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**EARLY CHILDHOOD EDUCATION
IN MEXICO
EXPANSION, QUALITY IMPROVEMENT, AND
CURRICULAR REFORM**

Hirokazu Yoshikawa, Kathleen McCartney,
Robert Myers, Kristen L. Bub, Julieta Lugo-Gil,
Maria A. Ramos, and Felicia Knaul

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Correspondence should be addressed to:

UNICEF Innocenti Research Centre
Piazza SS. Annunziata, 12
50122 Florence, Italy
Tel: (+39) 055 20 330
Fax: (+39) 055 2033 220
Email: florence@unicef.org

EARLY CHILDHOOD EDUCATION IN MEXICO: EXPANSION, QUALITY IMPROVEMENT AND CURRICULAR REFORM

Hirokazu Yoshikawa¹, Kathleen McCartney¹, Robert Myers²,
Kristen L. Bub¹, Julieta Lugo-Gil³, Maria A. Ramos⁴, Felicia Knaul⁵

with the assistance of
Francisco X. Gaytan⁶, Carolina Buitrago¹, Claudia Rincón⁴, Keren Abina-Sotomayor⁴, Pia
Caronongan¹, Amanda Leigh Roy⁴ and Erin B. Godfrey⁴

¹ Harvard Graduate School of Education, <hiro_yoshikawa@harvard.edu> and
kathleen_mccartney@harvard.edu>

² Hacia una Cultura Democrática, A.C.

³ Mathematica Policy Research

⁴ New York University, Department of Psychology, Graduate School of Arts and Sciences

⁵ Secretaría de Educación Pública, Coordinadora General de Modernización

⁶ New York University, Department of Applied Psychology, Steinhardt School of Education.

Summary: An accumulation of research across hundreds of studies shows the benefits of quality early childhood care and education for children's later learning, school success and social development. In recognition of the value of providing early learning opportunities, many nations have expanded early childhood care and education in recent years. Mexico provides an interesting case in which expansion of early childhood care and education has occurred in the past 5 years, as have initiatives to improve quality and revise the national curriculum for preschoolers.

This paper examines three policy initiatives that occurred in Mexico between 2000 and 2006 – preschool expansion, quality improvement and curricular reform. The preschool expansion included a mandate for all parents in Mexico to send their preschool-aged children (3, 4 and 5 years old) to preschool, with target dates of 2004, 2005 and 2008 for 100 per cent coverage of 5-year-olds, 4-year-olds and 3-year-olds, respectively. The quality improvement initiative was part of a larger programme providing supplemental funds to select preschools and schools in Mexico's public education system. Finally, the curricular reform instituted a new preschool curriculum to be implemented nationwide for all programmes across the 3- to 5-year-old age range.

We utilize a combination of national data and synthesis of existing studies to review each policy according to the three dimensions of coverage, quality and equity. We find that the preschool mandate resulted in rapid increases in enrolment. In 2005, 98 per cent of 5-year-olds, 81 per cent of 4-year-olds and 25 per cent of 3-year-olds were enrolled in preschool. The greatest increases occurred among 4-year-olds. A consequence of the rapid increase for 4-year-olds was that coverage for 3-year-olds actually declined in approximately half of the Mexican states. The slow progress in enrolment of 3-year-olds is seen to be affected also by reluctance on the part of parents. We draw attention to the international discussion on how best to respond to the development needs of children around the age of three and suggest alternatives to centre, education-based systems.

Although national averages of class size did not increase significantly, the proportion of preschools with average student-adult ratio of 30 or more did rise significantly in the general, CENDI, indigenous and CONAFE systems. In the general system (the largest system), the increase in proportion of preschools with average ratio of 30 or more from 12 per cent in 2001 to 18 per cent in 2005. The average increase in these structural indicators of quality was relatively small due to increases in numbers of preschools, particularly in urban areas. The impact of the mandate on other aspects of quality is unclear. The quality improvement initiative affected a relatively small number of preschools. In addition, the preschools that received quality improvement funds in the first 2 years of the programme were relatively larger and had more resources to begin with than other preschools. The

national curricular reform was created after a comprehensive process of obtaining input from teachers, directors and early education officials from across all the Mexican states. This process resulted in the implementation of an open curriculum based on comprehensive notions of the multiple domains of competencies in early childhood development. The curriculum requires high levels of teacher initiative and reflective practice. We provide information regarding how teachers, principals and other educators have responded to this demanding and challenging curriculum.

The paper concludes with policy options in each of the areas of preschool expansion, quality improvement and curricular reform. More funding is needed particularly targeted to ECCE services in poor and vulnerable communities, to support teachers achieve their licenciatura, to address the needs of preschools with very large student:teacher ratios and to develop strong systems of monitoring and research for the continuous adaptation of the system, particularly with respect to equity in access to quality services.

Keywords: Mexico, early childhood care and education, ECD, pre-school

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Contents

1. Purpose and Background of the Study	1
2. Early Childhood Care and Education in Mexico	8
3. Study Data Sources and Analytic Methods	12
4. Expansion of Early Education	14
5. Quality Improvement of Preschool Education.....	31
6. National Preschool Curricular Reform.....	35
7. Observations of Preschools	42
8. Conclusions and Implications for Policy and Research	46
References	56

List Of Abbreviations

CENDI	Centros de Desarrollo Infantil
CONAFE	Consejo Nacional de Fomento Educativo
CONAPO	Consejo Nacional de Poblacion
DGPP	Director General de Planeación y Programación
DIF	Desarrollo Integral de Familia
ECCE	Early Childhood Care and Education
ECCP	Escala de Evaluación de Calidad Educativa en Centros Preescolares
IMSS	Instituto Mexicano de Seguro Social
INEGI	Instituto Nacional de Estadística Geografía e Informática
ISSSTE	Instituto de Seguridad y Servicios Sociales de Trabajadores del Estado
NAEYC	National Association for the Education of Young Children
PEC	Programa Escuelas de Calidad
SEDESOL	Secretaría de Desarrollo Social
SEP	Secretaría de Educación Pública

1. PURPOSE AND BACKGROUND OF THE STUDY

The purpose of this study is to review three major policy initiatives in Mexican preschool education that have occurred since 2000. These initiatives include a major effort to expand preschool education through a mandate; a quality improvement initiative; and a national curricular reform. These initiatives were chosen because they represent the most far-reaching policy initiatives in preschool education that have unfolded in Mexico in recent years. For each initiative, we review their implementation with attention to coverage, quality, equity and implications for children's development. We place the findings from our review in the context of international trends in preschool expansion, quality and curriculum.

This paper is based on a report prepared by a team of researchers at the Harvard Graduate School of Education, at New York University and in Mexico. It was commissioned by the Secretaría de Educación Pública (SEP) in February of 2006. A visit to Mexico was made in late March of 2006 by the authors. The authors met with a variety of people in SEP, including the Secretary, the Sub-Secretary for Basic Education and many others. Six preschools were visited: two in Mexico City, two in the state of Mexico and two in the state of Morelos. Documents and data were collected in the summer and Autumn of 2006. Analyses occurred in 2006 and 2007.

In this introduction, we summarize recent international trends in early childhood care and education (ECCE) through the lenses of expansion, quality and curriculum, and then describe the immediate context of the three initiatives in Mexico.

1.1 International Trends in Preschool Education

According to a recent report on child development in developing countries, more than 200 million children under the age of 5 are not reaching their full cognitive and social-emotional potential, in part because they are exposed to multiple risk factors, including excessive poverty, malnutrition and un-stimulating home environments (Grantham-McGregor, Cheung, Cueto, Glewwe, Richter, Strupp and the International Child Development Steering Group 2007). Because early childhood cognitive and socio-emotional development strongly predict later school enrolment and life success, this loss of potential can result in as much as a 20 per cent decline in total income over the life course and may eventually have implications for national development (Grantham-McGregor et al. 2007). Children who are exposed to multiple risk factors are considerably more likely to have poor cognitive and social skills later in childhood, as well as low incomes and high fertility rates in adulthood, thereby contributing to the intergenerational transmission of poverty (UNESCO 2006, Grantham-McGregor et al. 2007).

Cumulative research over the last five decades shows that children's development can be modified and enhanced by the quality of their early environments and experiences. Research provides strong evidence that early childhood care and education programmes boost children's physical health and well-being, their cognitive and language skills, their social-emotional skills and their enrolment in primary school (UNESCO 2006). Studies across developing countries suggest that ECCE programmes have high rates of return, though it is worth noting that these rates are not derived from experimental studies (UNESCO 2006). Economists have argued that an investment in ECCE programmes is an investment in human

capital, in part because these programmes provide the foundation for future learning (e.g., Heckman 2006).

The purposes of early childhood care and education vary greatly by cultural, political and demographic context. For example, ECCE can be seen not only as a means to incorporate women into the workforce, but also as an important context for educational intervention beginning in infancy. Because the effects of ECCE programmes must be interpreted within the context of the goals, values and practices established by each country, it is difficult to make direct comparisons of the effects across nations (Lamb and Ahnert 2006). However, Lamb and Ahnert (2006) have suggested that comparisons of the goals and purposes of early childhood care and education across societies can be compared along four dimensions: whether there is equality between men and women or boys and girls, whether child care is viewed as a public vs. private responsibility, whether child care is viewed as a social welfare programme or an early education program and basic conceptions of developmental processes. For example, in the United States decisions about child care are left to individual families and government intrusions are not encouraged or welcomed (Blau 2000). In contrast, in the Nordic countries ECCE policy reflects the belief that the care and well-being of children is the responsibility of society as a whole, rather than of individual families alone (Ahnert and Lamb 2001). When child care is viewed as an educational programme rather than a custodial service, not only are enrolment rates considerably higher, but programmes are more often supported by public monies (Lamb and Ahnert 2006, Olmsted 1992). Auspices can also vary considerably, ranging from countries where ECCE services are primarily provided by government agencies to ones where private programmes predominate (though many private agencies receive public monies).

1.2 Expansion of Preschool Education

During the last decade, ECCE has been expanding in low-, middle- and upper-income countries. In fact, worldwide, pre-primary school attendance has nearly tripled in the last thirty years, though enrolment varies dramatically by region. For example, in 2004, pre-primary enrolment rates for children between the ages of three and five were approximately 73 per cent in developed and transition countries, compared with 32 per cent in developing countries (UNESCO 2006). This expansion has been driven, in part, by social and economic trends, including migration, urbanization and the transition of women into the labour market (UNESCO 2006). The vast majority of growth in ECCE enrolment has occurred for children over the age of 3. However, this may reflect, in part, the dearth of systematic data on programmes for children under three. Mexico has been particularly successful in expanding ECCE enrolment over the last fifty years, relative to other OECD countries (OECD 2003).

For the most part, countries have focused on increasing access rather than instituting mandates. Private organizations and charitable groups have played a fundamental role in the expansion of ECCE programs, especially in developing countries (UNESCO 2006). Eventually, governments began to take interest in ECCE, focusing on expanding formal programmes for children between the ages of three and five as a means to improve child well-being across a broad range of outcomes (UNESCO 2006). More recently, countries have begun to mandate pre-primary attendance for children as young as three years old (UNESCO 2006). Although the purposes and rationale for these mandates vary considerably across countries, most serve to demonstrate the government's commitment to ECCE, to increase the

quality of ECCE programs and to improve children's well-being and readiness for primary schooling (UNESCO 2006). Unfortunately, mandates rarely consider the realities of providing educational opportunities for so many children (e.g., the resources necessary to maintain high-quality practices) and as a result, do not necessarily lead to greater enrolment rates or higher quality.

1.3 Quality Improvement of Preschool Education

There is a general consensus that the quality of early childhood care and education matters for children's development (Center on the Developing Child at Harvard University 2007; Frede 1995; Lamb and Ahnert 2006; McCartney and Phillips 2006; Phillips, McCartney and Sussman 2006; UNICEF 2002; Yoshikawa 1995). However, much of the evidence regarding the benefits of high-quality programmes is anecdotal, making it difficult to substantiate its positive effects or to construct a definition of quality that is appropriate, concrete and feasible across a wide variety of contexts. Comparing findings from the studies that have been conducted has been problematic because few explicitly define quality and those studies that do define quality tend to measure it in disparate ways. Moreover, most of the studies conducted assessed quality at the group level so that comparisons could be made across settings but not within settings. Finally, the majority of information collected is descriptive, making it difficult to establish causal links between the types of programmes children attend and their developmental consequences.

Recent reviews of the literature on early childhood care and education programmes suggest that there are numerous elements of these settings that consistently produce positive impacts for children's developmental outcomes (e.g., Center on the Developing Child at Harvard University 2007; Karoly, Kilburn and Cannon 2005; Nelson, Westhues and MacLeod 2003). These include well-educated and trained teachers, small class sizes, small adult-child ratios, responsive interactions between staff and children, high and consistent levels of child participation in the classroom, a language-rich environment, an age-appropriate curriculum and stimulating materials in a safe environment (Barnett, Lamy and Jung 2005; Hill, Brooks-Gunn and Waldfogel 2003; NICHD ECCRN 1996, 1999, 2000; Snow, Burns and Griffin 1998). Programmes that include many or all of these elements tend to be most successful in producing positive impacts on children's outcomes.

In general, children who attend the highest quality ECCE programmes experience medium to large gains in their cognitive and social skills (Howes 1997; Lamb and Ahnert 2006; NICHD ECCRN 1997; Phillips, Howes and Whitebook 1992), while children who attend the lowest quality programmes are at risk for poor developmental outcomes (Currie, 2001). The effects of quality in the middle-range on child outcomes are small (Center on the Developing Child at Harvard University 2007). Experimental studies such as the Perry Preschool Project and the Abecedarian Project suggest that there are long-term benefits of high-quality early education programs, including higher levels of educational attainment, lower levels of juvenile crime and arrests, and lower rates of public assistance (Barnett 1998; Campbell, Ramey, Pungello, Sparling and Miller-Johnson 2002). A limited number of quasi- and non-experimental studies have identified modest effects of larger-scale programmes on children's development through second grade, including greater receptive language ability, math ability, cognitive and attention skills and social skills, as well as fewer behaviour problems (US

Department of Health and Human Services 2005; Ludwig and Phillips 2007; NICHD ECCRN 2001; Peisner-Feinberg et al. 2001).

Findings from several international studies have also identified long-term benefits. For example, results from the French National Survey and the British Effective Provision of Pre-school Education (EPPE) projects suggest that extended exposure to high quality ECCE leads to better intellectual development and lower retention rates in early elementary school (Jarousse, Mingat and Richard 1992; Sylva et al. 2004). Another study found that across a number of countries, children who attended ECCE programmes scored significantly higher on math tests at age 15, even after controlling for family SES, than their peers who did not attend ECCE programmes (PISA, 2003). The IEA Pre-primary Project (Weikart, Olmsted and Montie 2003) is one of the few studies to look at process and structural characteristics across countries. Across ECCE programmes in the 15 countries studied, children in programmes that provided higher levels of autonomy and where the teacher was more highly educated tended to have more advanced language skills. Researchers also found a higher level of cognitive performance among children who participated less frequently in whole-group activities (Weikart et al. 2003).

There have been several evaluations conducted of specific early childhood programmes in developing countries. Although these studies did not compare programmes based on differing levels of quality, they do provide important information regarding the types of outcomes that programmes of a certain structure and design tend to produce. Some programs, such as the *Integrated Child Development Programmes* in India and Bolivia, provide early education as one component of a package of integrated services. These family support and social service components have been found to have positive effects on children's psychosocial skills, language and cognition (Gragnotati, Shekar, Das Gupta, Bredenkamp and Lee 2005). A study conducted in Mauritius compared children who attended a high-quality enrichment program, with small child-staff ratios, highly-trained staff and a very well-defined curriculum, to children who attended community child care centres and found long-term effects in terms of a decreased incidence of behaviour problems and improvements in mental health (Raine, Mellinger, Liu, Venables and Mednick 2003). The *PROAPE (Programa de Aumentação de Pre-escolar)* programme in Brazil provided daily psycho-motor activities for children and found decreased rates of grade repetition and school dropout among programme participants compared to children with no preschool experience (Myers 1995). Similar effects were found among participants of the *Early Childhood Education Project* in India. This programme was also centre-based and provided disadvantaged children in poor regions of the country with educational and play activities (UNESCO Institute for Statistics 2003-2004). A study on a summer preschool programme implemented in the Philippines, found higher test scores and lower dropout rates among programme participants compared to non-participants. This summer programme ran for six weeks and consisted of activities using manipulatives, worksheets, poems and songs (The Consultative Group on Early Childhood Care and Development 1997).

One of the most robust findings in the ECCE literature is that high-quality settings are associated with better outcomes for children across a variety of domains. There is increasing recognition that quality early care and education can help build the foundational skills necessary for success in later life (OECD 2001). However, the definition of quality has been quite heterogeneous across countries.

Process and structural indicators of quality. In quite a few countries around the world, measures of quality have included those tapping what researchers have termed process and structural dimensions of quality (Bennett 2007; Myers 2006; NICHD ECCRN 2005; OECD 2004; Vandell and Wolfe 2000; UNESCO 2006). Process quality includes caregiver sensitivity and responsiveness, as well as cognitive stimulation and is typically measured via observations of activities and interactions in the child care setting, including interactions with caregivers and peers and language stimulation. Some measures focus primarily on the experiences of individual children (e.g., ORCE) while other measures focus primarily on the experiences of the group (e.g., ITERS/ECERS). In general, process quality assessments offer an attempt to quantify the care and education children receive. It is important to note that standardized process measures like these may be less useful in other countries, where cultural norms regarding parenting and caregiver interaction may be very different than in the United States (Lamb and Ahnert 2006).

Structural quality includes child-adult ratio, group size and the formal education and training of teachers and is typically measured via observations or reports of structural features of the classroom. Structural quality is more easily quantified than process quality and as a result, these features tend to appeal more to policy-makers because they are easier to regulate. It is worth noting that high structural quality does not guarantee high process quality, although many believe structural quality is necessary for providers to offer sensitive care giving and age-appropriate activities (e.g., Phillips, McCartney and Scarr 1987).

In many countries both process and structural dimensions are included in scales used to measure ECCE quality (Myers 2004). However, there is substantial variation across countries in the more specific indicators used. In fact, quality is typically considered a relative and not universal measure across ECCE programmes throughout the world (Dahlberg, Moss and Pence 1999). The information obtained from these scales is sometimes used in the process of accreditation overseen by external representatives from national ministries or organizations such as the NAEYC (National Association for the Education of Young Children) in the United States, QIAS (Quality Improvement and Accreditation System) in Australia and the European Commission Childcare Network (Bennett 2000). Although not identical, the quality standards of these organizations overlap substantially. For example, they each provide standards for assessing infrastructure and learning materials, provision of activities and learning materials for children, teaching and learning processes, relations with family and community and children's security and health (Myers 2006; NAEYC 2006; National Child Care Accreditation Council; European Commission Network on Childcare 1996). Structural components of programs, such as adequate staffing and school management and increased professional development opportunities for teachers, are also included.

It is difficult to mandate benchmarks for quality that can be implemented across countries, because of variation in goals, capacity and the conceptualization of education and care in different cultural, social and economic contexts (Bennett, 2000; European Commission Network on Childcare 1996; Myers 1995; UNESCO 2005; however, see Bennett (forthcoming, 2007) and Innocenti Reort Card No 8 (forthcoming) for a proposed set of bench marks for early childhood services in OECD countries). Although the provision of "quality" services is often mandated, it is seldom explicitly defined. It is often described more in terms of desired outcomes than necessary inputs (Bennett 2000). Outcomes not only

include a better quality of life for children in terms of being healthier and doing better in school, but also a more productive life for parents and communities (Evans 1996). More recently, the focus on quality has led to increased efforts to understand *how* providers and teachers behave in the classroom and *what* is being taught (Bredekamp 1987), how education is managed and how schools relate to families and communities. In other words, quality early care and education can encompass structural features, infrastructure, staff qualifications, processes of teaching and learning and materials (Myers 2006). Each aspect of quality is influenced by context (Myers 2006).

Monitoring quality. Some countries have formal quality-monitoring systems, though this is much more often the case in rich nations where the provision of services is large enough to merit the involvement of the central government (Bennett, 2000). In the U.S., where there are no federal regulations, structural features tend to be regulated at the state level (Phillips and Zigler 1987); states with more stringent standards have higher quality programs, on average, than states with less stringent standards (Phillips et al. 1992). However, structural standards for group size, ratio and training vary dramatically both across states within the U.S. and internationally.

In many countries, ECCE programmes are not under the jurisdiction of education ministries and therefore data on quality and student outcomes at the preschool level are sparse, compared to data available for primary and later schooling. The only information on preschool quality for some countries comes from organizations such as UNESCO, the World Bank and UNICEF that have formulated goals and recommendations, and also consolidated various evaluations that have been conducted of early childhood programmes around the world (e.g., OECD 2001; UNICEF 2005).

Outcomes. Interpretation of the outcomes of ECCE depends upon the way indicators for child, parent and staff development are defined. Definitions vary considerably across countries and are driven by social and cultural contexts (Myers 2006). The outcomes associated with early care and education programmes often tend to be defined quite narrowly. That is, the majority of research and evaluation studies describe outcomes in terms of “what happens to children” as a result of their educational experiences (Myers 2006). For example, developmental outcomes during the preschool years may focus on social, emotional, cognitive, language and physical growth but frequently, only cognitive and language development is taken as the standard. This limited view appears when ‘readiness for school’ is viewed from a relatively narrow perspective, and also because social and emotional outcomes are thought to be harder to measure (Raver and Zigler 1997; Yoshikawa and Zigler 2000).

Although far less common, outcomes can also be defined more broadly and include later school progress and performance as well as broader social outcomes, such as the ability to contribute to communities and to society (Myers 2006). These reflect the effect of quality on children’s later experiences and success. For example, school progress is described in terms of grade repetition rates, dropout rates and overall attainment. Across studies, children who attend very high-quality ECCE typically have lower retention and dropout rates and higher completion rates than children who attend lower-quality settings (Center on the Developing Child at Harvard University 2007). Broader social outcomes have to do with the acquisition of local values and the individual’s ability and desire to become a contributing citizen (GMR

2005; Myers 2004). These have been assessed rarely in evaluations of effects of ECCE, partly because long-term evaluation studies are in short supply.

Access and equity issues in preschool quality. Issues of access and equity are separate but highly inter-related issues associated with the quality of early care and education. Access to education depends on such factors as costs, geography and attitudes or expectations of parents. Funding and fee structures provide information about how financially accessible ECCE is to a nation's population. A mix of parent fees and government subsidies funds early childhood care and education programs, with the balance varying depending on country. Typically, in countries where there is a heavy financial burden on families, not all children are guaranteed a preschool education. A centre needs to be relatively nearby and easily reached to be accessible. If parents do not want to send their children to school, a school may be accessible in theory but, for the children, not in fact.

'Access' is commonly indexed by enrolment rates. A country can serve 100 per cent of its target population, thereby providing access to all children and by that measure be "equitable". However, it may at the same time offer unequal access to high-quality programmes or uneven supports for widely varying levels of achievement (Myers 2006). In Mexico, one can consider marginalized communities to be at risk for lower access to quality preschool education. These include high-poverty communities and states, communities with high proportions of indigenous populations, and rural areas (CONAPO 2000). Later sections of this paper examine data on preschool education by some of these indicators, to address questions of access and equity.

1.4 Curricula in Preschool Education

Although most countries have focused their preschool reform initiatives on increasing access to ECCE, recent efforts have highlighted the need to improve preschool curricula. Over the last several decades, many countries have undertaken a variety of educational reform efforts to address this concern. These reform efforts have been driven, in part, by an increased focus on child outcomes. By identifying key cognitive, social, behavioural and health outcomes, countries have been able to establish national performance standards in one or more of these domains (UNESCO 2006). As a result, they are better able to monitor progress and change pedagogical practices to meet the needs of children and families.

Most curricular reform efforts have focused on improving teacher-training programmes for the preschool workforce with the expectation that this training will lead to improved pedagogy and practice (UNESCO 2006). For example, many European countries have changed their training programmes to ensure that preschool and primary school teachers receive the same level of basic qualifications, regardless of their areas of specialization. In-service training and continued education opportunities are also being expanded in many countries as a means to both improve and update pedagogy and practice.

Other efforts have focused on curricular content that provides direction for children's learning in line with the country's societal goals. For example, some countries have outlined specific content areas that must be incorporated into preschool curricula, including mathematics and literacy, as well as social skills, nutrition and creative activities such as art and music, without providing detailed lesson plans and activities. Other countries have opted

for mandating core curricula, which are typically disseminated to the preschool education workforce, as well as to parents, and then applied to preschool classrooms. Still other countries carefully define expected learning outcomes, provide pedagogical strategies for attaining these outcomes and offer specific plans for meeting the needs of indigenous children and children with special needs (UNESCO 2006). Most recently, countries have begun to align performance standards with curricula to improve learning and development during the preschool years and prepare children for primary school.

2. EARLY CHILDHOOD CARE AND EDUCATION IN MEXICO

Formal attention to children in the preschool years in Mexico began in the late 19th century. As in other countries, attention was divided between programmes that focused on the education of young children as the primary purpose and those that focused on care, mainly within a welfare context.

From 1948 to 1992, preschool education in Mexico was largely directed by the Office of Preschool Education in the SEP. In 1992, decentralization of education from the federal to the state level was intensified in the National Educational Modernization Agreement. As a result of this policy change, administrative responsibility for preschool education shifted to the states, with oversight from several departments within the Sub secretary for Basic Education (for example the office of curricular development, *Dirección General de Desarrollo Curricular*).

Currently, preschool education in Mexico covers the age span of 3 to 5 years.¹ Primary school begins at age 6² and lower secondary school begins at age 12. In total, 12 years of education (*educación básica*) are obligatory, under the new obligatoriedad law.

Public preschool includes several systems. Four types of preschool are administered directly by the Secretaría de Educación Pública (SEP): the general (*general*), CENDI, or Centros de Desarrollo Infantil, indigenous (*indígena*), and community preschools operated by CONAFE (Consejo Nacional de Fomento Educativo). This study focuses primarily on these types of preschools. However, we describe other types, administered by other departments and offices in the Mexican government, below.

The *general* type of preschool serves the largest number of preschool-aged children in Mexico. General preschools may be located in urban or rural areas.

The CENDIs, which are almost exclusively urban, provide services mainly for children ages zero to 48 months, with some centres adding care and education for older children. The IMSS, or Mexican Institute for Social Security, administers several types of ECCE, including some of the CENDIs, child care and preschool for children of IMSS employees and child care / preschool for children of working mothers in the formal sector (eligible for social security).

¹ This study does not cover services provided to families with children from birth to three years old. Services for that population also cover a variety of systems, from CENDI and educación inicial to a variety of child care and learning programmes provided by the welfare department and private-sector child care.

² A very recent change allows children age 5 to enter primary school if their 6th birthday falls between September 1 and December 31. Similarly, children age 2 should be allowed to enter preschool if they turn 3 in the same period.

Most of these programmes are for children up to 48 months. In a similar vein are programmes administered by the Institute for the Social Security and Services of State Workers (ISSSTE) that provide ECCE to children of state workers, up to the age of 6.

Several types of preschool serve disadvantaged populations. The compensatory CONAFE preschool system serves, primarily, children in villages with less than 500 inhabitants (for more information on CONAFE, see the Box on the programme at the end of this paper). The indigenous system serves indigenous populations, primarily in rural areas, and is administered by its own office within the SEP. Programmes administered by the National System for Integral Development of Families (DIF, or the department of family welfare) serve children (up to 6 years of age) of working women who presumably are not part of the social security system. Finally, the Secretaria de Desarrollo Social, or SEDESOL, runs ECCE programmes for children of migrant workers.

There are also a range of private preschools as well, covering a range of families of differing socioeconomic statuses. This study concentrates on public preschools provided by the government.

Preschool enrolment from 1970 to 2000. Here we summarize trends in preschool enrolment from 1970 to 2000. Increases since 2000 are covered in the section of this study on the obligatoriedad law. Prior to 1970,³ when the historical series of statistics for preschool enrolment⁴ begins, enrolments were still relatively low. However, from 1970 to the year 2000, when the current administration took office, enrolment increased 755 per cent, from about 400,000 in the base year to just over 3,400,000 in the 2000-2001 school year.

One way of summarizing the statistics since 1970 is by looking at enrolments at the beginning of each decade, as in Table 1, and at growth during the decade. Table 1 also presents the percentage of total enrolments that are in schools funded at the state level or in private schools.

³ Although there have been some important changes in the kind of attention provided, in the responsibility for that attention (for instance the shift from federal to state responsibility in 1992), and in the detail with which statistics are presented, the enrollment totals seem to provide a rough and ready picture of shifts in the number of children attended over time. The margin of error for official statistics is not known.

⁴ Enrolment is defined as the number of children registered at the beginning of a school cycle. Accordingly, the enrollment for the school year 1970-1971 is the number of children registered for preschool at the start of the year in September 1970.

Table 1: Preschool Enrolment Growth in Mexico, by decade

Decade beginning	Total enrolment	Growth	% in private
1970	400,138		7.2%
1980	1,071,619	168%	11.1%
1990	2,734,054	155%	8.5%
2000	3,423,608	25%	10.0%

From Table 1 we can see that:

- A huge growth spurt occurred in the 1970s and 1980s, but from a relatively low baseline. Growth during the 1990s was very modest.
- The percentage of enrolment in private preschools is relatively low. It increased from 1970 to 1980, fell back in the next decade and increased again from 1990 to 2000.

Another and perhaps more meaningful way to look at enrolments is to see how they have changed during each presidential term (sexenio), as in Table 2.

Table 2: Preschool Enrolment growth in Mexico, by Sexenio

Sexenio	President	Total enrolment at beginning	Total growth in enrolment (%)	Average growth per year	Highest growth rate in one year
1970/1–1975/6	Echeverría	400,138	34%	6%	7.8% (75-76)
1976/7–1981/2	López	607,946	126%	18.1%	28.4% (81-82)
1982/3–1987/8	De la Madrid	1,690,964	55%	9%	13.0% (81-82)
1988/9–1993/4	Salinas	2,668,561	12%	2%	4.2% (93-94)
1994/5–1999/0	Zedillo	3,092,834	9.7%	2%	2.5% (95-96)

The table shows that growth rates were highest during the governments of López (126%), de la Madrid (55%) and Echeverría (34%). These larger increases occurred during years when the economy was being fed by the first oil boom. They also occurred from a relatively low base. For instance, the addition of over one million students during the Lopez sexenio represented an enormous growth of 126 per cent but that same number added to the system today would represent growth of only about 25 per cent. Growth was relatively slow during the two administrations (Salinas and Zedillo periods) preceding the Fox administration.

CONAFE

The CONAFE (Consejo Nacional de Fomento Educativo) system of education aims to reduce educational inequities in Mexico by providing support to the most disadvantaged schools and populations (Garza, 2005). Its aim is therefore explicitly compensatory, when compared to the general preschool system. Multiple indicators of poverty are used to select schools for CONAFE support. The programme provides professional development of teachers, audiovisual technology, curricular materials, and improvements to school infrastructure. The CONAFE system includes preschool and primary schooling, as well as telesecundaria education (schooling through satellite television in isolated communities).

Local preschools are run by parents and community leaders. Teachers are mostly without prior formal experience in teaching, and are provided scholarships for their tuition in schools of education. In return, they live in the communities of CONAFE preschools, teaching as well as providing social services and educational assistance directly to parents in homes.

The training and support model for CONAFE is intensive. One 'trainer' is provided for every 10 classrooms (a number of classrooms that may be spread out over several centres in a region). The teachers for the 10 classrooms meet every month with the trainer to receive close supervision and in-service training. CONAFE was in fact using a competencia-based system of curriculum before the curricular reform of 2003-2004.

It is worth noting that socioeconomic disadvantages that accumulate over the first five years of life significantly diminish access to ECCE programmes for many nations' most vulnerable children (UNESCO 2006). For example, in Mexico, enrolment rates for indigenous groups are considerably lower than for urban middle-class or non-indigenous groups (OECD 2003). Because the effects of ECCE programmes tend to be greater for disadvantaged children, efforts to increase access for this group must be expanded.

A recent evaluation by the World Bank (Patrinos, Shapiro, and Trevino 2004) found that the test-score gap between primary-school students in non-compensatory programmes and those in CONAFE and other SEP-sponsored compensatory programmes shrank substantially between 1988 and 2002, particularly for the most disadvantaged students. These data suggest that CONAFE's system may be responsible for reducing educational inequities. Unfortunately, no such data on developmental outcomes are available at preschool ages.

One concern with the CONAFE programme is its basis on scholarships funding its teachers. Currently, the pool of potential teachers could apply for any or all of the following: 1) scholarships from CONAFE; 2) state or Oportunidades scholarships that do not require social service in exchange for scholarship. Although instructors can now get both the Oportunidades and CONAFE scholarships, so more of their university tuition and expenses are covered, the demands of the CONAFE programme (community residence and participation) may make it difficult for the programme to attract the best candidates for its scholarship.

3. STUDY DATA SOURCES AND ANALYTIC METHODS

This study uses multiple methods and relies on data from multiple sources, including a synthesis of the literature, review of existing reports on preschool education in Mexico and in other countries, interviews with key informants in a variety of organizations working on preschool education in Mexico, and on-site visits and observations at 6 preschools in the Distrito Federal and two other states in Mexico. Below we describe the data sources used for each of the three main parts of this study.

Data used in section on preschool mandate. In order to assess changes in preschool enrolment following implementation of the obligatoriedad law, we use data from the School Census or 911 data set, provided to us by Rafael Freyre, the Director General de Planeación y Programación (DGPP) (Secretaría de Educación Pública 2005). These data are drawn from a questionnaire sent to all schools (including all preschools) in Mexico twice a year. We utilized the questionnaire that is administered at the beginning of the school year (inicio de cursos) and used data from the 1998-1999 to 2005-2006 years. From this data set, we used information on number of classrooms, number of enrolled students in each grade, gender of students, number of teachers, directors and assistants, and whether the preschool is located in an urban or rural area.

The second data set consisted of national census data on numbers of children of preschool ages. These were obtained (through the DGPP office) from the Consejo Nacional de Población, or CONAPO, which estimates the population annually (the Mexican census obtains counts of the total population every 10 years). We used these data as estimates of the population of 3-, 4- and 5-year-olds for each year from 1998 to 2005, as the numbers in the 'denominator' when we calculate enrolment rates in preschool education. In addition, for the year 2005 we have actual numbers of 3-, 4- and 5-year olds from the census conducted midway between the decennial censuses, from INEGI (the Instituto Nacional de Estadística Geografía e Informática).

We used some additional data, not to calculate statistics, but in order to interpret our results. These included a state and municipal level index developed to assess levels of disadvantage (marginalization) of the populations of Mexican states. This index was calculated by CONAPO based on data from INEGI, CONAPO and CNA (CONAPO 2000) and is based on multiple indicators of disadvantage, including poverty rates, representation of marginalized populations and housing quality.

Data used in section on quality improvement. In this section, we rely again on interviews with key informants, prior reports and an analysis of preschool characteristics that predict PEC status. For that analysis, we rely on the School Census (911) data, using predictors assessed in 2003 that tap size of the preschool, demographic characteristics of students, teacher training, urban/rural area and CONAPO's marginalization index to predict whether a preschool was a PEC school in 2004.

Data used in section on national curricular reform. For the information in the section on the curricular reform, we rely on both prior reports, interviews with key informants involved in the curricular reform and visits conducted to 6 preschools in March of 2006. The 6 preschools were chosen with attention to diversity across urban/rural areas and across systems. We

visited 2 in the Distrito Federal, 2 in the state of Mexico and 2 in the state of Morelos. Of these, one was a CONAFE preschool. In each of the preschools, we conducted informal interviews with teachers, principals, supervisors, parents and members of PEC and SEP technical support teams.

We review the three policy initiatives with attention to several common factors: *coverage, quality, equity and implications for children's later outcomes*. The first three are common dimensions of educational and social policy evaluation (Bardach 2000; Currie 1997), to which we add a fourth related to children's development.

- *Coverage* concerns the degree to which a social intervention is accessible to a given population. Enrolment is a rough indicator of coverage (given that families differ in their preferences for sending their children to ECCE programs, even in the context of a law mandating attendance). We will consider, for example, how the proportion of 3-, 4- and 5-year-olds enrolled in preschool education has changed since passage of the *obligatoriedad* law.
- *Quality* concerns, for our purposes, the quality of educational services provided to children and families. In our discussion of quality we will adopt a broad definition that includes structural and process dimensions as well as outcomes. We will present existing research on the quality of preschools in Mexico and take into consideration sources of quality, such as training, technical assistance and support at multiple levels in systems of preschool education.
- *Equity* concerns whether certain subgroups in a population have different levels of access to resources, programs, or quality. We will examine implications of each of the three policy initiatives for equity, across states, urban and rural areas and boys and girls.
- Finally, we consider *implications of recent policies for children's development and school readiness*. Unfortunately, because of the lack of national databases that include assessments of children's developmental outcomes together with detailed information on preschool enrolment, we are unable to conduct any analyses that link preschool experiences with developmental outcomes. However, to the extent that research in Mexico and other countries indicates strong causal relationships between aspects of preschool quality and children's development, we will discuss developmental implications of some of our findings.

We note several limitations of the study. First, our visits to preschools were limited to public preschools; we did not visit any private preschools. Our findings are primarily focused on public preschools. Second, within this domain of public preschools, our findings focus primarily on those programmes administered by SEP. We collected less information about other systems of public preschool, such as those administered as part of programmes by DIF, SEDESOL, IMSS and ISSSTE. We do present some information about the CONAFE and CENDI preschool programs; however, the information we obtained on those programmes was also limited and therefore this study should not be considered a review of those programs. Third, due to the lack of national data that combines measures of the development of young children with data on their preschool attendance, we cannot report effects of any of

the three policy initiatives on indicators of children's health or cognitive, social, or emotional development. Fourth, we also lack comprehensive national data on multiple dimensions of quality in preschool education. However, we do report on indicators such as class size and student-teacher ratio. Finally, we cannot draw causal conclusions about the effects of these policies on child development, family functioning, or staff or preschool characteristics from the data that were available to us. We caution the reader that any statements about the consequences of these policies are based on correlational data, which do not allow for strong causal inference.

4. EXPANSION OF EARLY EDUCATION

The proposal for a preschool attendance mandate was first presented to the Mexican Senate on October 16th, 2001 by a senator from the main opposition party (Senado de la República 2001). He framed the issue in terms of the right of all children to education as set out in the Mexican constitution. The proposal made reference to the importance of helping prepare children for primary school, even while taking a broad, integral and continuous view of how children learn and of early development. Preschools were presented as being able to compensate for the limited ability of families to provide developmental stimulation, by bridging home and school. By making preschool obligatory, the advantages of preschool would be brought to poorer families whose children are not enrolled, fostering educational equity. The text did not use 'investment' language; rather, the standard educational and social virtues of being in preschool are cited.

The presentation to the Senate did not provide insight into why obligatory education should begin at age 3, but implied that more is better, particularly for children from disadvantaged families. Nor did the presentation allude to political and economic motives except to say that the teachers' union strongly supported the proposal. Preschool teachers saw obligatory education as a way of calling attention to their field and perhaps increasing the budget. Although the specific motives and origins of the initiative are cloudy, there was considerable support for bringing it forward, and the proposal was ultimately passed as part of the General Education Law of 2002.

This law [published in the federal *diario* in November of 2002]⁵ incorporated the mandating of preschool education for all Mexican children ages 3 to 5:

Todos los habitantes del país deben cursar la educación preescolar, la primaria y la secundaria.

Es obligación de los mexicanos hacer que sus hijos o pupilos menores de edad cursen la educación preescolar, la primaria y la secundaria.

[“All inhabitants of the country shall attend preschool, primary and secondary education. It is Mexicans' obligation to make their children or students of minor age attend preschool, primary and secondary education.”]

⁵ The Ley General de Educación, published in the federal diario of 12 November 2002. It was further revised in 2003.

This section of the law has become known as the *obligatoriedad* legislation. The law set a timetable for universal coverage (100% coverage) of 3-, 4- and 5-year-olds, as follows in Table 3.

Table 3: Timetable for Implementation of Preschool Mandate

Age Group	Date by which 100% coverage is to be achieved
3-year-olds	Beginning of 2008-2009 school year
4-year-olds	Beginning of 2005-2006 school year
5-year-olds	Beginning of 2004-2005 school year

As of the time the original report was released, in the Autumn of 2007 during the Calderon administration, this timetable was still in effect. A very recent revision to the law (in 2006) extended the 3-year old mandate to children between the ages of 2 years 9 months and 3 years.

In addition, the law states that SEP shall determine the study plans and programmes for preschool education, and that preschool education will be “based on results of the scientific process; fight against ignorance and its causes and effects,” including the formation of stereotypes and discrimination.⁶ SEP’s oversight over study curricula and programmes extends to private preschools in the law.⁷ Professional development is covered in the regulations supplementing the law; these state that “the Secretary will provide what is necessary to implement professional development programmes that permit it...to guarantee the equity of education quality and issue the certification that makes those to whom this degree is issued impart that level.”⁸ Thus, the law and its regulations attempt to ensure quality and equity through oversight of all preschool education, whether public or private, by the SEP. In addition, for the first time, a professional university degree (the *Licenciatura*) was made mandatory for all new preschool teachers.

Of note is the fact that Mexico is now the only country in the world to have made preschool education mandatory for 3-year-olds. Several OECD countries have made universal access for 3-year-olds (and children even younger) a principle in their ECCE policy (e.g., Denmark and Norway; see OECD 2001). Access, however, is not equivalent to a mandate.

It is clear from the language of the Mexican law that parents are responsible for ensuring that their children attend preschool. Previously in México the government was obliged to provide preschool education to all those who sought it, but parents did not have a legal responsibility to enrol their children.

⁶ Article 8.

⁷ Article 48.

⁸ “...la Secretaría proveerá lo necesario para implementar programas de capacitación que permitan en un tiempo perentorio, garantizar la equidad de la calidad educativa y en su caso expedir la certificación que lo haga constar a quienes a la fecha de entrada en vigor de dicho Decreto, impartan el nivel.” (from the transitory second article in the supplemental regulations to the law, published in the federal diario of 10 December 2004).

The rest of this section will address three topics relevant to the obligatoriedad law: 1) coverage changes since implementation of the law; 2) the implications of these changes for quality of preschool education; and 3) the mandating of certification. Curricular reform and subsequent changes in teacher training are discussed in a later section.

4.1 The Obligatoriedad Law and Changes in Coverage

A primary goal of obligatoriedad was to make the system more equitable by dramatically increasing participation of 3-, 4-, and 5-year-olds in preschool education. We have examined these changes using data from the whole-school census data set, and report them below in Table 4.⁹

Table 4: Enrollment Rates and Numbers of Children in Preschool Education, 1998 to 2005, by Age

	AGE			TOTAL
	3 Year Olds	4 Year Olds	5 Year Olds	3, 4, 5 Year olds
1998	13.35% 308669	53.52% 1243540	77.02% 1789033	48.02% 3341242
1999	13.96% 318122	54.57% 1257526	77.63% 1797957	48.90% 3373605
2000	15.27% 340471	54.76% 1243605	79.31% 1822235	50.11% 3406311
2001	17.02% 371137	56.05% 1246175	79.43% 1799404	51.23% 3416716
2002	20.59% 438044	63.19% 1374104	81.45% 1806522	55.50% 3618670
2003	22.07% 456487	66.38% 1408423	85.83% 1862137	58.60% 3727047
2004	25.64% 518582	76.23% 1572478	93.08% 1970546	65.49% 4061606
2005	24.61% 530816	81.32% 1792468	98.35% 2110387	68.14% 4433671

⁹ Also known as the “911” data set. These data are collected by SEP in the Department of Planning and Programming (Dirección de Planeación y Programación). Our data are derived from a questionnaire filled out by each director of each school (including all preschools) in Mexico at the beginning of every school year, asking about enrollment of students, numbers of teachers and principals, and characteristics of students and teachers (INEGI, 2005).

Before interpreting the numbers from Table 4, we caution that their accuracy depends on the accuracy of two sets of numbers: the total numbers of children enrolled of various ages, which are reported by preschool directors at the beginning of each school year (that is, numbers for 2000 represent numbers reported at the beginning of the 2000-2001 school year), and (for the denominators of enrolment percentages) the annual estimates of the Mexican population of 3, 4 and 5 year olds calculated by CONAPO. Some inaccuracy in either or both of these sets of numbers may exist. We therefore urge the reader to interpret these numbers with caution.

Table 4 (last column) shows that between 2000 and 2005, the overall enrolment rate of 3, 4 and 5 year olds in preschool education increased dramatically, from 50 per cent to 68 per cent of the total population of children of these ages in Mexico. This is an 18-percentage-point increase and a 36 per cent relative increase in enrolment rate. The total number of 3, 4 and 5 year olds in preschool education increased across these years from 3,406,311 to 4,433,671, an increase of over a million (1,027,360) children.

The bulk of this increase, as one might expect by the timing of the obligatoriedad law, occurred between 2002 and 2005. During just these years, total enrolment rates increased by 13 percentage points (a relative increase of 23%). Considered on a year by year basis, the largest increase in the sexenio occurred between 2003 and 2004 (a 7-percentage-point, or 12% relative increase).

When examining these numbers by age, we find that the goals of the obligatoriedad law, of 100 per cent coverage of 5 year olds by the beginning of the 2004-2005 school year and of 4 year olds by the beginning of the 2005-2006 school year, have been approached. That is, according to these data sources, by the Autumn of 2004, 93 per cent of 5-year-olds in the country were enrolled in preschool education,¹⁰ while by the Autumn of 2005, 81 per cent of 4-year-olds were enrolled. The largest increases in enrolment rates occurred for 4 year olds. Between 2002 and 2005, this group experienced an increase in enrolment of 18 percentage points (a 29% relative increase). Because enrolment of 5-year-olds was already quite high at the beginning of this period (79% in 2000), the increase for this group has been somewhat smaller (between 2002 and 2005, an increase of 17 percentage points, or relative increase of 21%).¹¹

We also examined changes in enrolment rates and numbers by state. The pattern of increases seen in the national data was closely matched in the majority of states. However, they occurred in the context of considerable state-level variation in coverage prior to obligatoriedad. There is therefore still wide variation in enrolment rates by state as of 2005-2006 (range of 63% to 100%; see Table A2 in Yoshikawa, McCartney, Myers, Bub, Lugo-Gil, Ramos and Knaul 2006).

¹⁰ Note that our numbers for 5-year-olds are estimates of the numbers enrolled in preschool, not those who have had preschool and are in primary school, but are 5 years old. If one takes into account that 225,510 5-year olds were enrolled in primary school at the start of the 2004-2005 school year and assumes that virtually all of these would have had at least a year of preschool education, the percentage of children age 5 with preschool experience comes very close to reaching 100 per cent as mandated.

¹¹ These increases are calculated assuming that in 2005 the enrollment rate was 100%, not over 100 per cent as is implied by the numbers in the table.

Finally, we examined enrolment numbers and rates for boys and girls separately. There was little difference in these figures by sex of child (results not tabled).

Coverage for 3-year-olds. Among the preschools we visited, some principals reported reducing coverage for 3-year-olds as pressures grew to increase 4- and 5-year-old enrolment. This is natural in that the increase asked of these centres was enormous, and occurred within a short period of time with substantial but not massive increases in infrastructure. Indeed, in our analysis of 2005 state-level enrolment numbers, more variation in 3-year-old enrolment rates was found than in 4- or 5-year olds enrolment rates (range of 1% coverage of this group to 48% coverage; Table A2 in Yoshikawa et al. 2006). In addition, enrolment in grade 1 of preschool declined between 2004 and 2005 in 16 among the 32 states.¹² This evidence raises concerns about the feasibility of the current goal of 100 per cent coverage of 3-year-olds by 2008.

Seeking universal enrolment of 3-year olds raises a number of questions.

1. Is it feasible to enrol all 3-year olds on the time table that has been set? The pressures for expansion of the older children have clearly put enormous strain on the preschool education system in Mexico, and it is unclear whether the mandate for 3-year-olds will be feasible without a major infusion of resources (both physical facilities and funding for teachers and their support) into the system. To achieve universal enrolment in by the 2008-2009 deadline it would be necessary to incorporate into the system about 1,450,000 3-year olds (in addition to 225,000 4-year olds who are not yet enrolled). This means that the number of slots for preschool education would have to have expanded by 38 per cent in two years between 2006 and 2008.

2. Is it desirable to enrol all 3-year olds? The question of whether three years of centre-based preschool education, starting at age 3, is preferable to two, starting at age 4, is an open one. The research literature is inconclusive about whether three years of centre-based preschool have stronger positive effects on children than two. The best evidence on the contrast between two years and one year of preschool is that there is a small difference in favour of two, with the difference between children exposed to two and one (grouped together) and those exposed to none quite a bit larger (Reynolds 1995). In addition, some ECCE programmes with long-term benefits for children's later school success and social behaviour have included services at age 3 (e.g., the Abecedarian Project); the Early Head Start programme in the United States, providing a mix of family support and high-quality educational child care experiences to children ages zero to three, has had a range of small but positive effects on parenting and children's cognitive and socio-emotional development (Love et al. 2002). See also Bennett (2007, forthcoming) on good practices in services for early childhood including parental leave and centre based services. However, none of this research has been conducted in Mexico. The proper comparison groups for any research on the effects of 3-year-old preschool are those representing the other major forms of child care for 3-year-olds in Mexico (mother or father care, other relative care and non-relative babysitter care). Some homes are well prepared to provide their 3-year olds with a solid learning environment and emotional support that is at least as good as that provided by

¹² That is, 31 states and the Distrito Federal.

preschools. Others may not be, and children in such homes may benefit from a high-quality ECCE program.

In addition, principals and teachers often report that a substantial number of parents prefer to keep their 3-year-olds at home, rather than bring them to a preschool centre. Many parents, for personal reasons, want their very young children to remain at home. This creates a difficult problem for the government in trying to enforce the law, which does not come with any specific sanctions (see below), making it difficult to imagine that the mandated enrolment of 3-year olds could be met by 2008.

3. What model of programme should be followed for 3-year olds? In the expansion to date that has occurred for 3-year olds since passage of *obligatoriedad*, centre-based preschool has been the model for the vast majority of new slots for this age group. This may represent an unnecessarily limited view of ECCE for 3-year olds; the law does not prohibit implementing a diversity of programme models in order to meet demand and to guarantee equity of education quality.¹³ The current overlap between the initial education system and the new preschool mandate should be considered carefully in implementation of early childhood programmes for 3-year-olds. Prior to passage of the obligatory law, 3-year olds were treated as part of “initial education” (*educación inicial*) with its two kinds of services, one for children (centre-based education) and one for parents (provision of parental education and support). Under the *obligatoriedad* law, all 3-year olds are supposed to attend preschools. We ask: Should services for 3-year-olds focus more strongly on programmes of integrated attention as provided for in the CENDIs and on parent support and education? Evidence from other countries shows the potential benefits of combining intensive services to parents and high-quality educational centre programmes for children, with some of the successful programmes including 3-year-olds (Love et al. 2002; St. Pierre, Layzer and Barnes 1995; Yoshikawa 1994).

Three-year-olds have developmental needs that are different from those of older children. Some international standards for ECCE recommend smaller child-to-teacher ratios for 3-year-olds than for 4-year-olds (NAEYC 2005). If this is the case, achieving quality preschool for 3-year olds may be more expensive than for the older children and put an additional burden on the educational budget.

Sanctions for failure to send children to preschool. A more general question pertaining to children of 3, 4 and 5 years of age is, “Can parents be forced to send their children to preschool?” The obligatory law contains no sanctions against parents who want to keep their children at home. Perhaps the strongest sanction would be to deny parents access to primary schooling if their children do not have at least one year of preschool. But applying this sanction or criterion for acceptance in primary schools could be interpreted as unconstitutional because the Mexican constitution guarantees all children a free education. This created a major difficulty for the SEP in trying to meet the conditions of obligatory preschooling. This seeming contradiction between a general Constitutional right and the new General Law of Education, together with the difficulties involved in guaranteeing preschooling to all children, led the Sub-Secretary of Basic Education to obtain an agreement

¹³ See transitory (transitorio) article 2 of the law.

among the state secretaries of education that no child should be kept out of primary school for lack of preschool attendance.

4.2 The Law and Potential Effects on Quality

In other countries where preschool enrolment has been expanded rapidly, tradeoffs between expansion and quality have been noted (Advisory Committee on Head Start Quality and Expansion 1993; OECD 2001). It is often difficult to begin major initiatives to both increase enrolment and increase quality at the same time, and some have spoken of the trade-off between these two ECCE goals.

As discussed in the Introduction section, quality in early childhood care and education can be defined in terms of what researchers term *process* features (indicators of teacher-child interactions, such as responsiveness, cognitive stimulation, warmth, approach to discipline, individual attention and teaching of particular competencies; process features also include interactions between other staff and families, or among staff) and *structural* features (e.g., smaller class size, smaller child-to-teacher ratio, higher teacher qualifications and salary, intensity and quality of training, better physical infrastructure, quality and quantity of materials). Both sets of preschool quality dimensions are related to indicators of children's development, with some evidence that the associations of structural features with child development are mediated, or explained by, variation in process features (NICHD ECCRN 2005; Vandell and Wolfe 2000).

What was the quality of preschools in Mexico prior to implementation of obligatoriedad? In a study conducted just prior to implementation of the obligatoriedad law (in the Autumn of 2002), Martínez, Myers and Linares (2004) used a new assessment scale (the Escala de Evaluación de Calidad Educativa en Centros Preescolares – ECCP-- or *Preschool Educational Quality Evaluation Scale*) to examine preschool quality. This scale is divided into two parts: one evaluating the centre and the director and the second evaluating classrooms within the centres and the educators. The centre evaluation includes questions about the context of the centre including its location within the community, access to services such as telephone, electricity and potable water and criminal activity near the centre. The centre and director evaluation also includes a series of questions divided into four separate areas, evaluating the facilities, the educational programme and curriculum, the management of the centre and community relations. The questions are rated along the following scale: 1-inadequate; 2-developing; 3-basic; 4-good; 5-excellent. Each rating is accompanied by a brief set of definitions and criteria for providing that particular rating. The second part of the scale focuses on the classrooms and the educators. This part of the scale uses the same 1 to 5 rating system as the first part. These questions focus on the adequacy of the classroom space, the presence and quality of learning materials, the staff to student ratio, the promotion of health and hygiene, teaching practices and support that teachers receive to help strengthen the educational process.

The scale was administered in a sample of 40 preschools from three states and the Distrito Federal. The schools were sampled to vary by geographic location, socio-economic levels of the population, cultural characteristics of families and children attended as well as by administrative responsibility and the sub-system and model applied. The majority of preschools were characterized as being in the 'basic' level of quality (the midpoint of the 5-

point scale and the minimum level that it was hoped all schools would achieve on all indicators), with a few in the ‘good’ and a few in the ‘inadequate’ categories. None were deemed to have reached the highest category of ‘excellent’. Moreover, the study found a tendency for schools to be rated more highly on the availability of resources and on educational management than on teaching practices. Urban schools generally rated well above rural schools, including general preschools, indigenous and community schools. This study provides us with a general idea of the quality of preschools of different kinds but it does not provide a national picture; the sample, although varied, was limited in size and not randomly selected.

Changes in class size, student-to-teacher ratios and numbers of teachers. Changes in preschool quality since *obligatoriedad* have not been assessed systematically, save for a two-year study of PEC preschools (ACUDE 2005, 2006), which will be described in the section on PEC later in this paper. No national data are available to date concerning changes in process quality since the implementation of *obligatoriedad*. We are thus unable to include these important features of quality. The only data available concern a very few structural features, such as class size, number of teachers and student-to-teacher ratio, which are available in the whole-school census data set. However, we again note that we cannot link such data to actual assessments of children’s development, because no national assessments exist of preschool-aged children. We also caution the reader that characteristics such as class size and student-to-teacher ratio may not be highly correlated with other aspects of quality (in fact, data using the ECCP scale show low correlations with other indicators of quality; this may be because ratios are generally higher in urban areas, where preschools have higher levels of resources, and lower in rural areas, where preschools have lower levels of resources). There is great international variation in standards for these features of ECCE. Some countries have substantially larger class sizes, on average, than others; countries also vary in how many teachers and aides are typically in a preschool classroom.

In Mexico, many preschool staff, particularly those in urban areas, have noted recent increases in class sizes in preschools. Some of the preschool principals and teachers we spoke with in our observations expressed concern about the increases in numbers of children and the demands placed on teachers as a result. Having less capacity for individualized attention was the most common concern. Therefore, despite the weaknesses of this indicator as a representation of preschool quality, we calculated the average class size for each of the years 1998 to 2005, using the whole-school census data set. Because an overall average masks important variation by type of preschool and by urban / rural regions, we cite the averages by these categories in Table 5.¹⁴

Table 5 shows overall that class sizes are consistently larger in urban preschools than rural preschools (and especially high in urban preschools of the general type). Urban preschools average about 20 students per class across the years 1998 to 2005, while rural preschools average 15. There does not appear to be a substantial increase in average class sizes within type of preschool, or across urban/rural preschools. However, for both urban and rural preschools, the year with the highest average class size is 2005. For urban preschools, there is

¹⁴Because there was no information on the number of groups or classrooms in CONAFE classrooms, we were unable to compute average class size for these programs.

a trend across the years 2003 to 2005 of a consistent, though small, increase (from 20.26 in 2003 to 21.63 in 2005, a 7% increase). Average class size for children in urban general preschools at grade 3 reaches almost 25. For rural preschools, there is a 9 per cent increase from 16.01 in 2003 to 17.49 in 2005. However, the average for 2004 (14.60) was lower than the average for 2003.

Thus, there is weak support for a slight increase in class sizes after the implementation of the preschool mandate. The modest size of this increase may be due to the fact that the total number of preschools has increased across the years 2003 to 2005 (see Table A3 in Yoshikawa et al. 2006 for numbers of preschools by type, urban/rural and year). The overall increase in number of preschools is +12 per cent between the 2003-2004 and 2005-2006 school years (from 78,523 to 87,756), with half that increase occurring in the first of those two years and half in the second. This rate of increase is higher than during the years immediately prior to 2003. The rate of increase was highest among preschools of the general type (increase of 16 per cent across those two years), and lowest in the indigenous type (increase of 1% across those two years). The modest size of the increase in class size may also be due in part to the decrease in 3-year-old enrolment in preschools in some of the states (as reported earlier, in 16 of 32).

In addition, the number of teachers in the preschool education system has increased since passage of obligatoriedad. Between 2003 and 2005, 28,760 new teachers and directivos with groups (principals who also teach in the classroom) were added to the system, an increase of 17 per cent relative to the 2003 level (table available from first author).

Table 5. Class Size by Type of Preschool and Urban / Rural Area

		Grade 1	Grade 2	Grade 3	Total
1998					
<i>Urban</i>	CENDI	18.53	18.98	20.01	19.18
	GENERAL	17.58	22.99	25.72	23.46
	INDIGENOUS	13.37	19.87	22.84	20.11
	TOTAL Urban	16.49	20.61	22.86	20.92
<i>Rural</i>	CENDI	16.53	15.88	17.53	16.73
	GENERAL	10.34	15.75	20.01	16.42
	INDIGENOUS	7.82	11.95	13.8	11.48
	TOTAL Rural	11.56	14.53	17.11	14.88
GRAND TOTAL	14.03	17.57	19.99	17.90	
1999					
<i>Urban</i>	CENDI	18.42	18.84	19.98	19.09
	GENERAL	17.37	22.94	25.73	23.39
	INDIGENOUS	12.66	19.08	22.34	19.45
	TOTAL Urban	16.15	20.29	22.68	20.64
<i>Rural</i>	CENDI	14.54	16.02	17.18	15.96
	GENERAL	9.96	15.6	19.91	16.19
	INDIGENOUS	7.6	11.84	13.96	11.41
	TOTAL Rural	10.70	14.49	17.02	14.52
GRAND TOTAL	13.43	17.39	19.85	17.58	
2000					
<i>Urban</i>	CENDI	18.76	18.92	20.68	19.46
	GENERAL	16.73	22.75	25.33	22.99
	INDIGENOUS	11.89	18.81	22.44	19.22
	TOTAL Urban	15.79	20.16	22.82	20.56
<i>Rural</i>	CENDI	15.21	16	17.23	16.21
	GENERAL	9.55	15.26	19.69	15.82
	INDIGENOUS	7.45	11.54	14.41	11.38
	TOTAL Rural	12.02	15.85	18.70	16.08
GRAND TOTAL	13.91	18.00	20.76	18.32	
2001					
<i>Urban</i>	CENDI	17.99	18.21	18.97	18.4
	GENERAL	16.63	22.35	24.97	22.62
	INDIGENOUS	12.14	18.32	21.39	18.49
	TOTAL Urban	15.59	19.63	21.78	19.84
<i>Rural</i>	CENDI	15	15.87	17.17	16.06
	GENERAL	9.6	15.1	19.2	15.51
	INDIGENOUS	7.52	11.27	13.9	11.09
	TOTAL Rural	11.94	15.61	19.73	15.75
GRAND TOTAL	13.77	17.62	20.75	17.79	

Table 5 (continued). Class Size by Type of Preschool and Urban / Rural Area

		Grade 1	Grade 2	Grade 3	Total
2002					
<i>Urban</i>	CENDI	18.09	18.66	19.83	18.86
	GENERAL	17.32	23.51	25.43	23.3
	INDIGENOUS	13.13	18.82	21.42	18.72
	TOTAL Urban	16.18	20.33	22.23	20.29
<i>Rural</i>	CENDI	14.07	13.68	16.03	14.61
	GENERAL	10.23	16.17	19.61	16.14
	INDIGENOUS	7.96	11.32	13.72	11.13
	TOTAL Rural	10.75	13.72	16.45	13.96
	GRAND TOTAL	13.47	17.03	19.34	17.13
2003					
<i>Urban</i>	CENDI	18.66	18.37	19.51	18.83
	GENERAL	16.61	23.2	25.26	22.97
	INDIGENOUS	14.06	19.05	21.43	18.98
	TOTAL Urban	16.44	20.21	22.07	20.26
<i>Rural</i>	CENDI	15.67	14.21	16.34	15.41
	GENERAL	10.07	16.18	19.61	16.1
	INDIGENOUS	8.33	11.43	13.65	11.24
	TOTAL Rural	12.72	15.82	18.24	16.01
	GRAND TOTAL	14.58	18.01	20.15	18.14
2004					
<i>Urban</i>	CENDI	20.64	21.05	19.77	20.5
	GENERAL	16.55	24.16	24.81	23.31
	INDIGENOUS	13.98	20.27	22.06	19.76
	TOTAL Urban	17.06	21.83	22.21	21.19
<i>Rural</i>	CENDI	18.42	17.82	16.03	17.53
	GENERAL	8.33	15.26	17.61	14.77
	INDIGENOUS	8.1	12.04	13.35	11.49
	TOTAL Rural	11.62	15.04	15.66	14.60
	GRAND TOTAL	14.34	18.43	18.94	17.89
2005					
<i>Urban</i>	CENDI	21.6	21.89	21.6	21.69
	GENERAL	15.5	23.91	24.72	23.04
	INDIGENOUS	14.29	20.58	22.62	20.16
	TOTAL Urban	17.13	22.13	22.98	21.63
<i>Rural</i>	CENDI	18.68	17.59	17.12	17.92
	GENERAL	7.79	15.68	17.99	15.04
	INDIGENOUS	8.18	11.99	14.05	11.71
	TOTAL Rural	13.54	17.83	19.04	17.49
	GRAND TOTAL	15.33	19.98	21.01	19.56

Note:

We also examined changes in student-to-teacher ratios greater than 20 and greater than 30. Table 6 shows the percentage of classes with student-to-teacher ratios greater than 20 and greater than 30, across types of preschool and for the total.¹⁵ As with the class size data, we find a small increase in the last 2 years (2004 and 2005), relative to prior years for ratios greater than 20. This amounts to an increase of less than 7 per cent, or 4 percentage points (i.e., between the average of .42 in 2003 and .46 in 2005 for ratios of 20:1).

The increase in ratios greater than 30 was considerably more substantial. That is, the General, CONAFE and Indigenous systems of preschools all experienced significant increases in the proportion of preschools with student-to-teacher ratios greater than 30:1 between the years of 2002 and 2005. Specifically, the relative increase in the percent of preschools with ratios 30:1 or higher was nearly 50 per cent, although the percentage-point increase was approximately 5 percentage-points. The General system experienced the greatest increase when compared to the other systems, from approximately 12 per cent of preschools in this system in 2001 to more than 18 per cent in 2005. Note that CONAFE preschools have very low rates of these statistics because of the generally smaller size of classrooms in those preschools.

The research literature suggests that in some countries student-to-teacher ratios greater than 30:1 may represent lower quality; however, it is well known that in some countries (with Japan and France the most prominent) relatively high-quality preschools can have ratios as large as these (Tobin, 2005; Tobin, Wu and Davidson, 1989). Teachers we interviewed in Mexico who experienced increases to such large ratios reported declines in their ability to provide individualized attention to students. Our data therefore represent some cause for concern in the Mexican context. If the rising trend observed between 2002 and 2005 continues, the increased ratio resulting from pressures of obligatory education may, because of the relatively large ratios, continue to undercut efforts made through the curricular reform to improve teaching and learning.

¹⁵ Because the number of teachers per grade is not available for each preschool, we cannot further report the student-to-teacher ratio by grade.

Table 6. Percent Preschools with Student-to-Teacher Ratios Greater Than 20:1 and Greater than 30:1

		% Ratio > 20:1	% Ratio >30:1	
1998	CENDI	0.4923	0.1924	
	CONAFE	0.0224	0.0017	
	GENERAL	0.5497	0.1495	
	INDIGENOUS	0.4757	0.0865	
	TOTAL	0.4436	0.1154	
1999	CENDI	0.4351	0.1733	
	CONAFE	0.0198	0.0020	
	GENERAL	0.5468	0.1500	
	INDIGENOUS	0.4659	0.0866	
	TOTAL	0.4348	0.1151	
2000	CENDI	0.4615	0.1820	
	CONAFE	0.0184	0.0023	
	GENERAL	0.5284	0.1352	
	INDIGENOUS	0.4601	0.0953	
	TOTAL	0.4184	0.1051	
2001	CENDI	0.4622	0.1975	
	CONAFE	0.0149	0.0031	
	GENERAL	0.5104	0.1246	
	INDIGENOUS	0.4402	0.0870	
	TOTAL	0.4002	0.0966	
2002	CENDI	0.4471	0.1762	
	CONAFE	0.0168	0.0030	
	GENERAL	0.5491	0.1614	
	INDIGENOUS	0.4573	0.0949	
	TOTAL	0.4266	0.1210	
2003	CENDI	0.4919	0.1776	
	CONAFE	0.0213	0.0031	
	GENERAL	0.5355	0.1602	
	INDIGENOUS	0.4803	0.1041	
	TOTAL	0.4247	0.1221	
2004	CENDI	0.5476	0.2407	
	CONAFE	0.0303	0.0058	
	GENERAL	0.5664	0.1890	
	INDIGENOUS	0.5408	0.1417	
	TOTAL	0.4594	0.1487	
2005	CENDI	0.5899	0.2537	
	CONAFE	0.0322	0.0065	
	GENERAL	0.5536	0.1846	
	INDIGENOUS	0.5497	0.1479	
	TOTAL	0.4551	0.1477	

Certification (licenciatura). The mandating of certification by obtaining a professional title through university study (completing the licenciatura), is another aspect of obligatoriedad. Before 1985, only a ‘normal superior’ [teaching degree] was required to teach – this could be entered after 9th grade (before preparatoria); so graduates had to complete 13 years of education (12 years of general mandatory education and one extra year, with the last 4 incorporating teacher education and training). After 1985, ‘Normal superior’ was given the rank of a 4-year college degree. Students had to finish preparatoria before entering normal superior coursework. Graduates had to complete 16 years of education to obtain the licenciatura. However, the licenciatura was not mandatory for all preschool teachers.

In the 2002 law, the licenciatura was made mandatory. *Certificarse* (getting certification) for those without licenciatura can be difficult – the cost of certification at the time of writing of this report was 6,000 pesos, with many courses required. This appears to place certification out of the reach of many lower-income teachers, some of them with years of experience. Many teachers currently in the preschool education system, including some of the ones with the most seniority and/or skills, are currently not certified. The consequences of the certification mandate for their work, wages and career advancement are not clear at this point. However, many teachers told us that the cost of the licenciatura is prohibitive.

4.3 The Early Education Mandate and Equity

A discussion of the potential effects of obligatoriedad on equity depends on how equity is defined. If equity is thought of only in terms of access or enrolment, then obligatory preschool education can be said to reduce inequity (at least for 4 and 5-year olds) because a greater percentage of children is being brought into the system.

But if the definition of equity includes access to schools of matching quality, then the effect of the law on equity is not so clear. From the previously cited research on quality (Martinez et al. 2004; ACUDE 2006) it is evident that schools catering to children from families with scarce resources (rural, indigenous, CAICs, comunitarias) tend to be schools of lower quality on most dimensions of quality. They are, for instance, often one-room schools with fewer material resources, with teachers whose qualifications are relatively lower and with little technical assistance provided.

We used four subgroup definitions to examine issues of equity defined in terms of enrolment for several different groupings of students and schools: state-level marginalization, as measured by the CONAPO 2000 index of marginalization; urban/rural area when this was possible; gender of child; and type of preschool. We present results relevant to equity for coverage and student-to-teacher ratio next.

We examined coverage by state-level marginalization and by gender. Overall, increases in coverage for 4 and for 5 year olds occurred in relatively similar patterns by state. However, these increases occurred starting from substantial variation in enrolment rates prior to obligatoriedad; we therefore observe variation in 2005 enrolment rates. State-level coverage for 3-year olds ranged from 1 per cent to 48 per cent at the beginning of the 2005-2006 year, for 4-year-olds from 63 per cent to 100 per cent and for 5-year olds from 83 per cent to 100 per cent (see Table A2 in Yoshikawa et al. 2006). We examined whether coverage in the

most recent year available (2005) correlated with state-level marginalization, as reflected in CONAPO's index (this analysis was not possible to do at the municipality level; see below, however, for the student-teacher ratio analysis, which was possible to do at this level). There was no significant correlation between coverage and marginalization, for either 4-year-old coverage (correlation of .08) or 5-year-old coverage (correlation of -.33). This indicates no substantial pattern of inequity of enrolments by state-level marginalization or poverty.

Our data on coverage by gender was limited to examining enrolments in the whole-school census data, because estimates of the population of girls vs. boys of specific ages are not available from CONAPO. Overall, there were only very minor differences in enrolments by gender, either nationally or at the state level.

We next examined student-to-teacher ratios across type of preschool and state-level marginalization (these data were not possible to calculate by gender or by urban / rural area).

We tested whether the differences in the percentage of classrooms with ratios greater than 20:1 and greater than 30:1 in 2001 and 2005 were statistically significant. Differences between the General system and the CENDI, CONAFE and Indigenous systems for ratios greater than 20:1 were all statistically significant in 2001. Specifically, the odds that the CENDI system would have ratios more than 20:1 were greater than those of the General system, while the odds that the CONAFE and Indigenous systems would have ratios more than 20:1 were less than those of the General system. These differences are to be expected, given that the CONAFE system preschools are all located in rural areas, as well as the vast majority of Indigenous system preschools and thus have smaller class sizes and ratios. These differences remained statistically significant in 2005 for the CONAFE and Indigenous systems, compared with the General system; however, the difference in odds between the General and CENDI systems was no longer significant.

When considering ratios greater than 30:1, differences between the General system and the CENDI, CONAFE and Indigenous systems in 2001 were again statistically significant and in the same directions. That is, the odds that preschools in the CENDI system would reach the 30:1 threshold were greater than the odds that their counterparts in the General system would reach this threshold, while the odds for the CONAFE and Indigenous systems were less than the odds for the General system. In contrast to the results for the 20:1 ratio, these differences in odds remained statistically significant for the CENDI and Indigenous systems but not the CONAFE system.

We also examined 2005 student-to-teacher ratios in relationship to CONAPO's marginalization index. We conducted this analysis at the municipality level.¹⁶ We found a correlation of -.23 between student-teacher ratio and marginalization, such that larger student-to-teacher ratios at the state level were associated with lower marginalization. This is a fairly small correlation (although statistically significant, because of the large sample size of municipalities). The negative sign on the correlation may simply reflect the urban/rural difference in class sizes that we observed earlier. In general, more highly urban states have a lower marginalization index and may therefore have higher student-to-teacher ratios. The

¹⁶ There were 2,442 municipalities in Mexico for 2005, the year for which we calculated this correlation.

direction of this correlation suggests, at least, that municipality-level marginalization is not related to higher student-to-teacher ratios, but in fact with lower.

We interpret these data on equity issues in coverage and student-to-teacher ratios with caution, because we lack national data on other indicators of structural and process quality in preschools. As noted previously, student-teacher ratio is not a strong overall indicator of quality, with relatively low correlations with other indicators in recent research. We will further discuss issues of equity in the next section.

CHILDREN WITH DISABILITIES AND MENTAL HEALTH ISSUES

Preschool education is the only part of *Educacion Basica* to incorporate integration explicitly in its curricular reform. Since 1993's education law – the integration of children with special needs has been mandated. But a national programme and monitoring system was not instituted until 2001. Integration is the aim. For specific disabilities, therapists are on call. However, experts about children with disabilities in the preschool system report that resources are spread thin so each therapist is responsible for too many centres and families.

There are four main sources of educational services for children with disabilities: the SEP, the Office of the President's specific section on disabilities and education, state governments, and NGO's.

Three types of services are offered to families with children with disabilities. The first is the special needs school (escolarizado). The age range spans 45 days to 22 years. There are 1,400 of these schools in Mexico, but they are only for severe or multiple diagnoses. 100,000 children, with different degrees of disability, are enrolled in these schools. The most common disabilities are mental retardation, deafness, blindness, cerebral palsy and other motor impairments.

The second type of service is termed "Apoyo de education integrativa" and is provided mainly in primary education. Multidisciplinary teachers work in 2,800 teams in 18,000 schools. Finally, the third is a form of orientation services (centros de recursos [resources] y información para la integración educativa) in centros de maestros, which provide support for teachers and parents – like teacher training, and library and Web resources relevant to children with disabilities.

Mental health issues in preschool education.

When psychologists or counsellors work intensively on-site in a preschool, there may be extensive benefits to the teachers as well as to children and families (Yoshikawa and Knitzer 1997; Yoshikawa and Zigler 2000). Such psychologists can engage not only in providing services to families in need, but also provide broader preventive services. As several studies have shown, preventive programmes in early childhood provide a better investment for society than expensive treatments later, such as treatment programmes for delinquency in adolescence (Duncan and Magnuson 2006; Yoshikawa 1994).

In one of the preschools we observed, a psychologist worked on-site, full-time. This particular preschool was located in a low-income urban neighbourhood, where residents faced high levels of stress from neighbourhood violence and substance abuse. The psychologist worked with some families extensively on issues of domestic abuse, drug use, and parent discipline. In part because she was a familiar presence at the preschool, the parents trusted this psychologist, so some felt comfortable revealing the fact that they had survived domestic violence. She then connected such parents with services in the community, like organizations working with survivors of domestic violence.

But progress is difficult. In this community, many parents are street vendors. After preschool, in the afternoon, the children are with their mothers in the vending stalls. They witness a lot of violence, and they themselves are more likely to become aggressive in that context.

In response to the community needs, and to teacher concerns about children's aggressive behaviours, the psychologist also worked in the classroom. She helped teachers with children who showed aggressive behaviours, providing tips to the teachers on classroom management and also by working with individual children herself.

In this way, the psychologist provided both preventive services, as well as intensive help to families experiencing particular crises, such as domestic violence. These services were responsive to the community context, and greatly enriched the family support provided by this preschool.

5. QUALITY IMPROVEMENT OF PRESCHOOL EDUCATION

5.1 A Brief Programme Description

The Programa de Escuelas de Calidad (PEC) is a quality improvement initiative directed towards public schools providing *educación básica*, focusing on school management. The voluntary PEC programme aims to increase school autonomy and performance by encouraging collaborative work among parents, teachers and school authorities, by improving planning and pedagogical processes and by providing modest resources. To qualify for the program, schools must carry out a diagnostic evaluation and present a School Strategic Transformation Plan. Funds for the programme are provided by the Mexican government, the World Bank and other sources (World Bank 2005). Grants are provided for up to 5 years to each qualifying school, subject to annual review. Federal funding is expected to be matched by states, in a 3 (federal) to 1 (state) ratio.

The PEC programme has as one central goal increasing parent and community involvement in school management. It seeks to do this principally by including parents in decision-making and monitoring; for example, parents are expected to engage actively in the planning of quality improvement, and to verify purchases and contracts made to the participating school. In addition, the programme mandates evaluation, both at the school level (ongoing monitoring of the School Strategic Transformation Plan) and nationally, through evaluations that incorporate student assessments and a national information system. Thus, although the programme increases school-level autonomy, it also includes an accountability and evaluation component that requires reporting on whether goals set in planning exercises were met and, at primary and secondary levels (not preschools) includes student-level assessments of educational progress.

The PEC programme was first extended on a large scale to preschools in the 2003-2004 school year, after it had become established in the two prior years in primary and secondary schools. In the 2004-2005 year, there were a total of 4,096 PEC preschools. This represents about 5 per cent of the total set of preschools in Mexico. The vast majority of PEC preschools are of the general type, with about 10 per cent of the indigenous type. Note that the PEC programme does not extend coverage; rather, the programme focuses on improving quality in existing preschools.

5.2 Evaluation of the Preschool Component

PEC began incorporating a preschool component in the 2003-2004 school year. The preschool component has been evaluated at a national level thus far in 2 cycles: the 2003-2004 school year and the 2004-2005 school year.¹⁷ In the 2003-2004 year, 25 states and the Federal District participated in the evaluation (ACUDE 2005). In the 2004-2005 year, three more states were added (ACUDE 2006). Up to six preschools from each of these states and the D.F. were included in the sample used for these evaluations.

¹⁷ An evaluation at the end of a third year (2005-2006) is being carried out but the results will not arrive in time to be incorporated into the study.

The evaluation encompassed: interviews and questionnaires with directors (principals), teachers, parents, children and community members; observations of centres and classrooms using version 3 of the Escala de Evaluación de Calidad en Centros Preescolares (Proyecto Intersectorial 2005); administration of a direct assessment of children's development (the Psychomotor Development Test, or *Test Psicomotor de Desarrollo*, or TEPSI); review of the physical plant and layout of each centre; field notes; and, in some cases, photos and videos. Built into the evaluation was a process of feedback, technical assistance and accompaniment by the evaluators.

The evaluations of the first 2 years of implementation, as well as data from the whole-school census, included information relevant to each of our concerns regarding coverage, quality, equity and effects on children's development.

5.3 PEC and Quality

The evaluations of PEC (ACUDE 2006) show that:

1. Quality in the sample of PEC preschools chosen for evaluation improved in the first year of implementation and was maintained, with a levelling-off, in the second year.¹⁸ Tables illustrating this and other findings can be found in Appendix 2.

2. The vast majority of funds provided to PEC preschools in the first and second year focused on improvements to the infrastructure of preschool centres and materials available (approximately 90%). Little or no funding was used to try and change the way teachers teach or to work with parents. Our informal interviews in PEC preschools reinforced these data; that is, directors (principals) noted the use of the PEC funds initially to make long-needed repairs or improvements to such physical features as bathrooms, classrooms and office or classroom furnishings. It may be, however, that in subsequent years, funds will be spent more directly on process features, training, or curriculum materials.

3. Improvements in the quantity and quality of available resources and in educational management were generally greater than improvements in the quality of the educational process. It is evident that improvement in resources and management aspects, while important, do not guarantee improvements in process features such as use of curricula or teacher-student interactions (Martínez et al. 2003; Vandell and Wolfe 2000). Among other dimensions of quality, teaching quality and educational process remain central to children's development. The pattern of improvement across areas is of concern because the research literature suggests that proximal features of quality such as teaching process appear to have more direct effects on child cognitive and socio-emotional development than infrastructure and materials (NICHD ECCRN 2005).

4. A key predictor of preschool quality is the level of technical assistance and/or supervisory support provided to preschools (ACUDE 2006, Yoshikawa, Rosman and Hsueh 2002). In the PEC evaluation data, the level of support provided to centres in the form of supervisory visits

¹⁸ The fact that the evaluation included an element of "accompaniment" in which results were shared with participating schools, means that it is difficult to say whether the improvements are more a product of the programme per se or of the accompaniment or, as is probably the case, of both.

was in fact correlated positively with their quality, using the ECCP measure (ACUDE 2006). Although it is difficult to make firm conclusions that supervisory support caused increases in quality, both the research cited earlier with 40 preschools and the evaluations of PEC support the hypothesis that the amount and nature of supervisory support provided is an important factor in improving quality.

The PEC programme has recognized the importance of involving supervisors and advisory technical personnel, and is strengthening the technical support roles. For example, documents are currently being produced that would provide orientation for supervisors in an “Academic support (or advisory) service.”

5. Finally, the PEC programme explicitly includes in its philosophy an emphasis on increasing participation of parents as well as teachers in centre management. Across the waves of the evaluation of PEC, social participation by parents did increase in PEC preschools. However, the involvement of parents did not extend to participation in decision-making, evaluations, or classroom involvement. This suggests that the goal of the PEC programme to increase participation in management-related dimensions of parent involvement is not being realized sufficiently.

5.4 PEC and Equity

The PEC evaluations concluded that preschools with higher than average levels of educational quality to begin with may have been the ones that were more likely to decide to apply for participation in PEC and to receive PEC grants. This is likely because the process of applying for PEC funds requires a fairly high level of organizational capacity (e.g., capacity to establish collaborative management and to develop a Strategic Transformation Plan).

In order to examine whether PEC preschools in general had certain characteristics that distinguished them from ones that did not become PEC preschools using national data from the whole school census, we fit a regression model predicting PEC status from school-level variables and the CONAPO state-level marginalization index. Our basic analysis included the following variables as predictors of a preschool ever having PEC status: type of preschool (CENDI, CONAFE and indigenous, with general as the reference group), total enrolment of the preschool; number of teachers in the preschool; average class size; the ratio of students to teachers (teachers being the number of docents plus the number of school directors who also teach a group); and the CONAPO marginalization index.

Results are shown in Table 7.

Table 7: Logistic Regression Analysis Predicting PEC Status in 2004 from 2003 Preschool Characteristics (calculated using the total sample of General preschools in 2004, N=53,762).

	B (SE)	Odds Ratio	Confidence Interval for coefficients
Total # of Teachers	.256 ^{***} (.016)	1.292	.225 to .287
Class Size-Grade 1	.009 ^{**} (.003)	1.010	.002 to .015
Class Size-Grade 2	.019 ^{***} (.004)	1.019	.012 to .027
Class Size-Grade 3	.018 ^{***} (.004)	1.018	.011 to .025
Teacher Education (% with Licenciatura)	.635 ^{***} (.070)	1.887	.498 to .772
% other staff in school	-.198 ^{***} (.018)	.820	-.234 to -.162
% Indigenous	-.956 ⁺ (.516)	.384	-1.97 to .055
Gender parity (% Female) – Grade 1	.504 ^{**} (.164)	1.655	.182 to .825
Gender parity (% Female) – Grade 2	.013 (.248)	1.013	-.474 to .500
Gender parity (% Female) – Grade 3	-.274 (.269)	.760	-.800 to .252
State Poverty Score	-.016 (.023)	.984	-.062 to .030
Urban	.398 ^{***} (.055)	1.489	.290 to .507
Constant	-4.56 ^{***} (.213)		-4.98 to -4.15

*** p<.001, ** p<.01, * p<.05, + p<.10

Confidence intervals are for the coefficients rather than the odds ratios.

The table shows that schools with more teachers, larger class sizes, more teachers with licenciatura, and preschools in urban regions were significantly more likely to be PEC preschools. In addition, schools with higher proportions of indigenous students were somewhat less likely to be PEC preschools than those with lower proportions of indigenous students (trend level of significance).

These data suggest that PEC preschools were on average larger than non-PEC preschools. In addition, PEC preschools appear to have had higher levels of resources than non-PEC

preschools, at least as measured by percentages of teachers with licenciatura.¹⁹ These data fit the hypothesis that preschools with more resources might have been more likely to have the capacity to put together and have approved a PEC application. They raise some concerns about the PEC program's accessibility to less resourced programs.

Another point bearing on equity lies within the programme (not PEC vs. non-PEC) and also has to do with differences in starting points at entry. It was hoped that as a result of the participation in PEC, schools that entered the programme at a relatively low quality level, as measured by the quality scale, would catch up to the better schools. In the evaluation sample of PEC preschools (ACUDE 2005, 2006), schools that entered with the highest ratings (application at the beginning of the school year) and those with the lowest ratings were compared with respect to differences in quality at the end of the first and second year. The following was found: 1) all schools, both higher and lower quality at entry, improve, but 2) the gap between them remains essentially the same. The conclusion we draw from this is that PEC appears at least in this sample not to foster equity in quality across centres within PEC. Evaluators also found that the improvements made by worse off and better-off schools at the beginning were different. The worse off schools were more likely to improve their resources and management but not their teaching; the better off schools were more likely to show improvements in teaching, with less improvement generally in resources (which were already at higher levels than worse-off schools). In the concluding section, we draw implications of these findings on equity for the PEC application process.

5.5 PEC and Child Development

Although a developmental test was administered to a sample of children in the preschools as part of the PEC evaluation, the results of this procedure were not deemed to be sufficiently rigorous or consistent to be able to draw conclusions about the potential impact of PEC on development. This is a task that remains to be carried out, hopefully with a national sample of preschoolers, so that PEC and non-PEC children can be compared.

6. NATIONAL PRESCHOOL CURRICULAR REFORM

Like many countries, Mexico has undergone a variety of reform efforts over the last several decades. These efforts include very broad programmes such as the Preschool Education Programs, established in 1981 and 1992, to more specific national and state-level reforms, including the *comunitario* and CONAFE programs. In 1999, a Study Plan for Preschool Education Licensing was established and included specific child development goals (Sub-Secretaría de Educación Básica 2002). This effort began the process of strengthening connections between children's early education experiences and their primary school experiences.

¹⁹ Note, however, that our analysis cannot distinguish those preschools that applied for PEC and received it from those that applied for PEC and did not receive it.

6.1 Initial Study to Inform Development of the Reform

Initial curricular reform efforts began to take shape in 2001 and gathered momentum in 2002-2003 with an internal evaluation of approximately 600 preschools to determine the existing context for preschool education in Mexico. It served to identify the many strengths and weaknesses of the system and provided some insight into what practice looked like in both public and private settings. The activities that shaped the development of the curriculum reform were extensive and included:

- Identification of the most commonly used preschool education practices in the country and their main challenges as perceived by the preschool educators.
- Review of all the curricula used in preschool education since its official inception in the 1920s.
- Analysis of preschool education models from a variety of countries
- Review of latest research regarding child development and learning

In general, educators exhibited a diverse application of pedagogical methods. In many settings teachers engaged in classroom practices that had few, if any, intentional learning goals. Several possible solutions and ideas were generated and incorporated into the new curriculum as a result of this evaluation. The evaluation also helped facilitate the implementation of the new curriculum reform (Moreno Sánchez 2005).

Following this evaluation, reformers began to design and develop a curriculum that could be effectively implemented across a wide range of settings. Because reformers recognized the importance of including state administrators as well as local educators in the reform efforts, regional meetings among these groups were held to discuss the new curriculum and to identify areas of educational practice that needed revising (Moreno Sánchez 2005). Once the curriculum was developed, the next steps involved strengthening state technical teams through workshops focused on content (i.e., analyzing guides) and practical issues (i.e., sharing information and experiences of implementation at individual sites), as well as building teacher capacity through training workshops designed to promote an understanding of the reform (Moreno Sánchez 2005). The *Program of Preschool Education* (PEP) was finalized and published in 2004 and distributed to all teachers and principals in public and private preschools by the Sub-ministry of Basic Education (Moreno Sánchez 2005).

6.2 Foundations of the Reform: High-Quality Preschool Education for All

It is important to understand the context that led to this reform, which is well-articulated in the SEP's summary, *Programa de Educación Preescolar* (Secretaría de Educación Pública 2004). Three main guiding foundational principles led to this reform effort. The first was the acknowledgment of the importance of the early childhood years for shaping development. Specifically, the reform begins with an overview of accepted findings in child development, including the fact that development is the result of a combination of biological, genetic and environmental factors; exploration of the world provides an opportunity to learn; and peer interaction shapes the child's ability to build relationships and develop their own identity. Thus, early childhood education offers an opportunity to promote healthy development and school success. The second principle acknowledges the importance of social changes in

Mexican life, including increased density in urban areas, changing family structure, children's increased exposure to violence, and increased poverty and inequity. These social and cultural changes demand high-quality programming for young children with special attention to individual, familial and cultural diversity. Further, preschool education is viewed as being especially important for children at risk, because it has an 'equalizing function' in the sense of providing learning opportunity for everyone regardless of social conditions. The third principle is that education is a right for every child; to protect that right, a legal base is needed. With the recent preschool mandate comes the recognition that education includes three years of mandatory preschool. This law includes authority for the government to develop a curriculum, described here.

6.3 Characteristics of the Curriculum Reform

There are four characteristics of the curriculum reform. The curriculum:

- has a national character, which means that all programmes must implement the curriculum to ensure universality and that practices must reflect the value of cultural diversity and the importance of intercultural dialogue.
- establishes a general purpose for preschool education, which means that it should promote all areas of development through the provision of high-quality experiences.
- is organized in term of child competencies vs. a content-based curriculum. In this way, the curriculum is child-centred. As such, the teacher plays a critically important role in determining how to best meet the individual needs of students.
- has an open character, meaning that teachers are able to adapt the content and methodologies they use to respond to the needs of the particular populations they serve.

6.4 Goals of the Curriculum Reform

There are two primary goals of the curriculum reform. The first is to improve the quality of children's educational experiences. For example, the reform states that children will receive just and equal educational opportunities and sets out a series of guidelines for improving the educational experiences of all children (Sub-Secretaría de Educación Básica 2002).

The second goal is to promote continuity between preschool, elementary and secondary education. That is, the reform effort identifies a core set of skills, values and knowledge that children should receive from a basic education. In addition, a common set of educational objectives across settings and levels is defined. In doing so, the reform aims to establish a common set of practices across levels of schooling (Sub-Secretaría de Educación Básica 2002).

In addition to these two primary goals, reform efforts also seek to strengthen the role of the teacher in the classroom, school and community (Secretaría de Educación Pública 2004b). Importantly, although the curriculum reform provides guidelines and standards for basic competencies, it allows teachers to choose the tools and methods they believe will help

children achieve those competencies (Secretaría de Educación Pública 2004b). This open, flexible approach, allowing adjustment to local circumstances and specific children, demands a great deal from teachers who, in the past, have been provided with more specific tools and methods thought to be applicable to all situations.

6.5 Pedagogical Principles

The following three groups of pedagogical principles serve as a reference point for the curriculum reform. Specifically, they provide a common framework to guide teacher practice. Further, these principles help teachers identify the conditions under which practice is effective. It is important to emphasize the centrality of reflective practice to this reform effect – it guides not only the development of activities, but also the way in which a teacher individualizes instruction to meet the needs of children.

The first group of principles concerns children’s development and learning processes. There are four assumptions:

- Children will arrive at primary school with knowledge base and the capacity to develop further;
- The primary role of the teacher is to promote and sustain children’s motivation to learn’
- Children learn through peer interaction;
- Play promotes development and learning.

The second group of principles concerns diversity and equity. There are three assumptions:

- School should offer opportunities regardless of cultural background;
- All teachers, schools and parents should work to promote the inclusion of children with disabilities;
- Schools should be regarded as a place for socialization and learning and therefore must promote equity across gender and race.

The third group of principles concerns school as an intervention. There are three assumptions:

- The school and classroom climate should promote children’s trust and the ability to learn;
- Individualized instruction is critical for schooling to have positive results;
- Collaboration between teachers and family members promotes children’s development.

It is worth noting that in contrast to other early childhood programmes like Reggio Emilia (Cadwell, 2003), the theory underlying the national curriculum reform in Mexico is focused on the classroom and centre. Specifically, the reform efforts in Mexico tend to take a more setting level-approach to children’s learning as opposed to the broader approach involving numerous stakeholders (e.g., children, teachers, parents and the public) taken by Reggio Emilia, or the community-level approach that is a strong focus of the CONAFE model (see Sidebar on CONAFE).

6.6 Competencies

The competencies are organized around six developmental domains. They are listed in Table 8.

Table 8: Child Competencies from the Curricular Reform

Competencies	
Formative Fields	Aspects in which they are organized
Social and personal development	Personal identity and autonomy. Interpersonal relationships.
Language and communication	Oral language. Written language.
Mathematical Thinking	Number. Form, space, and media.
Exploration and knowledge of the world	The natural world. Culture and social life.
Art expression and appreciation	Musical expression and appreciation. Corporal expression and dance appreciation. Plastic expression and appreciation. Dramatic expression and theatrical appreciation.
Physical development and health	Coordination, strength, and equilibrium. Health promotion.

The competencies are described in extensive detail for teachers to reference (for examples, see Appendix 1). For each domain, there is a review of the research literature, a list of behaviours that demonstrate the competency, and examples of how the competency might be demonstrated in a preschool classroom.

Following the description of the competencies is a generalized sequence of steps for teachers to use the competencies for their practice throughout the school year. For example, at the beginning of the school year, teachers are encouraged to get to know each of their students and to establish a productive working atmosphere in their classrooms. In addition, there are suggestions concerning activity planning and daily scheduling.

By emphasizing children's competencies, this reform not only recognizes that children come to school with a range of skills and experiences, but it also places the child at the centre of the learning process. In doing so, educators are required to develop tools and strategies to promote development across domains and experiences. However, these competencies will be realized only when educators have a clear understanding of the program, when comprehensive work occurs in the classroom setting, and when educators critically analyze and share their experiences in the classroom with their colleagues.

A review of several curricula and pedagogical approaches around the world suggests that there is a great deal of variability in the competencies on which nations choose to focus their ECCE programs. Competencies that are emphasized range from child-centred learning and development (e.g., High/Scope), to relationship building and communication skills (e.g., Reggio Emilia), to much broader individual and system-level competencies such as norms

and values or relationships between home, school and other family support services (e.g., the Swedish National Curriculum). In general, the six competencies emphasized by Mexico are in line with other nations. More specifically, the Mexico curriculum is most similar to the High/Scope curriculum in the U.S., though it takes a broader approach in some developmental domains and clearly emphasizes some similar competencies as other well-known learning approaches such as experiential learning.

6.7 Evaluation

The Programa de Educacion Preescolar (Secretaría de Educación Pública 2004) concludes with a section on child assessment. There are three main goals: to assess children's achievement and challenges to meeting the competencies; to identify factors that influence children's learning, including teaching practices; and to use assessment to guide teaching practice, including interventions, as needed. For each child, assessment is based on teachers' observations of children's behaviour and individual and group work, which is documented in a journal or portfolio for each child. This contrasts with previous practices in which children were often rated on a developmental scale.

6.8 Implementation of the Curriculum Reform

The programme outlined a two-stage implementation process in which the reform would be applied to approximately 5 per cent of classrooms in each type of programme during the 2004-2005 school year; then, in the subsequent school year the reform would be applied to all classrooms and programs. The goal of the trial was to determine whether the curriculum was viable and whether adaptations needed to be made before it was brought to scale, that is, implemented nationally. The plan calls for requiring all public and private programs, including CENDIs, CONAFE, general and indigenous programs, to implement the new curriculum and promote its core values (Miranda and Moreno Sanchez 2006).

Since 2003, SEP has engaged in a broad effort to disseminate information about the curricular reform. Teachers learned about the new curriculum reform through training guides and general training workshops. The topics of these guides and workshops included what is taught and what is learned in preschool, as well as tools for a more flexible teaching approach. In addition, videotapes were provided describing the reform process and fundamental characteristics of the new preschool system, and texts were provided addressing issues of child development and preschool education). In addition, since 2004, SEP introduced a course for teachers and principals, as well as technical advisors, to comprehend pedagogical orientations for each area in the curriculum, and to help link theory to practice.

6.9 Challenges to the Curriculum Reform

As with any reform effort, there are a variety of challenges associated with its implementation. We discuss challenges in three areas: teacher training, challenges arising from the expansion for 3- and 4-year olds and parent involvement.

Challenges in teacher training and workforce development. There are challenges associated with the need for teacher training and workforce development. Retraining teachers to adjust to the new curriculum requires attention to flexible, reflective and evaluative practice in

teaching, a difficult goal in training and supervisory support. Implementing the new reform has required a tremendous amount of work by the current teacher workforce as well as by supervisors. This can be difficult for teachers with already limited time, many of whom work two jobs. Interestingly, educators have said that even though they share the ideals of the reform, the majority of their classroom time is still spent on routine activities meant to keep children occupied (i.e., with a specific learning goal), in part because they have not received sufficient time to incorporate the new reform into their practices (Myers 2006, Sub-Secretaría de Educación Básica 2002).

Training challenges apply to two periods of training – pre-service, or in the teacher education system; and in-service, or after hire. These two systems of training encompass different educational settings and staff; both need to adjust to the demands of the new curriculum. In teacher education, the new curriculum could be incorporated into classes and pedagogy. As for in-service training and supervision, changes in the supervisory system, to develop materials and training practices to support the new curriculum, are also required. This can be difficult because supervisors are often used to training based on the previous curriculum and require time to learn the new curriculum, internalize it and use it as a basis for training and supervisory support.

Challenges arising from expansion of preschool education for 3-year olds and older preschool-aged children. Another challenge arises from the expansion of preschool education to larger numbers of 4- and 3-year olds. For those teachers who experience increases in class size, more support is needed to implement a child-directed curriculum in classrooms of over 25 (i.e., the average class size in urban general preschools at grade 3). For preschoolers in general and 3-year olds in particular, the curriculum approach has not been developed to distinguish their developmental needs from those of older children; approaches to practice and training should be developed that consider their particular developmental and family conditions.

Challenges in parent involvement. Finally, there are challenges associated with the lack of adequate parental involvement to support this preschool reform effort. Parents may not be entirely clear on how to support the learning and development that is going on in preschool programs. In fact, parents are typically encouraged to leave their children at the door and not become involved in the curriculum. Moreover, student absenteeism is relatively high. Greater parental involvement and support would reduce absenteeism and ensure stronger effects for preschool programs.

7. OBSERVATIONS OF PRESCHOOLS

The SEP arranged for the Harvard team, Kathleen McCartney and Hirokazu Yoshikawa, to visit six child care centres over three days. We were accompanied by: Kimberly Fox from the SEP, who provided simultaneous translation; Robert Myers, a consultant who visited four of the centres; and a group of SEP trainers and supervisors, often as many as six to eight people. On the first day we visited two centres in one of the poorer areas within Mexico City. On the second day, we visited two centres in the State of Mexico, of which one was a CONAFE preschool serving mainly indigenous children. And on the third day, we visited two peri-urban preschools in the state of Morelos. During each visit, McCartney and Yoshikawa interviewed one teacher together.

We began each interview by asking teachers factual questions about the preschool to establish rapport, for example questions about the composition of each classroom, about the family background of the children in the school, and about the teacher's background and experience. Then, we asked a series of open-ended questions about their experience with the curriculum reform. We attempted to record individual teachers' comments in our notes, based on loose translations of their words. In so doing, teachers' comments were undoubtedly simplified. For this reason, we do not use quotation marks when we share teachers' responses. Following each loose translation is an identification number in parentheses so that the reader can trace individual teachers' comments across themes.

We share these notes with two important caveats. First, the visits do not provide a representative picture of Mexican preschools, given the very small number of centres visited and given the unclear selection criteria used by the SEP in selecting them for our visits. Second, it is important to note that the teachers were prepared for our visit by SEP personnel and that they were aware that we were professors from Harvard University. We worried that this created expectancy biases, and we did our best to evoke their candid responses. In fact, the teachers appeared to be open, honest and reflective in their comments, and we believe their perspectives offer some insights into the promise and challenge of the curriculum reform.

We have organized our notes around important themes that emerged in the interviews, specifically, the curriculum reform, SEP trainings, competencies, resistance and impact of the reform on early childhood education.

Curriculum reform

It was clear that teachers were familiar with the curriculum reform and that they could speak intelligently about it. Nearly every teacher began by saying something positive about the reform, usually about the freedom that the reform offers teachers to be creative.

- The reform offers liberty. (1)
- It is good that it is open and that children are free. (2)
- Teachers have a greater ability to be creative and to manage the curriculum; you can do more novel things. (3)

Two teachers were very open about the problems they experienced with the openness of the curriculum; yet each, later in the interview, noted how the reform had led to improvements in her practice.

- The reform is difficult to understand and implement . . . Following the reform increased my “strategic planning process”. (5)
- There is too much freedom for teachers, and it’s too difficult for some teachers. I was “left with doubt.” There is still doubt, but it’s better. In the beginning, there was a lot of trial and error . . . It’s more work. I was used to teaching my way, but this is an important form of work. Now, you study. It’s a “good challenge.” . . . You need to “leave old habits behind” and be open. (6)

At least one teacher understood the potential of the reform to eliminate inequities in education across social classes. Indeed this is one of the goals of the reform. This teacher expressed her hope in this way:

- Before there were “closed realities” – people were isolated by social status. (3)

SEP Trainings

Concerns about the curriculum reform centred for the most part about the trainings. Although the teachers appreciate many aspects of the curriculum, it is clear that all are struggling with applying it; in other words, they are having a difficult time moving from the theories and concepts to practice. Two teachers were particularly articulate on this point:

- The training is not focused on teaching delivery – it’s not concrete enough. It’s hard to know how to go from the competency to an activity. The trainings focus on physical setting, for example the library should be in a visible place within the school. There is a void between theory and practice – the reform is all theory. (2)
- The transfer from new to old reform is difficult without help. The SEP offers technical support and courses, the work is general, and it needs to be specific to schools. (5)

Other teachers complained about the effort and time it takes to participate in trainings in order to learn the curriculum. One teacher was particularly articulate on this point.

- The trainings took place every day for a week after work, from 2:00 to 8:00 PM, and there was no extra pay for this time. . . It is a challenge to find time to learn. The reality is that teachers have to attend to family fight traffic – no one is going to read a book about theory – it’s wasted effort. (2)

All teachers had the three curriculum reform books, specifically the Program de Educación Preescolar (2004) and the two books of scholarly readings. Unfortunately, most teachers did not feel that they were helpful. One teacher with a well-worn book, as evidenced by flagged pages, highlighted text and notes in the margins, confessed:

- It’s hard to understand what the books say; the language is obscure; there were no lectures on the readings to help us understand them. (2)

In contrast, another teacher enjoyed the readings:

- Theories are useful. They push us to think, they motivate us, and they make us more creative. (3)

Several teachers continued to use other more practice-oriented curriculum books to help guide their practice:

- We still use other books to help us develop activities – books from Normal School on curriculum.(5)

In some cases, the difficulty of applying the curriculum reform to practice had led to increased collaboration among the staff.

- Teacher study group helped. (5)

Competencies

All teachers embraced the competencies and believe that the background readings on child development have been helpful to them as they individualize instruction for each child. The teachers recognized the positive impact of the competencies on their practice:

- In the workshops, we developed proposals to understand the competencies. (3)
- The reform allows teachers to work on competencies with limited resources; I decide which competencies to focus on each month. (2)
- Reform concentrates on the positive characteristics of children – instead of saying he can't pay attention, we talk about what he can do. (2)
- There is a better understanding of social development now. (4)
- Before the reform, I didn't think about the individual needs of children. (5)
- The reform has increased my sensitivity about what children need. For example, for aggressive children, I go to the competency on effective socialization. (5)

Resistance

Several of the teachers discussed resistance within their preschools to the curriculum reform. Typically, they attributed resistance to other teachers:

- Not all teachers are following it. I can tell in meetings with the technical teams. Some teachers never say anything about competencies. (2)
- The majority of teachers do not do what I do. (3)

Impact of the reform on early childhood education

A clear consequence of the curriculum reform has been an increase in status of the field of early childhood education. The teachers believe that the community has come to realize what they have known, namely that preschool is the beginning of formal education. Their comments included:

- Before people had a different idea of preschool. Preschool was equal to play, not school. Now preschool is a part of education. (3)
- Preschool is now more formal. . it's school. (4)
- Preschool teachers were thought of as babysitters. It's changed. Now that preschool is obligatory, we will see a change in views of the profession. (6)

It is not entirely clear whether teachers recognize that the format of early care and education programmes must vary from the format of primary school. Specifically, learning in preschool should occur through play not worksheets. It is possible that the perceived increase in status of preschools is the result of moving primary school practices downward rather than preschool practices upwards. If this is so, it is, in our opinion, a worrisome trend.

Observational data

Our observational notes reveal three other issues worthy of consideration. The first concerns the size of the program. Most classrooms contained 30 or more children, taught by one teacher. The ratio of students to teachers is far too large to support a curriculum based on individualized instruction. One teacher shared with us directly that she wanted to have a relationship with each child, but could not, given the size. Further, it will be difficult to provide any kind of meaningful assessment of children and their work with such a large ratio. A large group size is the largest threat to this curriculum reform effort.

Second, some centres lacked sufficient materials to support a quality preschool curriculum; in fact, most centres could be fairly described as sparse. Like most child care centres throughout the world, the Mexican centres contained materials collected by dedicated teachers, e.g., storage jars. CONAFE schools are known for the variety and quantity of materials they provide and books. Those with PEC funds were able to supplement materials (e.g., books, bicycles, computers and toys); however, some centres used PEC funds for furniture and infrastructure (e.g., office furniture or building repairs). Curriculum materials are needed to support the work on the reform.

Third, the teachers have clearly been influenced by one of the pedagogical principles, reflective practice, even though they do not always know how to do this or have the time needed to do it. This principle guides other reform efforts throughout the world, including the Reggio Emilia approach in Italy and the emergent curriculum movement in the U.S. As part of the Mexican curriculum reform, teachers are expected to reflect on their practice in a journal. We asked to see these journals, and there was great variability among some. Some wrote very cryptic notes infrequently, i.e., one or twice each month. Others wrote daily notes about their lessons, organized by competencies. Some directors read and commented on journals, a practice that motivated teachers. All teachers understood and appreciated the importance of reflective practice, a considerable achievement and direct result of the curriculum reform. Our observations of the teacher journals illustrate three characteristics of the curricular reform. First change is difficult and occurs to a greater or lesser degree, depending on teacher experience and supervisory support. Second, considerable time is needed to be able to apply the reflective method. This is something that many teachers do not have, particularly if they hold two jobs, as often occurs. Finally, our observations highlight

the importance of direct feedback and motivation from directors (and supervisors) that provides “on-the-job” training.

8. CONCLUSIONS AND IMPLICATIONS FOR POLICY AND RESEARCH

Formal attention to children in the preschool years in Mexico began in the late 19th century. From 1948 to 1992, preschool education in Mexico was largely directed by the Office of Preschool Education in the Secretaria de Educación Pública (SEP). In 1992, decentralization of education from the federal to the state level was intensified in the National Educational Modernization Agreement. As a result of this policy change, administrative responsibility for preschool education shifted to the states, with oversight from several departments within the Sub secretary for Basic Education. As has occurred in other countries in recent years, preschool education in Mexico has expanded rapidly. Prior to 2000, when the current administration took over, preschool enrolment increased 755%, from about 400,000 in the base year to just over 3,400,000 in the 2000-2001 school year. Increases since 2000 are discussed.

In this study, we aimed to review three major policy initiatives of the Mexican government in preschool education that occurred over the past 4 years: a law mandating preschool education for 3-, 4- and 5-year olds; a quality improvement initiative in education; and a national curricular reform. For each initiative, we considered issues of coverage, quality, equity and implications for children’s development as criteria for the review.

8.1 Mandate for Preschool Expansion: Findings

Large increases in attendance of 4- and 5-year olds in preschool education have occurred as a result of the mandate.

The law mandating preschool attendance (*obligatoriedad*), passed in 2001, required that all parents in Mexico send their 3-, 4- and 5-year olds to preschool programmes and set a timetable for 100 per cent coverage of each of these groups (2004 for 5-year olds; 2005 for 4-year olds; and 2008 for 3-year olds). This law mandated a huge and unprecedented expansion in Mexico’s preschool education system, and it legislated an extremely short time frame in which to accomplish the expansion. The law also incorporated a mandate for 3-year olds, the only such mandate in the world. Following its passage, enrolment of Mexican 4- and 5-year-olds in preschool education programmes has increased greatly. Large increases occurred for these groups between 2003 and 2005, with the result of near-universal attendance among 5-year-olds as of the 2005-2006 school year and 81 per cent attendance among 4-year-olds. These extraordinary increases in enrolment were accomplished through increasing the overall number of preschools, increasing the numbers of children in existing preschools, and increasing the number of teachers in the preschool education system.

We examined equity issues in the expansion by looking at whether enrolment changes occurred to a similar degree in different states. We found that there was some variation in enrolment rates by state. This variation occurred to a greater degree for 3-year old enrolment than for 4- or 5-year old enrolment. When we further investigated whether enrolment rates differed by indices of state-level poverty and marginalization, we found little evidence of a

relationship. In addition, we explored whether enrolment rates differed for girls vs. boys. There was no evidence of differences in attendance by gender.

Tradeoffs have occurred between expansion for 4- and 5-year olds and expansion for 3-year olds.

The pressures on the preschool education system have been great as a result of the coverage mandates. Although overall the number of preschools increased after passage of the law (by 12%, for example, between the 2003-2004 and 2005-2006 school years), there has been tremendous pressure on preschools to meet the mandates for 100 per cent coverage of 5-year olds by 2004 and 100 per cent coverage of 4-year olds by 2005.

The law mandated 100 per cent coverage for 3-year olds by 2008, a goal that may be unrealistic without a massive infusion of funds to support new preschools and classrooms.²⁰ As of the 2005-2006 school year, coverage among 3-year-olds (at 25%) remained much lower than that among 4- or 5-year olds. In about half of the 32 states, in fact, the percentage of this group enrolled in preschool education decreased between 2004 and 2005. This was most likely due to the pressure to increase slots for 4- and 5-year-olds, in the context of limited classroom space. Although the decline in some states in enrolment rates of 3-year olds is not surprising, given the huge increases in numbers of 4- and 5-year olds served in preschools, it does put into question whether the inclusion of 3-year-olds in obligatoriedad (as well as the 19 per cent of 4-year-olds who remain outside the system) is feasible, particularly by the 2008 deadline for 100 per cent coverage.

Preschool staff we spoke with consistently reported that many parents do not want their 3-year-olds in a centre-based preschool program. This apparent preference on the part of some parents may be an additional serious barrier to achieving the 100 per cent coverage goal for 3-year olds in the mandate.

Substantial increases in class ratios of greater than 30:1 were observed; effects of the mandate on other dimensions of quality, however, are unknown.

As in other countries where preschool education has been rapidly expanded, preschool staff report concerns about potential effects on quality. We were limited by the lack of national data measuring multiple dimensions of preschool quality. We did find evidence that the proportion of preschools with student-to-teacher ratios of greater than 30:1 increased substantially between 2001 and 2005. This increase was statistically significant. The increase was greatest in the General system of preschools (by far the largest system of preschools in Mexico). In that system, 12 per cent of preschools had ratios greater than 30:1 in 2001, while by 2005 18 per cent did. These changes may be of concern, in that teachers who experienced such large increases in ratios expressed concerns to us about their reduced ability to provide individualized attention and teaching in the classroom.

These changes may signal challenges that teachers, administrative and supervisory staff face as the numbers of children enrolled in preschool education have increased. We caution,

²⁰ In addition, a very recent revision to the law (in 2006) extended the 3-year old mandate to children between the ages of 2 years 9 months and 3 years.

however, that the indicator of student-teacher ratio is not correlated highly with other dimensions of quality; there is a need for national data on multiple dimensions of programme quality, including process features, such as teacher-student interaction and teaching approach.

The expansion has put strains on the supervisory support and training systems in preschool education.

The supervisory support system in preschool education, most of our key informants reported, has been placed under strain as a result of the expansion (and as a result of the national curricular reform, which occurred simultaneously). With increases in both the number of preschools as well as number of children, supervisory teams' responsibilities have increased. Teachers are in need of greater supervisory support, particularly in the many preschools where class sizes are large and/or have increased. As teachers report having less time for individualized attention to children, the supervisory system's capacity to handle increased pre- and in-service training needs appears in need of greater support.

The teacher qualification (licenciatura) requirements of the mandate have unclear consequences for those teachers currently in the system who do not have this qualification.

The preschool expansion mandate required that all new preschool teachers have licenciatura status. Although this higher bar for qualification to be a preschool teacher is welcome, many current teachers who do not have the qualification report that it would be quite expensive for them to pursue it. It is unclear what the consequences are for these teachers of not getting the licenciatura or its equivalent. It is without question, however, that increased numbers of certified teachers will be needed if expansion continues, particularly for 3-year olds.

8.2 Mandate For Preschool Expansion: Policy Options

Policy options addressing quality. Several policy options exist for addressing quality in addition to expansion.

- 1) Provide more resources to the supervisory support system in order to respond to greater teacher needs in the face of expansion. This support is needed at the local, regional and state levels.
- 2) Target more funds to preschools of lower quality as they expand enrolment. In order to avoid the consequence of a decline in quality brought about by expansion of preschool slots, funds could be targeted to support those preschools of lower quality as they undergo expansion. This would necessitate monitoring of multiple aspects of programme quality on a year-by-year basis, so that relatively comprehensive information about quality levels helps determine programme support. An alternative to this option is to target extra support funds to communities with higher levels of needs, so that preschools in communities with the lowest levels of resources are ensured support for their expanded slots. Targeted funds for infrastructure, supervisory and educational supports could be devoted to preschools serving higher-risk populations or those with lower levels of resources.

Policy options for 3-year olds. The major policy decisions regarding 3-year-olds concern 1) the mandate for this age group; 2) the forms of ECCE that are considered as meeting the requirement for obligatoriedad; 3) the time frame for expansion; and 4) potential targeting of preschool education to children, families and communities that might benefit from it the most. This portion of the law was passed without, in our view, adequate information on the preferences of parents for programme models, the relative benefits of programme models for children, or the feasibility of large-scale expansion to 3-year olds occurring solely within centre-based preschool education. We present policy options regarding the mandate, time frame and targeting of programme expansion for 3-year olds next.

- 1) It may be useful to reconsider the mandate for 3-year olds' attendance. This is for two main reasons: the most efficacious programme models for 3-year olds are unknown; and many parents would prefer not to send their 3-year olds to a centre-based program.
- 2) In place of the current mandate for 3-year olds with its emphasis in practice on centre-based enrolment, fulfilling the requirements of the law could be broadened to include participation in home-based, centre-based and combination approaches. Testing of approaches to intervention that are best for 3-year-olds could be implemented, and these different combinations of child-focused and parent-focused intervention could be evaluated, in preparation for more specific definition of ECCE for 3-year-olds and larger-scale expansion at a future date. Within such a framework it would be appropriate to consider the Mexican system of *educacion inicial* (for children 0 to 3), as a model. Combining high-quality, educational child care with services that provide information and support for parenting and parents' own life goals may be as beneficial for parents with very young children as putting their children in a preschool or child care centre.
- 3) The time frame set by the 100 per cent coverage goal for 2008 appears to be unrealistic. The mandate could be amended to reflect this. In addition, short-, medium- and long-range goals could be differentiated. For example, in the short-term information on the preferences of parents for home- vs. centre- vs. combination models could be gathered, while in the long term expansion could remain a goal.
- 4) Programmes for 3-year olds could be targeted to families and communities in greater need. Some research suggests that families at higher risk benefit more from ECCE for 0- to 3-year-olds (Love et al., 2002) than families at lower risk. Educational and family support for families of younger children, including 3-year-olds, could be targeted to high-poverty and/or marginalized communities. This could be accomplished within the current preschool education systems, or by incorporating a preschool/childcare component into the Oportunidades program, which already targets high-poverty areas. Through the Oportunidades structure, incentives could be implemented for parents in these higher-risk communities to put their 3-year-olds children in preschool or child care centres and/or to improve the learning environment for children who remain at home.

Policy option for teacher qualification requirement (licenciatura). The consequences of the licenciatura requirement of the mandate should be considered not only for those teachers entering the preschool education system, but for those already in it. We recommend, for

example, that the cost of obtaining licenciatura be reduced for those teachers already in the system who do not have this qualification.

8.3 Preschool Quality Improvement: Findings

In countries where preschool enrolment and attendance have expanded rapidly, concerns about quality have almost always been raised by families, preschool staff and policy makers. The quality improvement initiative, *Programa de Escuelas de Calidad* (PEC), has brought critical resources to bear on preschool quality in Mexico. The voluntary PEC programme provides funds for programme improvement to qualifying preschools, and also provides supervisory support to aid programmes in the use of the funds.

The best available evidence indicates that quality does increase in PEC preschools.

Evaluations to date show that that quality does improve in the PEC preschools, across the first two years of implementation (ACUDE 2006). In a set of comparison, non-PEC preschools, quality over this time period declined slightly. Although these data do not allow for the strongest causal interpretation (preschools were not randomly assigned to PEC and non-PEC conditions), they are encouraging in that the programme is associated with intended increases in quality.

Those preschools with PEC status may be somewhat more advantaged than preschools without PEC status.

The data analyses conducted for this study, using the whole-school census data, are in accord with the hypothesis that more advantaged preschools have been more likely to become part of the PEC program. Our results, from the second year of PEC's expansion to preschools (2004), showed that preschools with larger numbers of teachers, higher proportions of teachers with licenciatura, and preschools in urban areas were more likely to have become part of the PEC program. This suggests that larger, urban preschools with higher teacher qualifications were most likely to become PEC schools.²¹

The effect of PEC on equity.

The evaluation of PEC at the preschool level suggests that although most participating centres improved in quality, the gap between the best and the weakest centres did not lessen. When this is combined with evidence that PEC schools tend to be more advantaged than non-PEC schools, the short-term result of the program, which reaches less than 10 percent of all preschools, is to increase inequity in the system, as indexed by quality.

PEC funds have been spent to a greater degree on infrastructure than in other domains.

Evaluations of how PEC moneys have been spent show that funding priorities, in practice, are skewed to particular areas (infrastructure), rather than support for indicators of process quality such as support for teachers and staff. This is not surprising, in that preschools may

²¹ Our analyses, however, were not able to distinguish those preschools that applied for PEC from those that did not.

have functioned for many years with infrastructure needs prior to receiving PEC funds. It is also not surprising, then, that quality ratings in the domain of infrastructure have been higher than quality ratings in the domain of teaching among PEC preschools (ACUDE 2005, 2006).

8.4 Preschool Quality Improvement: Policy Options

The following policy options could be considered regarding the PEC preschool program:

- 1) A diversified strategy could be considered that takes into account the different levels of resources of preschools that apply for PEC. Under the current system, preschools with lower levels of resources, which may need PEC funds the most, do not receive adequate support to apply to the program. Greater support, in the form of technical assistance and dissemination of information about PEC, could be provided to preschools, particularly those with lower levels of resources or ones in higher-poverty communities. A portion of the programme funding might be earmarked for such targeted, intensive technical assistance. The option of targeting PEC to even poorer communities could also be considered.
- 2) The PEC programme has recognized the importance of involving supervisors and advisory technical personnel and is strengthening the technical support roles. For example, documents are currently being produced that would provide orientation for supervisors in an “Academic support (or advisory) service.” This work should be continued.
- 3) Supervisory support might provide particular attention to indicators of process quality, not just structural quality. For example, the programme could recommend improvements in phases – infrastructure first, as most PEC preschools have chosen to do, but then in other areas. PEC supervisory support and funds could explicitly be used to improve support for preschool staff, with regard to curriculum issues, needs of particular children (e.g., children with challenging behaviours) and needs of families (e.g., families coping with chronic stress from difficulty meeting basic needs or from community violence).

8.5 National Preschool Curricular Reform: Findings

The comprehensive curricular reform of preschool education encompassed several phases, including a large initial evaluation of 600 programmes to develop content and approach; development and dissemination of the final programme of preschool education in 2004; and development of a variety of support activities and materials as the curriculum went into nationwide implementation. It is the first new national curriculum since the prior one was formulated in 1992.

The reform has brought an emphasis on child competencies to preschool education.

The curriculum is based on a detailed set of child competencies, rather than a set of predetermined activities, and therefore has a child-centred character. There are six domains of competencies, with many component behaviours that illustrate that domain (see Appendix 1 for examples of domains and component behaviours).

The reform requires an unprecedented level of flexibility, creativity and reflective practice from teachers.

The teacher plays a critically important role in determining how to best meet the individual needs of students. In contrast to the prior curriculum, the current one has an open character, in which teachers adapt the content and methods they use to respond to the needs of the particular populations of families they serve. It is also more explicitly responsive to cultural diversity and the needs of local communities, in emphasizing teachers' involvement with their communities.

Teachers are also required to keep journals of their day-to-day progress and reflections on implementing the curriculum. The emphasis on reflective practice requires a high degree of creativity, autonomy and flexibility in teachers.

The reform may require more explicit training and curriculum supports, including attention to needs of particular populations.

Many teachers reported that the curriculum, although accompanied by extensive training, initially did not include enough specific accompanying ideas and guides for activities (for example, ideas for activities that supported specific competencies). This may have been a response to the change to a more highly demanding curriculum requiring more creativity on the part of teachers. As of the 2006-2007 school year, additional training guides and materials were being developed to help supervisory staff and teachers implement and monitor the new curriculum. The training materials do not appear, however, to distinguish the needs and competencies of younger children (3-year olds) from those of 4 and 5-year olds.

The reform has placed higher demands on teachers, as well as strains on the supervisory support system.

Implementation of the curricular reform, which occurred at the same time as the huge expansion of enrolment for 4- and 5-year-olds following the obligatoriedad law, has brought about higher demands on teachers, due to its flexible and open character. This is in the context of already increasing demands on teachers' time in many preschools, due to the expansion of enrolments. The curricular reform has also placed strains on the supervisory support system in preschool education. For example, Martínez et al., (2004) found that in a sample of 40 preschools, rural supervisors typically had 30 schools to visit, with great distances to travel among them. Data from 2004-2005 indicated that recent increases in supervisory support may not be enough to keep up with the demand, as enrolment increases and the curricular reform and PEC initiatives expand (Sub-Secretaría de Educación Básica 2005). Many technical advisors report being overwhelmed with the number of centres they serve and the range of tasks required of them in supporting centres' capacity to implement the challenging curricular reforms. Funding for teachers may not have kept up with the increasing enrolments, with the result that (as reported above) class size and student-to-teacher ratios increased more rapidly in the 2003 to 2005 years than in prior years.

Parent involvement levels appear to be low; greater education of parents about the benefits of preschool education may be needed.

Parent involvement levels are reported to be low, and information regarding the benefits of preschool education or about the difference between preschool and primary education (e.g., for 5-year olds) may not be adequate.

8.6 National Preschool Curricular Reform: Policy Options

Policy options based on these findings include the following:

- 1) The system of support provided to centres needs to be more intensive, whether centres are in the PEC programme or not. This may be difficult for a supervisory support system that is already under strain. As the PEC programme expands simultaneously with implementation of curricular reform, the demands on regional advisory technical teams, for example, have been increasing greatly and many report being overwhelmed. The number of advisory staff may not be enough to handle the increases in enrolments as a result of the *obligatoriedad* law (Sub-Secretaría de Educación Básica 2005). The need for more resources devoted to the supervisory support system is particularly urgent for centres with lower levels of resources. Support materials for technical advisors should be developed that provide further examples of how teaching strategies could be matched to levels of competencies of children of different ages. Support materials should distinguish the developmental needs and competencies of 3- year olds from those of 4- and 5- year olds. Increases in resources would also benefit from a change in the way in which supervisors perceive and organize their work, with less emphasis on inspection and more on technical support and accompaniment, perhaps taking greater advantage also of periodic meetings with groups of teachers.
- 2) Funding for teachers and infrastructure that respond to the level of demand in the preschool education system, as coverage approaches 100 per cent for 4- and 5-year-olds, could be considered. This could include increased funding for teachers; adding assistant teachers to the classroom, in order to address increases in student-to-teacher ratio; and funding for infrastructure expansion (the addition of centres / classrooms).
- 3) The scheduling of teachers' time for crucial elements of the curriculum, such as reflective practice (e.g., journal writing), is also important. The provision of time in the school day for such work may need to be increased, depending on need.
- 4) Consistent supervision and training across all systems of preschool education could be implemented. Currently, support varies across these systems. The CONAFE program, for example, provides a highly intensive system of support, consisting of multiple days each month of in-service training. Although this level of support may not be needed across every preschool, for those in certain kinds of preschools that are particularly likely to have low levels of resources or quality, this intensity could make a difference and reduce inequities in quality. Instituting the close CONAFE style of supervision might reduce the quality gap across these systems found by Martínez and colleagues.

8.7 Implications for Research and Evaluation

Research needs are great from the standpoint of each of four potential evaluation criteria: coverage, quality, equity and effects on children's development. Although the Mexican government collects an extraordinary range of data in its whole school census, it is missing crucial elements that would allow monitoring and assessment of the quality and effects of preschool education. A more comprehensive national system of evaluation across all systems of preschool and across levels of analysis (from classroom to centre to local and regional supervisory structures to states), is urgently needed (see OECD CERI 2004). For example, the whole-school census currently collects only basic demographic information about preschools. Only a very few, limited structural indicators relevant to quality are possible to examine using these national data. No national data exist using current, multi-dimensional measures of preschool quality. To fill this gap, a periodic national study of preschool education is needed in a carefully chosen and random sample of preschools.

Similarly, no national data exist on the development of children of preschool age, or of family characteristics. Finally, no national data exist on the preschool workforce, aside from the demographic information collected in the whole-school census. Together, these gaps in the information base make it impossible to estimate whether preschool education is indeed fostering the curricular competencies in children. It is also difficult to assess whether and how it is affecting parents' well-being or staff skills nationally. Finally, it is impossible to examine how any of these effects differ for families or communities with different levels of needs.

National monitoring and evaluation of preschool quality, coverage, equity and children's development might require the following:

- 1) Consistent measurement of (a) all 6 domains of competencies; (b) family functioning; (c) school quality, including educational processes, staff skills, training, qualifications, satisfaction and experiences of employment; (d) supervisory relationships; (e) organizational and institutional structures, across all sub-systems of preschool education, the PEC initiative and the curricular reform. This would help answer questions about the response to the curricular reform from children, teachers and directors; estimate effects of PEC on children, centres and the support and training system; and guide expansion vs. quality debates. Such measures could be integrated into existing national panel studies, by sampling from the whole-school census to do focused studies, or through other national sampling approaches, including the periodic national preschool study mentioned above.
- 2) Evaluation that allows for strong causal inference regarding the effects of preschool education and its quality on families, teachers and children should be conducted. For example, experimental tests of educational approaches should be considered when resources are not sufficient for coverage of a particular population and/or when it is unclear which approaches to preschool education have the most beneficial impact on children, families and staff (Maynard 2006). *Oportunidades* provides an excellent example of the power of an experimental evaluation to estimate effects on multiple dimensions of well-being and development, and to demonstrate the success of a programme to fight poverty and oppression. Preschool-focused intervention can be

evaluated using similar methods (though of course with measures and assessments appropriate for this population).

- 3) The capacity of the national system to collect data for particular children and families at risk could be increased. For example, there are no accurate estimates of the number of children who are not attending preschool in given communities. The UNICEF office in Mexico is conducting work, in collaboration with municipal governments in several states, to count the number of children who are not attending primary school (Yasukawa 2005). This is done door-to-door, in collaboration with a variety of governmental and non-governmental organizations in each municipality. Such a community-based approach to determining who is not attending school could be applied to preschool. Data should also be collected regarding other important subgroups. There are, for example, no data currently on the number of children with disabilities in preschools, using quality diagnostic instruments (not just the number of children receiving services). Similarly, there are no data on how preschools are meeting the needs of families with mental health needs or under particularly high levels of stress, due to single parenthood, substance use, neighbourhood danger and violence and other community stressors.
- 4) From a financial standpoint, current data systems do not have adequate capacity to link spending on preschool education, or types of spending, to outcomes at the system or school levels. For example, some states or municipalities provide additional funding to hire teachers, or add to curricula. Some do this conditional on reductions in absenteeism or more training. How does such variation in funding affect the quality of preschool education? Building the capacity to gather such financial data would provide an important source of information to guide government investment in preschool education and quality.
- 5) In order to implement any or all of these research and evaluation directions, two steps could be taken. First, the preschool education budget should include increased research and evaluation set-asides, to adequately fund the research and evaluation functions of the preschool education system. Second, a national advisory panel of research experts, across multiple relevant disciplines and areas of expertise (child development; preschool quality; research sampling; evaluation methods), could be convened to advise the government on how best to strengthen research and evaluation in preschool education.

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