4	Chihuahua	39.2
Tamil Nadu	17.1	Tocantins	0.67	Jiangsu	8	North Sulawesi	90.1	Aguascalientes	38.2
Punjab	15.9	Rio de Janeiro	0.64	Guandong	6	West Kalimantan	90	Jalisco	36.9
Sikkim	13.1	Santa Catarina	0.57	Zhejiang	4	Riau	80.7	Sinaloa	36.5
Kerala	12	Sao Paulo	0.53			Jambi	80.3	Colima	34.7
Himachal Pradesh	9.5	Ceará	0.34			Riau Islands	80.1	Quintana Roo	34.5

		East Kalimantan	70.7	Sonora	33.8
Jammu & Kashmir 9.4		Banten	70.2	Baja California	32.1
Goa 8.7		Central Kalimantan	60.8	Baja California Sur	30.9
		Bangka Belitung	60.5	Coahuila	27.9
		South Kalimantan	50.2	Nuevo León	21.1
		Bali	40.9		
		Jakarta	30.5		

* Each country uses a different definition/categorization to identify its poor. See the source list below for specifics.

India: Planning Commission, 2009-2010

Brazil: IBGE, 2010. Given the expansive categorization of the poor and income levels in the census, the following category was chosen for the purpose of this paper. Calculated for each state, percentage of population who is 10 years or older with nominal monthly income of up to one quarter of the minimum wage (economically active).

China: Provincial Announcement, 2011. Poverty rate uses 2,300 CNY/year ($369/year) as the poverty line.

Indonesia: BPS, 2010. Poverty level is defined for each state in local currency (Rp).

Mexico: CONEVAL, 2010

LITERACY RATE

INDIA	74	BRAZIL	90.4	CHINA	94.8	INDONESIA	92.8	MEXICO	92.4
Kerala	93.9	Santa Catarina	95.9	Jilin	97.8	North Sulawesi	99	Coahuila de Zaragoza	96.6
Mizoram	91.6	Rio de Janeiro	95.7	Liaoning	97.7	Jakarta	98.8	Baja California	96.3
Tripura	87.8	Sao Paulo	95.7	Heilongjiang	97.4	Riau Islands	97.7	Aguascalientes	96.2
Goa	87.4	Rio Grande do Sul	95.5	Shanxi	97.1	Riau	97.6	Sonora	96.2
Himachal Pradesh	83.8	Paraná	93.7	Guangdong	96.9	East Kalimantan	97	Baja California Sur	96.1
Maharashtra	82.9	Mato Grosso do Sul	92.3	Hebei	96.3	Central Kalimantan	96.9	Nuevo Leon	96.1
Sikkim	82.2	Goiás	92.1	Jiangxi	96.3	North Sumatra	96.8	Durango	95.6
Tamil Nadu	80.3	Holy Spirit	91.9	Hunan	95.8	South Sumatra	96.7	Chihuahua	95.4
Nagaland	80.1	Minas Gerais	91.7	Fujian	95.6	Maluku	96.6	Jalisco	95.1
Manipur	79.9	Amapá	91.6	Hainan	95.2	Banten	96.3	Mexico	95
Uttarakhand (formerly Uttaranchal)	79.6	Mato Grosso	91.5	Jiangsu	95.1	West Sumatra	96.2	Tamaulipas	94.6
Gujarat	79.3	Amazon	90.2	Shaanxi	94.9	North Maluku	96	Sinaloa	94.4
		Roraima	89.7	Henan	94.3	West Java	96	Colima	94.3
West Bengal	77.1	Para	88.3	Hubei	94.1	Nanggroe Aceh Darussalam	95.8	Tlaxcala	94.2
Punjab	76.7	Tocantins	86.9	Zhejiang	93.7	South Kalimantan	95.7	Zacatecas	93.9
Haryana	76.6	Acre	83.5	Shandong	93.4	Bangka Belitung	95.6	Quintana Roo	93.4
Karnataka	75.6	Bahia	83.4	Sichuan	92.8	Jambi	95.5	Querétaro	93.2
Meghalaya	75.5	Pernambuco	81.9	Anhui	91.6	Bengkulu	95.1	Nayarit	93.1
Orissa	73.5	Sergipe	81.6	Yunnan	91.3	Lampung	95	Morelos	92.9
Assam	73.2	Rio Grande do Norte	81.5	Gansu	90.2	Gorontalo	94.7	Tabasco	92.3
Chhattisgarh	71	Ceará	81.2	Qinghai	89.4	Central Sulawesi	94.51	San Luis Potosi	91.4
Madhya Pradesh	70.6	Maranhão	79.1	Guizhou	87.8	West Papua	92.4	Guanajuato	91.3
Uttar Pradesh	69.7	Rondônia	79.1			Yogyakarta	91.5	Campeche	90.9
Jammu and Kashmir	68.7	Paraíba	78.1			South East Sulawesi	91.3	Yucatan	90
Andhra Pradesh	67.7	Alagoas	75.7			Central Java	90.3	Nobleman	89.1
Jharkhand	67.6	Piaui	66.7			Bali	89.2	Michoacán de Ocampo	89.1

Rajasthan	67.1			East Java	88.5	Puebla	89.1
Arunachal Pradesh	66.9			South Sulawesi	88.1	Veracruz de Ignacio de la Llave	88
Bihar	63.8			East Nusa Tenggara	87.6	Oaxaca	83.1
				West Sulawesi	87.6	Warrior	82.5
				West Kalimantan	87.6	Chiapas	81.6
				West Nusa Tenggara	83.2		
				Papua	64.1		

India: Census, 2011 (7 years and older)

Brazil: IBGE, 2010 (15 years and older)

China: NBSC, 2011 (15 years and older)

Indonesia: BPS, 2011 (15 years and older)

Mexico: INEGI, 2010 (15 years and older)

POPULATION

INDIA	1,210,193,422	BRAZIL	1,907,559	CHINA	1339,724,852	INDONESIA	237,556,363	MEXICO	112,336,538
Uttar Prades	199,581,477	Sao Paulo	41,262,199	Guangdong	104,303,132	East Java	43,021,826	México	15,175,862
Maharashtra	112,372,972	Minas Gerais	19,597,330	Shandong	95,793,065	Central Java	37,476,011	Veracruz	7,643,194
Bihar	103,804,637	Rio de Janeiro	15,989,929	Henan	94,023,567	North Sumatra	32,380,687	Jalisco	7,350,682
West Bengal	91,347,736	Bahia	14,016,906	Sichuan	80,418,200	Banten	12,985,075	Puebla	5,779,829
Andhra Pradesh	84,665,533	Rio Grande do Sul	10,693,929	Jiangsu	78,659,903	Jakarta	10,644,030	Guanajuato	5,486,372
Madhya Pradesh	72,597,565	Paraná	10,444,526	Hebei	71,854,202	South Sulawesi	9,588,198	Chiapas	4,796,580
Tamilnadu	72,138,958	Pernambuco	8,796,448	Hunan	65,683,722	Lampung	8,032,551	Nuevo León	4,653,458
Rajasthan	68,621,012	Ceará	8,452,381	Anhui	59,500,510	South Sumatra	7,596,115	Michoacán	4,351,037
Karnataka	61,130,704	Para	7,581,051	Hubei	57,237,740	Riau	7,446,401	Oaxaca	3,801,962
Gujarat	60,383,628	Maranhão	6,574,789	Zhejiang	54,426,891	West Sumatra	5,543,031	Chihuahua	3,406,465
Orissa	41,947,358	Santa Catarina	6,248,436	Yunnan	45,966,239	East Nusa Tenggara	4,845,998	Guerrero	3,388,768
Kerala	33,387,677	Goiás	6,003,788	Jiangxi	44,567,475	West Nusa Tenggara	4,679,316	Tamaulipas	3,268,554
Jharkhand	32,966,238	Paraíba	3,766,528	Liaoning	43,746,323	Aceh	4,496,855	Baja California	3,155,070
Assam	31,169,272	Holy Spirit	3,514,952	Heilongjiang	38,312,224	West Kalimantan	4,486,570	Sinaloa	2,767,761
Punjab	27,704,236	Amazon	3,483,985	Shaanxi	37,327,378	Bali	4,393,239	Coahuila	2,748,391
Chhattisgarh	25,540,196	Rio Grande do Norte	3,168,027	Fujian	36,894,216	South Kalimantan	3,891,428	Hidalgo	2,665,018
Haryana	25,353,081	Alagoas	3,120,494	Shanxi	35,712,111	East Kalimantan	36,261,19	Sonora	2,662,480
Jammu & Kashmir	12,548,926	Piauí	3,118,360	Guizhou	34,746,468	Yogyakarta	3,550,586	San Luis Potosí	2,585,518
Uttarakhand	10,116,752	Mato Grosso	3,035,122	Jilin	27,462,297	Jambi	3,452,390	Tabasco	2,238,603
Himachal Pradesh	6,856,509	Mato Grosso do Sul	2,449,024	Gansu	25,575,254	Papua	3,088,618	Yucatán	1,955,577
Tripura	3,671,032	Sergipe	2,068,017	Hainan	8,671,518	Central Sulawesi	2,851,999	Querétaro	1,827,937
Meghalaya	2,964,007	Rondônia	1,562,409	Qinghai	5,626,722	North Sulawesi	2,633,420	Morelos	1,777,227

India		Brazil		China		Indonesia		Mexico	
Manipur	2,721,756	Tocantins	1,383,445				2,265,937	Durango	1,632,934
Nagaland	1,980,602	Acre	733,559			Southeast Sulawesi	2,230,569	Zacatecas	1,490,668
Goa	1,457,723	Amapá	669,526			Central Kalimantan	2,202,599	Quintana Roo	1,325,578
Arunachal Pradesh	1,382,611	Roraima	450,479			Bengkulu	1,713,393	Aguasca-lientes	1,184,996
Mizoram	1,091,014					Riau Islands	1,685,698	Tlaxcala	1,169,936
Sikkim	607,688					Maluku	1,531,402	Nayarit	1,084,979
						Bangka Belitung	1,223,048	Campeche	822,441
						West Sulawesi	1,158,336	Colima	650,555
						Gorontalo	1,038,585	Baja California Sur	637,026
						North Maluku	1,035,478		
						West Papua	760,855		

India: Census of India, 2011
Brazil: IBGE Census, 2010
China: Census, 2010
Indonesia: BPS, 2010
Mexico: INEGI, 2010

APPENDIX B: Summary of list of interventions and programs

Summary List of Interventions and Programs

CURRICULUM

INTERVENTION	DESCRIPTION	COUNTRIES	Page
Curriculum modification	Individual school-level curriculum creation supervised by district office	Indonesia	12
Textbooks	Multi-language primary grade textbooks for indigenous communities	Mexico	13
Supplemental books	Libraries plus teacher support in developing curriculum to engage children using local context content in reading classes	China	13
Literacy support curriculum	To tackle grade repetition in early primary grades; teachers part of curriculum development process and curriculum is part of teacher training	Brazil	15
Remedial Education supporting core curriculum	Testing on grade-appropriate curriculum to gauge student level, with follow-up literacy and numeracy support	Brazil	15
Accelerated Learning Programs	Targeting overage students to re-integrate them at their age appropriate grade level though reinforcement course before the beginning of school year	Brazil	15
Computer-assisted learning (CAL)	Aiming to develop a curriculum and training manual for rural setting	China	16
Literacy and vocational skills	Tackle illiteracy through Functional Literacy Program	Indonesia	16

TEACHER TRAINING

INTERVENTION	DESCRIPTION	COUNTRIES	Page
Pedagogical models	Teacher training component included teaching methodology for rural multi-grade glasses; targeted literacy for early grades; continuous training on literacy and numeracy for primary grades	Brazil	21, 22
Coaching and Support	Supervisors train and monitor instruction as well as admin/pedagogy coordinators in each school	Brazil	23
	Training on usage of curriculum; lesson plan development and assessment for effective teaching with focus on literacy and numeracy	Brazil	23
Pre-service	Equipping teachers for special needs, rural, urban, multi-graded classrooms; specific teaching situations presented; sharing of teaching and learning materials	Indonesia	24
In-service	"Exemplary Lesson Development" model for in-service training incorporating methods, instruction, feedback for lesson design; school-based teaching and teachers' research activities	China	25
Teacher Support & Resource Centers	Staff/tutor at regional study centers; "open classrooms" teachers create lessons, colleagues and parents, teachers	China	27

	invited to observe lesson and provide feedback		
Use of technology	Receive assistance from master teacher; school-based coaching; cross-provincial learning teams	Indonesia	27
	In-service training combining self-study; school-based practice, local-based biweekly meetings with tutors at training agencies in each state	Brazil	28
	Provision of information on new curriculum, teaching methods observation; and discussion about lessons shown (in-class and realtime satellite or recorded on CD-ROM); lesson planning with colleagues	China	30
	Radio	Indonesia	31
	Videoconference and radio for teaching training on literacy	Brazil	30
Addressing teacher absenteeism	Community participation in holding the education system and teachers accountable	Indonesia	38

COMMUNITY PARTICIPATION

INTERVENTION	DESCRIPTION	COUNTRIES	Page
School-Based Management and Parent Associations	Committee comprised of community members, involvement in schools and their operations, utilizing social pressure to control corruption and build accountability	Indonesia Mexico Brazil	33 33, 37 35
Report Cards	Information on learning outcomes, school for more transparency in what is happening at the schools; for community and parents' awareness	Brazil	39
Community Learning	Adult tutors from local communities coach and teach students' chosen curriculum/topic of interest; literacy program in communities	Mexico	39

DATA USAGE

INTERVENTION	DESCRIPTION	COUNTRIES	Page
State-level evaluation systems	In addition to national systems, states develop own evaluation system with relevant indicators	Brazil	41
Usage of Data for rural education	Despite inaccessibility of data, smaller scale data collection and reports generated geared towards rural education policy suggestions	China	42
Research institutes on qualitative data regarding learning	Data collection to inform education, training, curriculum designs	Mexico	42
School improvement programs linked to government information system	Information used to determine school needs	Indonesia	43

APPENDIX C: Teacher Training Models[25]

This section reviews some of the commonly utilized teacher training models in the four countries under review, noting their usefulness and limitations to consider. Aspects of these models are evidenced in various components of the teacher training programs and examples mentioned in the paper.

The Cascading Model

As suggested in its name, the model is top-down, designed to train pre-selected persons who are then expected to train others (Rogers, 2005). One teacher/administrator from each school attends training at a central location and is then responsible for returning to his/her school to train colleagues on the new material (Rogers, 2005). This is one of the most commonly used teacher training approaches; widespread use of this model can be attributed to the fact that it is cost-effective and can reach vast numbers of teachers quickly, both key considerations in developing nations where a lack of funds and teacher shortages are ever-present concerns (Clegg, Macfarlane, & Ottevanger, 2005). However, relying on teachers to act as trainers, without preparing them in how to conduct trainings, is a major concern related to the cascading model (B. Aliyu, personal communication, November 16, 2011). If the cascading model is used, ongoing professional support for the trainers is needed (UNESCO, 2010e). According to UNESCO (2010e), the cascading model alone is unsuccessful in transforming teaching practices. A possible reason for this is that abstract theories, not practical skills, are usually transmitted through this model (Mattson, 2006). A major component of any teacher training program should be follow-up and evaluation, a component which is missing from the cascading model and thus makes it fairly ineffective as a stand-alone model.

School Clusters/Learning Circles

The need for trainings to take place on a continual basis and in a local context has led to the adoption of school clusters, or learning circles, in many developing nations. A cluster typically includes four to six schools and is comprised of administrators, teachers, and, at times, parents and community members who live in the same geographic area (Mannathoko, Pasic, & Wright, 2009). School clusters meet on a regular basis to discuss issues in education and learning, such as individual school issues, new methodologies, and best practices (Mannathoko et al., 2009). School clusters also allow educators an opportunity to develop and exchange materials and build their professional skills (Ackers, Abrishamian, Hardman, & O'Sullivan, 2011). Many programs have adopted the school cluster model as either the central means or a key part of in-service teacher training. School clusters and learning circles foster an ongoing process of exchanging information, thinking critically about pedagogy, and creating resources that help educators become more efficient, effective, and confident (Mannathoko et al., 2009). One of the most important considerations to take into account in creating school clusters is the identification of motivated teachers and administrators who can serve as leaders in their

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[25] This section on various models is taken directly from the research of Lare et al. (2011) with permission.

clusters (Crossley et al., 2002). A challenge in this model may arise if schools are far apart and contact is limited. Dr. Mannathoko, a UNICEF Senior Policy Advisor in Education with expertise in teacher trainings for child-friendly schools, shared information and insights on Teacher Resources Centers (TRCs). Complementing the cascading model, TRCs have played an important role in follow-ups to in-service training and professional development. A TRC can exist as a permanent building, a library, a computer lab, or simply a classroom. Often, TRCs are located in a larger school at the center of a school zone, which allows the school cluster to share resources and facilitate in-service activities. Resource centers can serve as a place where teachers can exchange books and information, and create and share visual aids. (C. Mannathoko, personal communication, November 4, 2011; Mattson, 2006)

Mobile Facilitators

Mobile facilitators are teacher trainers who conduct trainings at schools within their region, which generally includes eight or nine schools (Bof, 2004). They typically provide training to teachers in new pedagogies and methodologies. In addition to providing training, mobile facilitators monitor and evaluate the success of the training over an extended period of time (Bof, 2004). Mobile facilitators can also be called mobile trainers or field-based trainers (Bof, 2004). This model delivers training for large numbers of teachers, and also provides face-to-face contact between trainers and teachers without the costs associated with teachers travelling to trainings (Bof, 2004). In addition, mobile facilitators are able to monitor and evaluate teachers through observations in the classroom, lesson plans, and workbook assignments (Bof, 2004). Limitations of this model are similar to the limitations of the cascading model; abstract ideas and theories, not practical information, are often transmitted (Mattson, 2006). Also, there can be significant loss of information in transmission due to time gaps between trainings or a trainer's lack of motivation (Rogers, 2005). Additionally, hiring trainers who can travel to rural and sometimes remote locations proves difficult in some contexts. In order for this model to be successful, mobile facilitators must receive adequate support and training (UNESCO, 2010e). Governments need to be prepared to provide the necessary resources to trainers.

Mentoring

Mentoring, also called coaching, utilizes teachers already working in a school (Chapman et al., 2008). The mentoring model focuses on developing one-on-one relationships between experienced teachers and teachers new to the profession; mentoring programs also allow for new professionals to be observed, advised, and coached by an experienced teacher (Chapman et al., 2008). "Teachers listen to other teachers more, not trainers" (Cybersmart, personal communication, November 8, 2011). Teachers being mentored in this model should receive ongoing support, which includes formal professional development as well as someone available to answer questions and help solve classroom issues—mentor teachers can fill this role (L. Kubis, personal communication, December 5, 2011). A possible limitation of the mentor model is that ineffective practices may be unchallenged replicated if mentor teachers socialize younger teachers into adopting pedagogical or other approaches that are outdated.

REFERENCES

Abroad China. (2013). *Salary, wages. Base monthly pay.* Retrieved from
    http://www.abroadchina.org/salary.asp

Accountability Initiative. (2013). *PAISA*. Retrieved from
    http://www.accountabilityindia.in/paisa-planning-allocations-and-expenditures-
    institutions-studies-accountability

Ackers, J., Abrishamian, N., Hardman, F., & O'Sullivan, M. (2011). Developing a systemic
    approach to teacher education in sub-Saharan Africa: Emerging lessons from Kenya,
    Tanzania, and Uganda. *Compare*, *41*(5), 669-683.

Advisory Committee on School-based Management. (2000). *Transforming schools into dynamic
    and accountable professional learning communities*. Retrieved from
    www.info.gov.hk/archive/consult/2000/SBM

ASER. (2005). Annual status of education report: Rural. *ASER.* Retrieved from
    http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER_2005/aserfullrepo
    rt2005.pdf

ASER. (2011). *People's assessment of health, education, and livelihoods (PAHELI) 2011.*
    Retrieved from http://www.asercentre.org/p/63.html

ASER. (2012a). Enrollment and learning report card: from the annual status of education report
    2012. India rural. Retrieved from
    http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER_2012/enrollmenta
    ndlearningreportcard.pdf

ASER. (2012b). *ASER 2012 rural findings.* Retrieved from
    http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER_2012/nationalfindi
    ng.pdf

Atchoarena, D. & Gasperini, L. (Eds.). (2003). Education for rural development: towards new
    policy responses. Rome: UNESCO and FAO. Retrieved from
    http://www.unesco.org/education/efa/know_sharing/flagship_initiatives/towards_new
    _policy.pdf

Badan Pusat Statistik (BPS). (2010). *Population census, 2010: Aggregate data per province*.
    Retrieved from
    http://www.bps.go.id/download_file/SP2010_agregat_data_perProvinsi.pdf

Banerjee, A., Banerji, R., Duflo, E., Glennerster, R., & Khemani, S. (2010). Pitfalls of participatory

programs: evidence from a randomized evaluation in education in India. *American Economic Journal* 2(1), 1-30.

Banerjee, A., Banerji, R., Duflo, E., Glennerster, R., & Khemani, S. (2006). Can information campaigns spark local participation and improve outcomes? A study of primary education in Uttar Pradesh, India. *World Bank*. Policy Research Working Paper 3967, July 2006.

Beatty, A. & Pritchett, L. (2012). From schooling goals to learning goals: how fast can student l earning improve? CGD policy paper 012. *Center for Global Development*. Retrieved from http://www.cgdev.org/files/1426531_file_Beatty_Pritchett_Time_to_MLG_FINAL.pdf

Bof, A. M. (2004). Distance learning for teacher training in Brazil. *International Review of Research in Open and Distance Learning, 5*(1), 1-14. Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewFile/172/684

BPS. (2009). GRDP at Current Market Prices by Province, 2004-2011. *Indonesia Central Bureau of Statistics.* Retrieved from http://www.bps.go.id/tab_sub/view.php?kat=2&tabel=1&daftar=1&id_subyek=52&notab=1

BPS. (2010). *Indonesia Census*. Retrieved from http://www.bps.go.id/eng/tab_sub/view.php?kat=1&tabel=1&daftar=1&id_subyek=23&notab=1

Brazil Ministry of Education. (2013). Pro letramento. Programa de formacao continuada de professors dos anos/series inicias do ensino fundamental. *Alfabetizacao e linguagem.* Retrieved from http://portal.mec.gov.br/index.php?option=com_content&view=article&id=12616&Itemid=842

Bruns, B., Evans, D. & Luque, J. (2012). Achieving world-class education in Brazil. *The International Bank for Reconstruction and Development at World Bank.* Washington: DC. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/2383/656590REPLACEM0hieving0World0Class0.txt?sequence=2

Bruns, B., Filmer, D., & Patrinos, A. (2011). *Making schools work: New evidence on accountability reforms.* Washington, D.C: World Bank.

Burns, M. (2011). *Distance education for teacher training: Modes, models, and methods.* Washington, DC: Education Development Center. Retrieved from

http://idd.edc.org/sites/idd.edc.org/files/Distance%20Education%20for%20Teacher%20 Training%20by%20Mary%20Burns%20EDC.pdf

Cantoral, R. & Farfan, R.M. (2003). Mathematics education: A vision of its evolution. *Educational Studies in Mathematics* (53). 255-270. Retrieved from http://link.springer.com/content/pdf/10.1023%2FA%3A1026008829822.pdf

Cassidy, T. (2005). *Education management information system (EMIS) development in Latin America and the Caribbean: lessons and challenges*. Retrieved from http://41.89.160.5/chisimba/usrfiles/context/lpe803/EMIS_-_What_is_it_4.pdf

Census India. (2011). *Government of India*. Retrieved from http://censusindia.gov.in/2011census/censusinfodashboard/index.html

Center for Universal Education at Brookings. (2011). *A global compact on learning: taking action on education in developing countries*. Retrieved from http://www.brookings.edu/~/media/Events/2011/6/15%20education%20compact/0609 _global_compact.PDF

Chapman, D. W., Dejaeghere, J. G., Leu, E., & Mulkeen, A. (2008). *Recruiting, retaining, and retraining secondary school teachers and principals in sub-Saharan Africa.* Paris, France: Association for the Development of Education in Africa (ADEA).

Chaudhury, N., Hammer, J., Kremer, M., Muralidharan, K., & Rogers, F. H. (2006). Missing in action: Teacher and health worker absence in developing countries. *Journal of Economic Perspectives*: *20*(1), 91–116.

Chavan, M., & Banerji, R. (2012). The challenge of achieving desirable levels of learning in elementary education. *The Journal of Governance*: July 2012.

Chen, D. (2011). School-based management, school decision-making and education outcomes in Indonesia primary schools. The World Bank Policy Research Working Paper. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/3572/WPS5809.txt?se quence=2

Cheung, H. Y. (2008). Teacher Efficacy: A comparative study of Hong Kong and Shanghai primary in-service teachers. *Australian Educational Researcher-Australian Association for Research in Education: 35(1).*

China Delegation. (2009). *Incentives for rural teacher development in china* [Powerpoint slides]. World Bank. Retrieved from http://info.worldbank.org/etools/docs/library/245790/day%204%20Teachers%20Devel opmentChina20090212Cebu.pdf

Clegg, A., Macfarlane, I., & Ottevanger, W. (2005). Science and mathematics education development in Namibia after independence: The INSTANT project. *Journal of International Cooperation in Education, 8*(1), 35-44.

Clune, W. H. (1994). The shift from equity to adequacy in school finance. *Educational Policy, 8*(4), 376-394.

CONEVAL. (2010). *Government of Mexico*. Retrieved from http://web.coneval.gob.mx/Medicion/Paginas/Medici%C3%B3n/Anexo-Estadistico-Pobreza-2010.aspx

Crossley, M., Herriot, A., Kamau, A., Juma, M., Mwirotsi, M., & Waudo, J. (2002). The development and operation of head-teacher support groups in Kenya: A mechanism to create pockets of excellence, improve the provision of quality education and target positive changes in the community. *International Journal of Educational Development, 22,* 509-526.

DISE. (2013). *District Information System for Education*. Retrieved from http://www.dise.in/

District Information System for Education. (2012). *School Report Cards.* Retrieved from http://schoolreportcards.in/SRC-New/

Dyer, C., Choksi, A., Awasty, U. I., Moyade, R., Nigam, N., & Purohit, N. (2002). Democratising Teacher Education. *Comparative Education, (38)*3, 337-351.

The Economist. (2008/2009). Comparing Indian states and territories with countries. An Indian summary: which countries match the GDP and population of India's states and territories? *The Economist.* Retrieved from http://www.economist.com/content/indian-summary

The Economist. (2010). All the parities in China. *The Economist.* Retrieved from http://www.economist.com/content/all_parities_china

Elmore, R. (2011). What happens when learning breaks out in rural Mexico? *Education Week blogs: The Futures of School Reform.* Retrieved from http://blogs.edweek.org/edweek/futures_of_reform/2011/05/what_happens_when_learning_breaks_out_in_rural_mexico.html

Figueiredo, M. C. M & Cowen, R. (2003). Models of teacher education and shifts in politics: A note on Brazil. Retrieved from http://www.schwartzman.org.br/simon/oxford/6_cowen.pdf

Gatti, B. (2009). Evaluation of educational systems in Brazil. *Education Assessment: Ibero-American perspectives*. Retrieved from http://sisifo.fpce.ul.pt/?r=24&p=12

Gertler, P., Patrinos, H., & Rubio-Codina, M. (2008). Empowering parents to improve education: Evidence from rural Mexico. *World Bank Policy Research Working Paper Impact Evaluation Series No.4.* Retrieved from www-wds.worldbank.org/servlet/WDSContentServer/.../wps3935.pdf

Gertler, P., Patrinos, H., & Rodriguez-Oreggia, E. (2012). Prelimiary draft: Parental empowerment in Mexico: radomized experiment of AGE in rural primary schools in Mexico. Retrieved from www.invalsi.it/invalsi/ri/improving_education/Papers/patrinos/142.doc

Global Giving. (2013). *Improve quality of teaching in rural China.* Retrieved from http://www.globalgiving.org/projects/education-in-china/

Glewwe, P. & Kassouf A. L. (2010). The impact of the bolsa escolar/familia conditional cash transfer program on enrollment, dropout rates and grade promotion. Retrieved from http://faculty.apec.umn.edu/pglewwe/documents/BrBolsa6.pdf

Global Partnershp on Output-Based Aid (GPOBA). (2008). Indonesia GPOBA commitment document. Retrieved from http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2009/07/08/000334955_20090708033816/Rendered/PDF/492820PAD0P102101OFFICIAL0USE0ONLY1.pdf

Government of Indonesia. (2013). *Education Management Information System*. Retrieved from http://emispendis.kemenag.go.id/index.php?view=remi

Govinda , R., & Bandyopadhyay, M. (2010). Governance and Community Participation in Elementary Education in India. *CREATE Pathways To Access Research Monograph No. 35.*

Hattie, J. (2005). The Paradox of Reducing Class Size and Improving Learning Outcomes. *International Journal of Educational Research, (43):* 387-425.

Huang, R. & Bao, J. (2006). Towards a Model for Teacher Professional Development in China: Introducing Keli. *Journal of Mathematics Teacher Education, 9*(3), 279-298.

IADB. (2003). Mexico: comprehensive community education program phase I. Loan proposal. IADB. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.203.5293&rep=rep1&type=pdf

IBGE. (2008). *Brazil.* Retrieved from
        http://saladeimprensa.ibge.gov.br/en/noticias?view=noticia&id=1&busca=1&idnoticia=
        1756

IBGE. (2010). *Brazil National Census.* Computed from data retrieved from
        http://www.ibge.gov.br/estadosat/

India Census. (2011). *Literacy in India.* Retrieved from
        http://www.census2011.co.in/literacy.php

INEGI. (2010). *Sistema de Cuentas Nacionales de Mexico Producto INterno Bruto por entidad
        federative 2005-2009.* Retrieved from
        http://www.inegi.org.mx/prod_serv/contenidos/espanol/bvinegi/productos/derivada/r
        egionales/pib/2005_2009_seg/PIBE2009.pdf

INEGI. (2010). *Mexico.* Retrieved from
        http://cuentame.inegi.org.mx/monografias/informacion/df/default.aspx?tema=me&e=
        09

INEGI. (2010). *Population census.* Retrieved from
        http://cuentame.inegi.org.mx/monografias/informacion/mex/poblacion/default.aspx?t
        ema=me&e=15

Ingersoll, R. M. (Ed). (2007). A comparative study of teacher preparation and qualifications in six
        nations. CPRE. Retrieved from
        http://www.cpre.org/images/stories/cpre_pdfs/sixnations_final.pdf

International Fund for Agricultural Development (IFAD). (2013). Enabling poor rural people to
        overcome poverty in Indonesia. Retrieved from
        http://www.ifad.org/operations/projects/regions/PI/factsheets/id.pdf

Jalal, F. & Sardjunani, N. (2005). Increasing literacy in Indonesia. Background paper prepared for
        the Education for All Global Monitoring Report 2006: Literacy for Life. *UNESCO*.
        Retrieved from unesdoc.unesco.org/images/0014/001460/146011e.pdf

Jalal, F., Samani, N., Chang, M. C., Stevenson, R., Ragatz, A. B., & Negara, S. D. (2009). *Teacher
        Certification in Indonesia: A Strategy for Teacher Quality Improvement.* Ministry of
        National Education of Indonesia and World Bank. Retrieved from http://ddp-
        ext.worldbank.org/EdStats/IDNprwp09c.pdf

Jalal, F., Sardjunani, N., Musthafa, B., Purwadi, A., & Suharti. (2003). National Plan of Action:
        Indonesia's Education for All 2003-2015. National Coordinator Forum Education for All.

Jing, Z. & Hu, W. (2007). China country case study. UNESCO. Retrieved from ddp-
    ext.worldbank.org/EdStats/CHNgmrpro07.pdf

Kapur, A. (2011). Analysis of state budgets: elementary education. Joint report from Azim
    Premji Foudation, *Accountability Initiative and Centre for Policy Research.* Retrieved
    from http://www.azimpremjifoundation.org/pdf/state-budget.pdf

Koehler, M. & Mishra, P. (2009). What is technological pedagogical content knowledge?
    Contemporary Issues in Technology and Teacher Education, 9(1), 60-70. Retrieved from
    http://www.citejournal.org/articles/v9i1general1.pdf

Kumar, A. (2012). Indian social studies curriculum in transition: Effects of a paradigm shift in
    curriculum discourse. *Transnational Curriculum Inquiry 9* (1). Retrieved from
    http://nitinat.library.ubc.ca/ojs/index.php/tci

Lare, C., Mansoob, F., Martinez, R., & McDowell, C. (2011). *Teacher training best practices and
    resource recommendations for Nigeria.* (Unpublished master's thesis). Teachers College,
    Columbia University, New York.

Lopez-Acevedo, G. (2002). Teachers' incentives and professional development in schools in
    Mexico. Working Paper. *ERIC*. Washington, DC: World Bank.

Lopez-Acevedo, G. (2004). Professional development and incentives for teacher performance in
    schools in Mexico. World Bank Policy Research Working Paper. Retrieved from
    http://elibrary.worldbank.org/content/workingpaper/10.1596/1813-9450-3236

Luschei, T. F. (2012). In search of good teachers: patterns of teacher quality in two Mexican
    states. *Comparative Education Review: The University of Chicago Press.* DOI:
    10.1086/661508 retrieved from http://www.jstor.org/stable/10.1086/661508

Mannathoko, C., Pasic, M., & Wright, C. (2009). *Child friendly schools.* New York, NY: United
    Nations Children's Fund (UNICEF).

Mattson, E. (2006). *Field-based models of primary teacher training. Case studies of student
    support systems from sub-Saharan Africa.* Cambridge, UK: International Research
    Foundation for Open Learning (IRFOL).

Menezes-Filho, N. & Pazello, E. (2004). Evaluating the effects of FUNDEF on wages and test
    scores in Brazil. University of Sao Paulo. Retrieved from
    http://cep.lse.ac.uk/seminarpapers/03-02-04-FIL.pdf

MDEP (2013). (Model Districts Education Project's working paper on curriculum and pedagogy,
    unpublished paper). Columbia Global Centers South Asia, India.

MHRD (1993). *Learning without burden (Yashpal Committee Report).* New Delhi: Government of India.

Ministry of Education and Culture Action Plan. (2012). *Literacy: empowerment, development and peace.* Retrieved from http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/Indonesia.pdf

Ministry of Education of Brazil. (2003). National report on the education of young people and adults international mid-term conference on adult education. Retrieved from http://www.unesco.org/education/uie/pdf/country/Brazilnational.pdf

Ministry of Human Resource Development. (2013). *Statistics.* Retrieved from http://mhrd.gov.in/statistics_data

Mitchell Group. (2008). The midterm evaluation of USAID/Indonesia's decentralized basic education project. Final report. Washington, DC. Retrieved from indonesia.usaid.gov/.../DBE_Evaluation_Final_Evaluation_Report_3

National Bureau of Statistics of China (NBSC). 2010. *Population Census*. Retrieved from http://www.stats.gov.cn/english/newsandcomingevents/t20110429_402722516.htm

NCERT (2005). *National Curriculum Framework – 2005.* New Delhi: National Council of Educational Research and Training.

NCERT. (2013). *Survey.* Retrieved from http://www.7thsurvey.ncert.nic.in/sifinfo.htm

NCTE (2010). *National curricular framework for teacher education, towards preparing professional and humane teacher, national council for teacher education (NCTE).* New Delhi.

Neri. M. & Buchmann, G. (2007). Brazil country case study: Country profile prepared for the Education for All Global Monitoring Report 2008. Education for All by 2015: will we make it? *UNESCO.* Retrieved from ddp-ext.worldbank.org/EdStats/BRAgmrpro07b.pdf

Nirmala, K. & Selvi, P. (2012). Promoting smart schools with community participation - an experimental study at the grassroots in India. *International Conference on Education, Humanities and Human Resource Management* (ICEHHR 2012) September 8-9, 2012. Bangkok (Thailand)

Nizam & Santoso, A. (2013). Indonesia: OER intiatives & ICT in teachers' training [PowerPoint slides]. *UNESCO*. Retrieved from http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/news/indonesia_oer_initiatives.pdf

National Sample Survey Office. (2013). *Ministry of Statistics and Programme Implementation.* Retrieved from http://mospi.nic.in/Mospi_New/site/inner.aspx?status=3&menu_id=45

OECD. (2007). *OECD Rural policies reviews: Mexico*. Retrieved from http://www.oecd.org/gov/oecdruralpolicyreviewsmexico.htm#chapter_1

OECD. (2010). *Encouraging lessons from a large federal system.* Retrieved from http://www.oecd.org/pisa/pisaproducts/46581300.pdf

OECD. (2011). *Education at a glance 2011: country note – Chin*a. DOI: http://dx.doi.org/10.1787/eag-2011-en Retrieved from http://www.oecd.org/china/48677215.pdf

OECD. (2012). *OECD reviews of evaluation and assessment in education: Mexico 2012*. DOI: 10.1787/22230955 retrieved from http://www.oecd-ilibrary.org/education/oecd-reviews-of-evaluation-and-assessment-in-education-mexico-2012_9789264172647-en

Pailwar, V. K., Mahajan, V. (2005). Janshala in Jharkhand: An experiment with community involvement in education, *International Education Journal, 6*(3), 373-385.

Pandey, P., Goyal, S., & Sundararama, V. (2008). Community participation in public schools: impact of information campaigns in three Indian states. South Asia Human Development World Bank. Retrieved from http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/11/11/000158349_20081111142153/Rendered/PDF/WPS4776.pdf

Pandey, S. (2011). *Professionalization of teacher education in India: A critique of teacher education curriculum reforms and its effectiveness.* Department of Teacher Education and Extension. NCERT: New Delhi. Retrieved from http://www.icsei.net/icsei2011/Full%20Papers/0007.pdf

Patrinos, H. & Kagia, R. (2007). Maximizing the performance of education systems: the case of teacher absenteeism. In Campos, J. E. & Pradhan, S. (Eds.), *The Many Faces of Corruption. Tracking Vulnerabilities at the Sector Level.* Washington, D.C: The World Bank.

Planning Commission, Government of India. (2009-2010). *State specific poverty lines, number and percentage of population below poverty line by states – 2005-05 & 2009-10*. Retrieved from http://planningcommission.nic.in/data/datatable/2504/databook_70.pdf

Planning Commission, Government of India. (2013). What is Aadhar*? Unique Identification Authority of India*. Retrieved from http://uidai.gov.in/what-is-aadhaar-number.html

Provincial Announcement. (2011). *Government of China.* Retrieved from
      http://forum.home.news.cn/thread/92687512/1.html

Provincial Yearbook. (2011). *Tianya, China*. Retrieved from http://bbs.tianya.cn/post-333-
      215022-1.shtml

Proyeksi Penduduk. (2010). *Census*. Retrieved from: http://www.datastatistik-
      indonesia.com/proyeksi/index.php?option=com_content&task=view&id=923&Itemid=9
      38&lang=en

Ramachandran, V. (2001). Community participation in primary education: innovations in
      Rajasthan. *Economic and Political Weekly.* Retrieved from
      http://www.cips.org.in/public-sector-systems-government-
      innovations/documents/innovation_edu_rajasthan.pdf

Rega, I., Cantoni, L., Tardini, S., Olivatto, B., Nery, F., Marques, O., & Fanni, F. (2006). What do
      Brazilian teachers in disadvantaged schools think of ICT? Proceedings of The Fourth Pan-
      Commonwealth Forum on Open Learning (PCF4), Ocho Rios, Jamaica, 30 October – 3
      November 2006.

Rincon-Gallardo, S. (2011). Educational change as social movement in Mexican public schools:
      reframing practice, policy and research. Paper for 9th Annual HGSE alumni of color
      conference. Retrieved from
      http://www.academia.edu/478931/Educational_Change_as_Social_Movement_in_Mexi
      can_Public_Schools_Reframing_practice_policy_and_research

Robeyns, I. (2006). Three models of education: Rights, capabilities and human capital. *Theory
      and Research in Education, 4*(69), 69-84. DOI: 10.1177/1477878506060683

Robinson, B. (2008). Using distance education and ICT to improve access, equity and the quality
      in rural teachers' professional development in western China. *International Review of
      Research in Open and Distance Learning, 9*(1). UNESCO. Retrieved from
      http://web.ebscohost.com.eduproxy.tc-
      library.org:8080/ehost/pdfviewer/pdfviewer?sid=4651c7d1-bc35-44cf-ae1b-
      705c9ab639c5%40sessionmgr15&vid=2&hid=120

Rogers, A. (2005). Training adult literacy educators in developing countries. *Education for All
      Global Monitoring Report.* Literacy for Life Background Reports: UNESCO.

Rural Education Action Program (REAP). (2013). Computer assisted learning in poor rural
      schools. Retrieved from
      http://reap.stanford.edu/research/computer_assisted_learning_in_poor_rural_schools

Santibanez, L. (2007). School-based management effects on educational outcomes: a literature review and assessment of the evidence base. CIDE. Retrieved from http://www.libreriacide.com/librospdf/DTAP-188.pdf

Santibanez, L., Martinez, J. F., Datar, A., McEwan, P. J., Setodji, C. M., & Basurto-Davila, R. (2007). Breaking ground: analysis of the assessment system and impact of Mexico's teacher incentive program "Carrera Magisterial." RAND Corporation. Retrieved from http://www.rand.org/content/dam/rand/pubs/technical_reports/2007/RAND_TR458.pdf

Santibanez, L., Vernez, G., & Razquin, P. (2005). Education in Mexico: challenges and opportunities. RAND Corporation. Retrieved from www.worldfund.org/assets/files/RAND_Education%20in%20Mexico.pdf

Sapa'at, A. (2013). Innovations in education: providing community-based education in rural Indonesia. Proceeding of the Global Summit on Education. Retrieved from http://worldconferences.net/proceedings/gse2013/papers_gse2013/118%20Asep%20Sapa'at.pdf

Satu, B. (2012, June 22). Jakarta to begin 12-year compulsory education in July. *Jakarta Globe*. Retrieved from http://www.thejakartaglobe.com/education/jakarta-to-begin-12-year-compulsory-education-in-july/526111

Schwartzman, S. (2003). The challenges of education in Brazil. *Oxford Studies in Comparative Education.* Oxford, UK: Triangle Journals, Ltd. Retrieved from http://archive.org/stream/TheChallengesOfEducationInBrazil/oxford_djvu.txt

Shoraku, A. (2008). Educational movement toward school-based management in East Asia: Cambodia, Indonesia and Thailand. Background paper for Education for All Global Monitoring Report 2009: Overcoming inequality: why governance matters. Retrieved from http://unesdoc.unesco.org/images/0017/001787/178720e.pdf

Suryahadi, A. & Sambodho, P. (2012). Assessment of public policies to improve teacher quality and reduce teacher absenteeism. Working paper. Australian AID: SMERU Research Institute, Jakarta.

Taylor, P. & Mulhall, A. (1997). Contextualising teaching and learning in rural primary schools: Using agricultural experience - Volume 1 - *Education Research Paper No. 20,* p.64.

Tutuka, J., Neneng, Amanda, & Karyadi, B. (2008). *Evaluating impact: turning promises into evidence. impact evaluation BERMUTU support to KKG/MGMP on teacher competency and student learning* [PowerPoint slides]. World Bank. Retrieved from http://siteresources.worldbank.org/INTISPMA/Resources/383704-1184250322738/3986044-1232724009177/Group_5_BERMUTU.pdf

Uemura, M. (1999). Community participation in education: what do we know? Prepared for Effective Schools and Teachers and the Knowledge Management System HDNED, The World Bank. Retrieved from http://siteresources.worldbank.org/INTISPMA/Resources/383704-1153333441931/14064_Community_Participation_in_Education.pdf

UNESCO & IBE. (2010a). Brazil. World Data on Education, 7th ed. Retrieved from http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/Brazil.pdf

UNESCO & IBE. (2010b). Indonesia. World Data on Education, 7th ed. Retrieved from http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/Indonesia.pdf

UNESCO & IBE. (2010c). People's Republic of China. World Data on Education, 7th ed. Retrieved from http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/China.pdf

UNESCO & IBE. (2010d). Mexico. World Data on Education, 7th ed. Retrieved from http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/Mexico.pdf

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2010e). *Guidebook on planning education in emergencies and reconstruction.* Paris, France: International Institute for Educational Planning.

UNESCO Task Team on South-South Cooperation. (2011). *The E-9 initiative: driving forces for Education for All (EFA)*. Retrieved from http://www.southsouthcases.info/casoscross/caso_06.php

UNESCO. (2000). *E-9 Countries: Recife declaration of the E-9 countries.* Retrieved from http://www.unesco.org/education/wef/en-docs/findings/9countries.pdf

UNESCO. (2004). *EFA global monitoring report 2005: The quality imperative.* Paris: UNESCO. Retrieved from http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/efareport/reports/2005-quality/

UNESCO. (2011). State of education in Brazil. State of education in Latin America and the Caribbean: Ensuring Quality Education for All. Retrieved from http://portal.unesco.org/geography/es/files/13662/12960781625TOM_-_Brazil's_Ed_System_EN.pdf/TOM%2B-%2BBrazil's%2BEd%2BSystem_EN.pdf

UNESCO. (2012a). *EFA global monitoring report 2012: Youth and skills: Putting education to work.* Paris: UNESCO. Retrieved from http://unesdoc.unesco.org/images/0021/002180/218003e.pdf

UNESCO. (2012b). *Family literacy programme: Country profile Mexico.* Retrieved from http://www.unesco.org/uil/litbase/?menu=16&programme=105

United Nations. (2011). *The rural poverty report 2011.* Retrieved from http://www.un.org/en/globalissues/briefingpapers/ruralpov/progress.shtml

UNESCO & UNDP. (1997). Teachers as lifelong learners: Case studies of innovative in-service teacher training programmes in the E-9 countries. Paris: UNESCO. Retrieved from http://unesdoc.unesco.org/images/0012/001201/120189e.pdf

UNICEF. (2010). Protecting salaries of frontline teachers and health workers: Social and Economic Policy Working Briefs. Retrieved from http://www.unicef.org/socialpolicy/files/Protecting_Salaries_of_Frontline_Teachers_and_Healthcare_Workers_final(1).pdf

Van Roekel, D. (2013).Moving from access to learning in the post-2015 dialogue: Why indicators matter and how we can use them well. UNESCO, Global Education First Initiative, and Permanent Mission of Denmark. New York: UNESCO

Vegas, E. (Ed.). (2005). Incentives to improve teaching: Lessons from Latin America. *World Bank*. Retrieved from http://siteresources.worldbank.org/EXTLACREGTOPEDUCATION/Resources/Incentives_to_Improve_Teaching.pdf

Waage, J., Banerji, R., Campbell, O. et al (2010). The Millennium Development Goals: A cross-sectoral analysis and principles for goal setting after 2015. *The Lancet.* Retrieved from http://download.thelancet.com/flatcontentassets/pdfs/S0140673610611968.pdf

Wang, J. & Zhao, Z. (2011). Basic education curriculum reform in rural china: Achievements, problems, and solutions. *Chinese Education and Society*, *44*(6), 36-46. DOI 10.2753/CED1061-1932440603

Winkler, D. R., (2004). Increasing accountability in decentralized education in Parana state, Brazil. Retrieved from http://www.rti.org/files/conferences/intl-educ-finance-05/background/accountability/Winkler_Accountability.pdf

World Bank (2009). *What is school-based management?* Retrieved from http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTEDUCATION/0,,contentMDK:20833367~menuPK:2448377~pagePK:210058~piPK:210062~theSitePK:282386,00.html

World Bank (2010a). *Making BOS effective under decentralization.* Retrieved from
        http://documents.worldbank.org/curated/en/2010/12/13266644/making-bos-effective-
        under-decentralization

World Bank. (2010b). *Transforming Indonesia's Teaching Force: Volume II: From pre-service
        training to retirement: producing and maintaining a high-quality, efficient, and
        motivated workforce.* Jakarta: World Bank. Retrieved from
        http://siteresources.worldbank.org/EDUCATION/Resources/278200-
        1099079877269/547664-1099080063795/Transforming_Indonesia_teaching_force.pdf

World Bank. (2002). *Project performance assessment report Brazil*. Retrieved from http://www-
        wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2002/08/09/000094
        946_02073104145845/Rendered/PDF/multi0page.pdf

World Bank. (2004). Mexico's oportunidades program. Shangai poverty conference: Case study
        summary. Retrieved from
        http://info.worldbank.org/etools/docs/reducingpoverty/case/119/summary/Mexico-
        Oportunidades%20Summary.pdf

World Bank. (2006a). Implementation completion report on a loan in the loan in the amount of
        US$202.3 million to the federative republic of Brazil for the second school improvement
        project (FUNDESCOLA II). Retrieved from
        http://documents.worldbank.org/curated/en/2006/09/7100755/brazil-second-school-
        improvement-fundescola-ii-project

World Bank. (2006b). Making services work for the poor: Nine case studies from Indonesia.
        World Bank. Retrieved from
        http://siteresources.worldbank.org/INTINDONESIA/Resources/Publication/280016-
        1152870963030/2753486-1165385030085/MSWPcasestudy.pdf

World Bank. (2007a). Project appraisal document on a proposed loan in the amount of US$24.5
        million and proposed credit in the amount of SDR40.33 million to the Republic of
        Indonesia for a Better Education through Reformed Management and Universal teacher
        Upgrading Project. Retrieved from http://www-
        wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/06/18/000020
        953_20070618085558/Rendered/PDF/39299.pdf

World Bank. (2007b). *Indonesia – Better education and reformed management for universal
        teacher upgrading (BERMUTU): Framework for treatment of indigenous or isolated
        vulnerable peoples.* Retrieved from http://www-
        wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/05/04/000011
        823_20070504154816/Rendered/PDF/IPP22201P09710410IPP0Framework.pdf

World Bank. (2011). Data. Public spending on education, total (% of GDP). Retrieved from
    http://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS

World Bank. (2013). World Bank and Education in Indonesia. Retrieved from
    http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/0,,cont
    entMDK:23187196~pagePK:146736~piPK:146830~theSitePK:226301,00.html

World Health Organization. (2011). Life expectancy: Life expectancy by country. *Global health
    observatory data repository.* Retrieved from
    http://apps.who.int/gho/data/node.main.688

World Salaries. (2008). *Teacher salaries international comparison.* Retrieved from
    http://www.worldsalaries.org/teacher.shtml

Xin, H. & Peijun, Z. (2013). 2011 China rural education development report released. *Chinese
    Social Sciences Today*, No.400. Retrieved from
    http://www.csstoday.net/Item/41765.aspx

Yan, C. & Chuanjun, H. (2011). Enhancing part-time in-service teacher training programmes to
    facilitate rural teacher development in China. *Prospects, 41*(4), 553-566. DOI
    10.1007/s11125-011-9211-9. Retrieved from
    http://link.springer.com/article/10.1007%2Fs11125-011-9211-9#page-3

Zhou, H. & Shang, Z. (2011). Short-term volunteer teachers in rural china: challenges and needs.
    Frontiers of Education in China, 6(30), 571-601. DOI: 10.1007/s11516-011-0146-y

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