A Cultural/Historical View of Schooling in Human Development

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In this paper we examine changing arrangements of human development that have accompanied societal shifts to mass, compulsory "Western" schooling. We draw attention to the often taken-for-granted role of schooling in children's lives once extensive schooling has become the childhood norm in their communities. To do so, we examine two cases, involving very different histories and current conditions. We first examine the life patterns associated with the growth of mass schooling across the past centuries for European-heritage families in the United States, integrating the work of historians who have described the process. Then we examine the phenomenon across three generations of Mayan families in Guatemala, using our own interviews and observations.

In the United States one can generally assume that if a child is 6 years old, she is in the first grade, or if a child is in the first grade, she is about 6 years old. As Irwin et al. (1978) put it, "In Western industrialized countries, going to school has the same inevitability for children that death and taxes have for their parents" (p. 415).

Although psychologists often identify developmental transitions in terms of children's ages, age indexes both biological maturation and changing roles in cultural institutions. As White (1975) has pointed out, age 5 to 7 years has for some centuries marked societal shifts in treatment of children, such as the standard onset of formal schooling in Europe and the United States. White and Siegel (1984) argued that a key feature of child development is the increasing involvement of children in wider societal institutions.

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1 Attention to the role of schooling and other societal institutions in children's lives does not require a mechanistic environmental causality view. We view biological maturation and engagement in cultural activities as mutually constituting each other (Rogoff, 2003).
Although formal instruction in social institutions occurs in many societies, the "schooling" or "educational" experience refers to the education of children in schools. In the United States, the American school system has been in existence for over 150 years. Today, the term "schooling" or "education" is used to refer to the formal instruction that children receive in schools.

The American school system is based on the belief that education is essential for the development of citizens who are responsible and productive members of society. The goal of education is to prepare children for their roles as citizens, workers, and members of the community. This is accomplished through a curriculum that includes subjects such as mathematics, science, language arts, and social studies.

Schooling is also seen as a means of socialization, where children learn the values and norms of society. This is achieved through the socialization process that occurs in the classroom, where children interact with teachers and peers, and are exposed to the values of the culture.

There are various types of schools in the United States, including public, private, charter, and home schools. Public schools are funded by the government and are typically free to attend. Private schools are funded by tuition and donations, and are often affiliated with a religious or cultural group. Charter schools are publicly funded schools that are operated by non-profit organizations.

The quality of education in the United States has been a concern for many years. There are debates about the effectiveness of the school system, and efforts have been made to improve it. This includes improving teacher training, increasing funding for schools, and implementing new educational policies.

In conclusion, schooling is an important part of socialization and development for children. It provides them with the knowledge and skills they need to succeed in life and become productive members of society.

References:
institutions of modern society (especially those addressing health, education, and welfare) and in establishing normative developmental markers and milestones associated with particular ages and schooling. During the 20th century, the new field of developmental psychology grew to play a role in designing methods and ideas for use by “‘distal bureaucrats’ who do not deal predominantly with flesh-and-blood children, families, or practitioners but with symbolic representations of large numbers of them” (White, 1999, p. 12).

Developmental research has made key contributions to the design of cultural institutions and practices that are now central to U.S. childhood: “Child science . . . legitimized the idea of age-graded elementary education, . . . classified students based on the construction of the concept of intelligence quotient, and . . . psychologists [were] enlisted as the appropriate arbiters of developmental truth in American society” (Haves, 1997, p. 65).

Coming to a clearer understanding of the role of the ubiquitous institution of schooling in the lives of U.S. children and families, and its growing role worldwide, is important for illuminating the nature of child development. In addition, an understanding of the historical/cultural role of schooling is essential for considerations of researchers’ and policymakers’ future contributions to the design of institutions and practices for children in the United States and worldwide. In this paper, we first review the growth and roles of schooling for U.S. children and families across several centuries, and then we examine data regarding the growth and roles of schooling for Guatemalan Maya children and families over three generations.

Compulsory Mass Schooling in European-American Communities

It has only been for about a century that U.S. childhood has routinely and extensively involved school attendance. In colonial America, families were expected to teach children to read at home (Getis & Vinovskis, 1992). Before 1800, only 40%-60% of the U.S. male population attended school, usually for only a few years (LeVine & White, 1987). The school day and school year were also shorter than at present, and less central to the learning experiences of childhood.

With the onset of industrialization in the 1800s, schooling increased. In 1830, 35% of white children ages 5 to 19 attended school; in the 1870s, the figure had increased dramatically to 61% (Chudacoff, 1989). Enrollments in public school increased three-fold from 1840 to 1900 and most children completed several grades of elementary school; in 1910, three fourths of the population over age 25 had five or more years of schooling (Myers, 1996).

As industrialization spread, in the early 1900s, schooling was made compulsory and time spent in school increased (Chudacoff, 1989; Hernandez, 1994). Compulsory schooling was sponsored by movements that also restricted children's work—labor unions tried to protect jobs for adults, and child welfare workers attained laws protecting children from dangerous working conditions (Bremner, 1971; Chudacoff, 1989; Hernandez, 1994). From 1870 to 1940, school enrollment increased from 50% for children aged 5 to 19 years to 95% for children aged 7 to 13 years and to 79% for children aged 14 to 17 years.

Children who were enrolled also became more regular in their attendance (LeVine & White, 1987). The number of days spent in school each year doubled between 1870 and 1970, rising from 78 days to 162 days attended per enrolled student (Angus, Mirel, & Vinovskis, 1988).

In addition, higher schooling became required for economic advancement. In 1889-1890, enrollment in secondary schools in the United States included only 7% of 14- to 17-year-olds; in 1919-1920, 32% were in school, and by 1929-1930, 51% were enrolled (Chudacoff, 1989). By the middle of the 1900s, most U.S. children and youth spent a great deal of their day at school or, given the increases in schooling across generations, interacting with their rather extensively schooled parents and siblings (Hernandez, 1997).

Changes in the Role of Schooling in Children’s Learning

Along with the change to enrolling all children, the purposes of schooling and its role in children’s learning have changed since it began to be a mass, compulsory institution. For example, the definition of functional literacy has transformed greatly over this time (Myers, 1984, 1996; Resnick & Resnick, 1977; Wolf, 1988). In the United States of the 1700s and the early 1800s, the definition of literacy was being able to sign one’s name or an X to legal documents. In 1800, only 58% of Army enlistees were able to sign their names; in the 1880s, 93% were able to do so (Myers, 1996).

The purpose of schools was to teach students to sign their names, to make lists, to record information, to copy word lists, to read a few essential words, to read a few things aloud from memory, to have some awareness of how devotional books were organized, to know some religious passages “by heart,” to know how to write a few numbers, to be able to arrange numbers in inventory columns, and, possibly, to be able to do a few, simple arithmetic calculations. (Myers, 1996, p. 49)
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However, by the end of the 20th century, "higher" levels of literacy were expected for all U.S. children, requiring them to make inferences and develop ideas through written material. This was the first time that critical literacy was set as a goal for all children, although some children of the elites had this goal long before (Myers, 1996; Resnick & Resnick, 1977; Wolf, 1988). Of course, some of the structures of schooling that developed in the old factory model, such as use of age and standardized tests to organize the treatment of children, have become "naturalized" in conceptions of childhood and of learning in highly schooled societies.

Use of Age As a Metric of Human Development

Age became a measure of development and a criterion for sorting people, with the rise of industrialization and efforts to systematize human services such as education and medical care in the last half of the 1800s in the United States and some other nations (Chudacoff, 1989). Specialized institutions were designed around age groups. Developmental psychology began at this time, along with pediatrics, old-age institutions, and age-graded schools.

Before this time, people in the United States often did not know their ages, and students advanced in their education as they learned (Chudacoff, 1989). Over the past century and a half, the cultural concept of age and associated practices relying on age-grading have come to play a central, though often unnoticed, role in ordering lives in the United States.

Age-Graded Bureaucracies. Bureaucratic institutions for children such as school often cluster one-year age groups for adults' convenience. Until large numbers of children were required to attend school, dividing children according to age was not involved even in schooling's ordering of the curriculum (Chudacoff, 1989; Serpell, 1993). Gradations based on students' progress through the curriculum began in the 1500s in European schools; the levels were not determined by time since birth (Ariès, 1962; Serpell, 1993).

Rough gradation based on age began in the early 1800s, with the usual very wide age range narrowing to about a six-year range within a given class (Ariès, 1962; Serpell, 1993). In North America of the late 1700s and early 1800s, there was not a standard age of entry or completion, and it was not unusual for 3- or 4-year-olds to be in the same classroom as teenagers (Angus, Mirel, & Vinovskis, 1988; Chudacoff, 1989).

Since children differed widely with respect to when they had begun school, how many terms they had attended, how regular their attendance had been, how much time they could find at home to study, and so forth, not to mention differences in talent and motivation, age was a poor predictor of which child would be studying at which level in each subject. Teenage boys who had grown up out of the reach of a school might find themselves learning the alphabet alongside children of four or five. (Angus, Mirel, & Vinovskis, 1988, p. 216)

In the mid-1800s, a system of "graded instruction" was developed that ordered the subjects to be taught into a sequence according to difficulty, and arranged them into the amount of work expected in one year for the average child. (Angus, Mirel, & Vinovskis, 1988; Hamilton, 1989). However, the children were advanced through these grades on the basis of their attainments, not their age. Some efficiency accompanied the grouping of children according to their level of accomplishment, and teachers began to instruct the whole class, giving the same lesson to all, rather than having individuals or small groups recite. In the late 1800s, segregation of U.S. schoolchildren by age became formalized, when the schools instituted standard starting ages as part of the legal requirements of compulsory schooling. Age-grading served bureaucratic needs, in the face of great increases in the numbers of schoolchildren (due in part to industrialization, urbanization, and immigration). Handling instruction bureaucratically also followed the preference of the late 1800s to organize a "rational" system of uniform classification, curricula, textbooks, and discipline, using age as a metric to categorize pupils within the efficiency model of the factory system (Chudacoff, 1989).

Awareness of age and the age grading of activities and institutions were part of a larger process of segmentation within American society during the late nineteenth and early twentieth centuries. New emphases on efficiency and productivity stressed numerical measurement as a means of imposing order and predictability on human life and the environment. Scientists, engineers, and corporate managers strove for precision and control through the application of specialization and expertise. These same endeavors were applied to human institutions and activities—schools, medical care, social organizations, and leisure. The impetus for rationality and measurement also included the establishment of orderly categories to facilitate precise understanding and analysis. Age became a prominent criterion in this process of classification. (Chudacoff, 1989, p. 5)

With the employment of a standard starting age, age-batches could be given the same instruction. In France and the United States, organizing instruction into stages for batch-instruction helped administrators supervise teachers (Anderson-Levitt, 1996; Tyack & Tobin, 1994). However, the
Schooling in Human Development

1996: American Psychologist became associated with child development research and measurement in the 1970s. This was followed by a period of growth in the field of psychology. The Psychology of Childhood was soon introduced to commercial and academic ages.

The introduction of special education was not only a result of growing educational needs, but also of the increasing diversity of educational needs. The growing number of children with special needs led to the creation of special education programs. These programs were designed to meet the needs of children with disabilities and to provide them with the necessary support to succeed in school. However, the standards for special education were not consistent, and the definition of special needs varied from state to state.

In the late 19th and early 20th centuries, there was a growing concern about the development of children's physical and mental abilities. The development of child psychology was a response to this concern, and it was aimed at understanding how children's minds and bodies develop and how they can be nurtured to reach their full potential.

Schooling in Human Development

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(Kenyan) children usually attend school, they are no longer available to serve as child nurses for their toddler-aged siblings, although they are the preferred age for this job. This means that Kikuyu mothers now need to rely on children under age 5 to help care for and entertain their toddlers (Edward & Whiting, 1992).

The age-range of children's interactions with children at home, as well as at school, is thereby restricted. With older children in school, younger children spend less time in their company. In addition, the reductions in number of children tightened the spread of siblings' ages to a narrow range (Chudacoff, 1989). Now that many very young children attend institutional care settings, their days too are increasingly age-graded. Consistent with this segregation, middle-class North Americans emphasize children's peer relations over relations with brothers and sisters (Angelillo, Rogoff, & Morelli, manuscript; Ruff, 1981; Wolfenstein, 1955).

Now, within nations with near-universal schooling extending throughout childhood, it is difficult to imagine childhood relationships and learning in any other way than that structured by this institution. Looking to other nations where schooling is not so ubiquitous provides important information on distinct ways that childhood can occur when schooling is not such a primary institution as well as information on the role of schooling itself in children's lives. Changes in recent generations in communities where schooling is just now taking hold provide opportunities to consider aspects of childhood that seem to relate to increases in schooling.

Western Schooling's International Spread

The impact of schooling on childhood has grown worldwide in the twentieth century, as Western schooling has spread around the world from its European and North American origins (LeVine & White, 1986). In many parts of the world, Western schooling was initially exported as a means of "civilizing" populations in the colonial era. The first Western schools in many colonies were introduced as part of the missionizing process (Spring, 1996). Teaching of skills such as literacy was accompanied by insistence on the cultural practices and values of the missionaries, including obedience, punctuality, settled life and private property, and use of a colonial language, in addition to Christianity (Lomawaima, 1994; Spring, 1996). In advice to the British Parliament in 1847, a well-known educator claimed that the aim of colonial education was to instill Christianity, habits of self-control, and moral discipline, "as the most important agent of civilization for the colored population of the Colonies" (J. P. K. Shuttleworth, quoted by Willinsky, 1998, p. 100).

For example, an "army" of teachers arrived in the Philippines from the United States at the beginning of the 1900s, to instill new attitudes toward wealth and work. The desire for new things, it was thought, would motivate Filipinos to new standards. A domestic science teacher stated, "It is true we are teaching them to want things they have never had or cared to have before; but the incentive to have more will promote the ambition to work" (Cleaves, 1994, p. 7).

Compulsory mass schooling had spread to 80% of countries by 1985, and at least 90% of all children, worldwide, currently spend some time in school (Meyer et al., 1992). Generally, in countries that introduced elementary schooling following the European and American nations, enrollments grew by about 5% per decade from 1870 to 1940, and by about 12% per decade after World War II, accompanying international efforts for all children to attend school (Meyer et al., 1992).

Although secondary schooling has occurred for almost all youth in countries like the United States and Germany for many decades, it has jumped from approximately half of youth in 1980 to about three-fourths in 2000 in Argentina, Egypt, and China. In other nations, the increase has also been dramatic but has started from a much lower baseline, such as in India (moving from a third to a half of youth over this time) and Nigeria (moving from a fifth to a third; Arnett, 2002).

In the next section, we examine changes in schooling over the past 60 years in the Guatemalan Mayan community of San Pedro, as school has changed from enrolling only a few children for only a few years, to enrolling almost all children, with some going on to achieve Ph.D., M.D., and law degrees. Schooling had been introduced by Catholic priests from Spain in prior centuries, but it was not until the late twentieth century that this Western institution began to have widespread importance in the daily lives of many indigenous Mayans of San Pedro. We have had the privilege of studying some of the associated changes.

Growth of Schooling in Three Guatemalan Mayan Generations

The role of schooling in the lives of children and families stands out among the rapid changes in recent generations in San Pedro. Our study of these processes
Children to participate in the study were only infants who were separated from their parents for short periods of time. The study was conducted in the city of [City].

The study involved 2 groups: Group A and Group B. Group A consisted of infants who were separated from their parents for short periods of time. Group B consisted of infants who were not separated from their parents at all. The infants in Group A were divided into subgroups: Group A1, Group A2, and Group A3. The infants in Group B were divided into subgroups: Group B1, Group B2, and Group B3.

The infants were observed for a period of 1 year. The observations were conducted in the infants' homes and in the infants' schools. The observations were recorded on video and audio tapes. The tapes were then transcribed and analyzed.

The results of the study showed that the infants in Group A1 who were separated from their parents for short periods of time had a significantly lower level of stress than the infants in Group B1 who were not separated from their parents at all. The infants in Group A2 who were separated from their parents for short periods of time had a significantly higher level of stress than the infants in Group A1. The infants in Group A3 who were separated from their parents for short periods of time had a significantly higher level of stress than the infants in Group A2.

The results of the study also showed that the infants in Group B1 who were not separated from their parents at all had a significantly lower level of stress than the infants in Group B2 and Group B3. The infants in Group B2 who were separated from their parents for short periods of time had a significantly higher level of stress than the infants in Group B1. The infants in Group B3 who were separated from their parents for short periods of time had a significantly higher level of stress than the infants in Group B2.

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own ages, and their own estimates were often in 5- or 10-year increments. Some mothers responded to Rogoff's census question regarding their own age along these lines: "How old am I? Hmmmm, well, I don't know. How old would you say, Barbara? Maybe 40?... Or maybe more like 50?... Put 50."

**Schooling Does not Stand Alone**

We are not suggesting that schooling is the force behind all the changes in children's lives across generations in San Pedro. Schooling is part of a constellation of changes (Rogoff & Angelillo, 2002), many of which depend on each other. However, we argue that schooling is a key part of the changes and an increasingly important part of children's experience in San Pedro, as in the United States and many other locales worldwide.

Some changes across the generations can be attributed directly to changes in schooling. For example, children who spend substantial portions of most days in age-graded schools cannot be involved in care of young siblings during that time. Hence, their child-care responsibilities are diminished; in 1976 needing the children to provide child care was a common reason for nonattendance (on some days, or in some years, or altogether). As another example of a causal link, certain levels of schooling are prerequisite for a number of the occupations that are increasingly commonly held (and aspired to) within San Pedro, such as teacher and accountant. Without schooling, these jobs are off limits.

A number of other changes in San Pedro may also be connected with schooling in a more general fashion, because schooling and other experiences contribute to fluency in Spanish, and this opens up other possibilities for occupations and travel, which in turn encourage greater Spanish fluency. In 1976, Generation 1 males generally spoke some Spanish (73% spoke it "more or less") and females generally spoke none (61%) or a little (25%). By 1999, Generation 2 males usually spoke Spanish well (85%) and females generally did too (68%). In Generation 2 in 1999, 12% of males and 6% of females also spoke some English. At the same time, all individuals in Generations 1, 2, and 3 spoke the Mayan language Tz'utujil - a central marker of Mayan identity.

A number of other forms of communication with the "outside world" have increased dramatically over these years. In 1976, although 87% of the Generation 1 households had electricity supplying at least one light bulb, only 6% had a television. Most households had only a Bible (68%), and the remaining 32% had no books. By 1999, all Generation 1 households had electricity, 78% had a television, 5% had a VCR, and one had a photocopy machine. In 1999, only 23% of Generation 1 households had no books and 38% had only a Bible, while 30% had other books and 8% had shelves of books; 38% of Generation 1 households had a typewriter in 1999 (none had a computer). 9

In what follows, we examine increases across the three generations in the extent of schooling, accompanied by narrowed age-grading and changes in educational and occupational aspirations, actual occupations, and children's contribution to family work. In addition, increased schooling is accompanied by dramatic decreases in number of children born, yielding limitations in number of siblings. We relate these findings to other research that suggests that with increases in schooling, mothers also appear to be more likely to interact with their children in ways that resemble the formats of schooling and less often to engage in the sort of collaborative group endeavors that seem to characterize traditional indigenous family and community organization (Chavajay & Rogoff, 2002; Rogoff, Mistry, Gönül, & Mosier, 1993).

**Increases in Involvement in Schooling**

From Generation 1 to Generation 2, a dramatic shift occurred from almost no schooling for most children, to considerable numbers of youth achieving higher degrees. In both generations, the extent of schooling was less for girls than for boys (see Table 9.1).

The prevalence of schooling is quite related to the level of schooling that has been available locally for the different generations. In 1936, third grade was the highest grade available locally, and school comprised only a few children (mostly boys) of varying ages, who generally attended for only a year (Chavajay & Rogoff, 2002). By 1953, the top grade extended to sixth grade (Demarest & Paul, 1981). Still for years, many did not attend school, a third-grade education was common, and graduation from sixth grade was a

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9 When adult Generation 2 households lived apart from Generation 1 households, the patterns were similar to those described here, although Generation 2's households were a little more austere than their parents' households. One third of married Generation 2 individuals lived in households combined with their parents' households. Unmarried Generation 2 individuals lived in their parents' household if they lived in San Pedro. (Of 8 unmarried individuals, 4 lived in San Pedro.) Of the 34 Generation 2 married households that were separate from Generation 1 households, 27 lived with the other spouse's parents or in a separate household in San Pedro, and 7 lived in another town or city.
The presence of children in schools is not limited to those in the same grade. For example, in 1979, 48% of children in grade 7 were enrolled in grade 9. In the present generation, the proportion of children in the same grade is 37%, compared to 78% in the previous generation. This trend is evident not only in urban areas but also in rural areas, where the proportion of children in the same grade is higher. This indicates that the trend in the present generation is more pronounced in urban areas.

In the present generation, the proportion of children in grade 7 who are also enrolled in grade 9 is 42%. This is higher than in the previous generation, where the proportion was 35%. This trend is more pronounced in urban areas, where the proportion is 48%, compared to 37% in rural areas.

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In conclusion, the trend in the present generation is more pronounced in urban areas, where the proportion is 48%, compared to 37% in rural areas. This trend is more pronounced in urban areas, where the proportion is 48%, compared to 37% in rural areas.
was not expected to be of much use. By age 7, children were becoming dependable for many significant subsistence tasks, and apparently were more heavily involved in them in the two neighboring towns than in San Pedro, where schooling had taken a greater hold.

The variability in uptake of Western schooling in these Tz'utujil Mayan towns underlines the importance of not assuming uniformity across even closely related communities. San Pedro is known among Indian towns in this region for its interest in schooling.

San Pedro's emphasis on schooling can be seen in its teachers and other professionals. In 1936 the one teacher in town was non-Mayan (Chavajay & Rogoff, 2002), and still in 1976 most teachers in San Pedro were non-Indians from elsewhere in Guatemala. However, by the late 1990s most San Pedro teachers were Pedranos or Pedranas. In 1997, 114 of the 130 teachers employed in San Pedro were natives of San Pedro (12 were from other Mayan communities and 4 were not Mayan; Chavajay & Rogoff, 2002). In fact, San Pedro has been supplying a high proportion of teachers for the state as a whole (including staffing schools in Santiago Atitlán, San Juan, and San Pablo). A 1994 estimate indicated that San Pedro likely contributed more teachers working in the whole state of Sololá than all 18 of the state's other municipalities combined (Paul, 1994). In addition, in the late 1990s, about 100 students from San Pedro were attending universities (Chavajay & Rogoff, 2002) and about a dozen Pedranos and Pedranas had received or were studying for medical, law, or Ph.D. degrees.

Narrowed Age-Grading Accompanying Increased Schooling

In 1999, we asked about the schooling of the child of the Generation 2 individuals who was the closest in age to 9 years and the same gender if possible (Generation 3). Of the 59 surviving Generation 2 individuals, 27 had a child aged 6 to 14 years (average age was 8.8 years).

Generation 3 children were all in school, and their current grades closely matched those expected by their ages in an age-graded system. Most of the children (16 of 27) were in the expected grade, and almost all the rest were in the grade above (3) or below (5) the grade associated with their age — variation which would often be the case in strictly age-graded schools due to differing birthdates throughout the year. Only 3 of the 27 Generation 3 children were in a grade that was more than one grade different from the expected grade for their age (all 3 were two grades below). This is a narrower age range per grade than when Generation 3's parents were 9 years old.

The wide spread of ages within grades in the generation corresponding to Generation 2 was clearly apparent in a nearly random sample of 126 San Pedro children aged 6 to 13, censused in 1974 by Rogoff. Only a few of the 6-year-olds and half of the 7-year-olds had entered school. At ages 8 and 9, 77% of the children had enrolled in school (ranging from Castellanización to second grade), and at ages 10 to 13, 88% of the children had some schooling, although 12% of the 10- to 13-year-olds had already quit school. There was a 6-year range within each of the first three grade levels (with children of ages 6–11 years in the preliminary "Castellanización" class, to learn Spanish to enter first grade, also 6 to 11 years in first grade, and 8 to 13 years in second grade). From third to sixth grades, the youngest ages crept up (11, 10, 11, and 13 years), but we cannot determine the oldest age because the top age examined was 13. However, the 10–11-year-olds who were still in school ranged from Castellanización to fifth grade and the 12–13-year-olds who were still in school ranged from second to sixth grades.12

It appears that in the time between the childhoods of Generation 2 and 3 (the 1970s and 1990s), schooling in San Pedro had become fairly tightly age-graded. Before that, children started at different ages and attended less continuously (across days and across years). Many of the Generation 2 children also struggled more to learn Spanish (because Spanish was used less in homes and in the community overall). Because speaking Spanish was a prerequisite for entry to first grade, which was taught solely in Spanish, more variation in this skill probably contributed to the wide spread of ages in each grade.

Aspirations for Schooling Rise Too

Children's aspirations regarding how far they would go in school rose dramatically across Generations 2 and 3 (see Table 9.2). Those who were 9 years old in 1976 (Generation 2) were asked how far they expected to go in school ("What grade do you think you'll go to?"). In 1999, the same question was asked of the Generation 3 children.

12 In San Marcos, a few miles away, children (and teachers) attended school sporadically in 1980; on average children missed about half of the school time, due in large part to needs for their help at home and little confidence that school served a useful purpose. About half of the children enrolled in Castellanización and primary school were repeating the grade that they were in — for the second, third, fourth, or fifth time (Richards, 1987). In Castellanización (introduction to Spanish), only 2 of the 32 children who were not repeating this grade ended up passing into first grade, and of the 30 children who were already repeating this grade, only half ended up passing it.
The children's aspirations in Generation 2 might do when you grow up. (6) The children's aspirations in Generation 2 work they expected to do when they grow up, (6) "I work hard, but if you think you work hard, I warn you that work is a lot worse."

**Table 9.3 Children's Ambitious Occupations in Generation 2 and 3**

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<th>Ambitious Occupation (as child)</th>
<th>30 Females</th>
<th>30 Males</th>
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<tr>
<td>President</td>
<td>3 (11%)</td>
<td>3 (11%)</td>
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<tr>
<td>Teacher</td>
<td>5 (17%)</td>
<td>5 (17%)</td>
</tr>
<tr>
<td>Doctor</td>
<td>3 (11%)</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>Lawyer</td>
<td>2 (7%)</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Accountant</td>
<td>2 (7%)</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Secretary</td>
<td>3 (10%)</td>
<td>3 (10%)</td>
</tr>
<tr>
<td>Veterinarian</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (11%)</td>
<td>3 (11%)</td>
</tr>
</tbody>
</table>

Almost all (95%) of Generation 2 children had aspirated to six or fewer grades in school life. Just 1% (1) of Generation 2 had 12 years or more of education, while 2% (2) of Generation 3 had 12 years or more of education. The differences between the two generations are significant, with Generation 3 having much higher aspirations in terms of educational attainment.
Table 9.4. Adult Occupations of Generations 1 and 2

<table>
<thead>
<tr>
<th>Adult Occupation</th>
<th>Generation 1</th>
<th></th>
<th>Generation 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29 Females</td>
<td>30 Males</td>
<td>30 Females</td>
<td>29 Males</td>
</tr>
<tr>
<td>Weave, embroider*</td>
<td>19 (63%)</td>
<td></td>
<td>15 (50%)</td>
<td></td>
</tr>
<tr>
<td>Make tortillas, cook</td>
<td>6 (20%)</td>
<td></td>
<td>5 (17%)</td>
<td></td>
</tr>
<tr>
<td>Midwife</td>
<td>1 (3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farming, cultivation</td>
<td></td>
<td>27 (90%)</td>
<td>6 (21%)</td>
<td></td>
</tr>
<tr>
<td>Market/store sales</td>
<td>3 (10%)</td>
<td>3 (10%)</td>
<td>3 (10%)</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>3 (10%)</td>
<td>3 (10%)</td>
<td>5 (17%)</td>
<td></td>
</tr>
<tr>
<td>Accountant, manager, sec'y</td>
<td>3 (10%)</td>
<td>2 (7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student (higher education)</td>
<td>1 (3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td>1 (3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pastor</td>
<td>1 (3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carpenter, tailor, shoemaker</td>
<td>4 (14%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory worker</td>
<td>3 (10%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck driver</td>
<td>2 (7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security guard</td>
<td>1 (3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musician</td>
<td>1 (3%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Women who identified their work as weaving or embroidering often also mentioned making tortillas and cooking.

Adult Occupations Move from Agricultural and Home Production to Include Teaching and Other New Positions

To compare the actual adult occupations of Generation 1 and 2, we examined occupations of the same-sex parent of each of the Generation 2 individuals (see Table 9.4). Many of the Generation 2 females followed the same occupations as their mothers, with the addition of paid careers for about a fourth of them. The Generation 2 males, however, shifted markedly from their fathers’ occupations – only a third of them followed the occupations of their fathers, and the other two thirds followed new careers.

Many of the new occupations have high schooling prerequisites, requiring completion of 12 grades to qualify for them. All of the Generation 2 individuals who are in the professions of teacher, accountant, manager, secretary, doctor, pastor, or still studying have completed twelve or more grades. This comprises 7 (23%) of the females and 9 (31%) of the males (and none of their parent generation). The other Generation 2 individuals who have completed 12 or more grades are in the following occupations: 2 females work at home cooking; 2 males work in sales, 2 in factories, and 1 in carpentry. The other levels of schooling seem to be spread randomly among the other kinds of work (both traditional and new) that do not require completion of 12 grades, for the rest of the Generation 2 females and males.

Some of the pressure to adopt wage-earning occupations may come from the decreasing landholdings available to each generation across the 20th century. Guatemala has the most extreme discrepancy between landholdings of the wealthy and the poor in Latin America: In about 1980, 1% of the population controlled 66% of the land, whereas 96% of the population controlled only 16% of agricultural land (Early, 1982, as cited by Loucky, 1988). This imbalance is exacerbated by the rapid increase in population, such that already-small plots of land are subdivided into plots too small to sustain a family. In 1979, 77% of rural Guatemalan households had insufficient holdings for subsistence (Early, 1982, as cited by Loucky, 1988). The population of San Pedro has grown from about 2,000 in 1941 to over 12,000 in 2002, despite a great deal of outmigration to cities, where there are often not sufficient jobs to support them.

Extensive schooling does not guarantee a good job. A number of Pedranos and Pedranas employed as teachers as of 1994 had jobs in private schools with poor remuneration, in hopes of moving into a well-paying government teaching position, and about 25% of those who were trained as teachers were not employed as teachers (Paul, 1994). About a third of these had other positions in office jobs in the capital or were doing well as agriculturalists; however, the others worked in trades in San Pedro or in available jobs in the capital. Some of these may be represented among the Generation 2 individuals who have more than 12 years of schooling but are working in homemaking, sales, factory work, and carpentry, which do not require such high levels of schooling.

Possible Generational Changes in Schooling’s Relation with Occupations

Going to school may provide different occupational benefits for Generations 1, 2, and 3, associated with the dramatic differences in prevailing levels of schooling as well as available occupations. For Generation 1, who completed just a few grades, learning Spanish – useful in commerce – may have been a primary effect of school attendance. Primary schooling may have provided skills used in transitioning from agriculture and home-based production to merchant and traveling roles. In prior generations, the value of schooling for agricultural careers was questioned by San Pedro parents. For Generation 2, credentialing needed for salaried professions may commonly be the effect of completing 12 grades of schooling. With secondary schooling, Pedranos and Pedranas may join the bureaucratic workforce.
The average number of different types of work done by the children was

The increase in children's schooling across the family work has been revolutionary,

Children's Work Contributions Decrease

and/or wife, or did not have a reason.

The reasons for children's schooling contributions are diverse. Some children

Table 9.5: Number of Child Hours Each Type of Work (as reported by Parents)

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating/Feeding</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>baby</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14 hours</td>
<td>14 hours</td>
<td>14 hours</td>
</tr>
</tbody>
</table>

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<td>0</td>
</tr>
<tr>
<td>baby</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating/Feeding</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>baby</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14 hours</td>
<td>14 hours</td>
<td>14 hours</td>
</tr>
</tbody>
</table>

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<tr>
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<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating/Feeding</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>baby</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14 hours</td>
<td>14 hours</td>
<td>14 hours</td>
</tr>
</tbody>
</table>
in industrialized nations, where parents provide economic and social support to children without expecting tangible returns. Middle-class occupations result in many children needing to make their future careers in work that their parents do not know how to do, in contrast with agrarian traditions. Thus, childhood becomes a time of preparation for uncertain employment in adulthood, instead of ongoing involvement in family and community productive activities (Rogoff et al., 2003).14

In prior generations, children in San Pedro contributed importantly to the resources of their family; such contributions were also noted in work done in 1978 in the nearby Tz'utujil towns of San Juan and San Pablo (Loucky, 1988). "Maya children represent positive net economic value by adolescence. This contributes to continuing upward pressure on fertility and school abstention" (p. xi).

Fertility and Infant Mortality Decline, and with Them, Number of Siblings

Generation 1 parents had a relatively large number of children, several of whom usually died in early childhood. We compare Generation 1 and 2 childbearing at the age of 33, in order to hold constant the number of years available to bear children. We also limit the comparison to the Generation 1 parent that is of the same gender as the individuals included in Generation 2 ("same-sex Generation 1").

By the time the same-sex Generation 1 individuals were an estimated 33 years old, in about 1968, they had had an average of 6 children (see Table 9.7). Of course, many continued to have children after age 33; females

14 The number of chores that the Generation 2 children did was not significantly correlated with the limited amount of schooling of their mothers or their fathers.

Table 9.6. Number of Types of Work by Children in Generations 2 and 3

<table>
<thead>
<tr>
<th>No. of Types of Work</th>
<th>Generation 2</th>
<th>Generation 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 Girls</td>
<td>30 Boys</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>3 (10%)</td>
</tr>
<tr>
<td>1</td>
<td>1 (3%)</td>
<td>12 (40%)</td>
</tr>
<tr>
<td>2</td>
<td>3 (22%)</td>
<td>12 (40%)</td>
</tr>
<tr>
<td>3</td>
<td>1 (21%)</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>4</td>
<td>3 (21%)</td>
<td>3 (21%)</td>
</tr>
<tr>
<td>5</td>
<td>1 (21%)</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Average</td>
<td>3.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Table 9.7. Fertility and Child Mortality of Same-Sex Generation 1 and 2 Parents

<table>
<thead>
<tr>
<th></th>
<th>Same-Sex Generation 1</th>
<th>Generation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 Females</td>
<td>29 Males</td>
</tr>
<tr>
<td>Average # children born by age 33</td>
<td>6.6</td>
<td>5.5</td>
</tr>
<tr>
<td>Range</td>
<td>3–15</td>
<td>3–9</td>
</tr>
<tr>
<td># with no children at 33</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td># with 1–2 children</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td># with 3 or more</td>
<td>30 (100%)</td>
<td>29 (100%)</td>
</tr>
<tr>
<td>Ave. # babies died by 3 years across childbearing</td>
<td>1.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Range</td>
<td>0–13</td>
<td>0–7</td>
</tr>
<tr>
<td># w/ no babies that died</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Ave. # died age 3–18*</td>
<td>0.2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

* Note: Generation 2 had less opportunity for older children to die, as Generation 2 was only 33 at the time of data collection.

Averaged 8.4 live births (range 3 to 18) across their childbearing years. Across their childbearing years, they reported that about 2 of their children died.15,16 Generation 1 males, marrying a couple of years older, had had a smaller average number of children born by age 33, but they caught up (Generation 2 males' fathers' total number of children born was 9.1; range 3 to 16).

When Generation 2 was 33 years old, in 1999, they had an average of 2 children per family and only an average of 0.2 had died. It is striking that about two thirds of Generation 2 had 0 to 2 children by age 33, whereas none of their same-sex parents (in Generation 1) had this few children at age 33.17 It

15 It seems that the mothers reported fewer mortalities than those documented in the municipal death records; probably they did not report the deaths of some babies who died in the first days or weeks of life. This may make sense given high birth and mortality rates, in retrospective reporting across several decades.

16 These fertility figures are similar to those of neighboring Santiago Atitlán, where the average mother had eight live births in the mid-1960s (according to Early’s data, reported by Carlsen, 1997). The rate of infant and child mortality, although high, is perhaps less than in prior decades. In Santiago Atitlán in 1950, more than 50% of children died between ages 0 and 4; by the mid-1980s, half of the women of Santiago Atitlán reported losing no children (Carlsen, 1997). In nearby towns of San Juan and San Pablo, about a fifth of children were reported to have died, according to 1978 information that resembles figures in San Pedro (Loucky, 1988).

17 Of course, the parents are not a random sample of people of their generation; they were selected on the basis of having a 9-year-old in 1976, so all
In the community

...more effective in reducing the disproportional number of low-income children in poverty and minority students at risk of school failure. Explanations to these findings are complex and multifaceted. For example, the study suggests that the effectiveness of school-based initiatives is often determined by a combination of economic, social, and policy factors. The study also highlights the importance of teacher quality and supports the need for more research in this area.

Schooling in Human Development

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than it did for her own mother (prior to female schooling in an agrarian community) and inducing her to bear fewer children. (p. 486)

A Moment in Time?

The observations of changes accompanying schooling in San Pedro complement the historical analysis of the role of widespread schooling in the lives of U.S. children. With extensive involvement in Western schooling, children’s lives seem increasingly to involve segregation from adults and association with close-in-age peers and siblings, accompanying smaller family size, decreased infant mortality, and reduced contributions by children to sibling care and other family work. When school-aged children grow up, they seem to adopt some of the ways of schooling in dealing with their own children—such as attempting to manage children’s attention and learning, employing more managerial roles, and less side-by-side pitching in together on a common productive endeavor.

At the turn of the twenty-first century, in middle-class communities in the United States, and increasingly in other communities around the world such as in the Mayan town of San Pedro, schooling seems to have become sufficiently obligatory and widespread that it is becoming “naturalized” in people’s thinking about childhood. People often assume that the conditions of childhood surrounding schooling are simply the way children and families “are.” Our aim is to call attention to them as a rather unique historical/cultural phenomenon that has wide and deep consequences for children’s everyday lives as well as those of their families of origin and their subsequent families when they grow up.

LeVine and White (1987) have pointed out that the similarities across societies in the conditions of childhood accompanying compulsory and extensive schooling—such as small family size, low infant mortality, and limited economic contributions from children—stem from very different histories. The histories vary among different European and American nations, as they do among different neighboring Tz’utujil Mayan towns. In particular societies, these developments relate to industrialization, urbanization, and local childrearing philosophies in different manners and distinct sequences across the last few centuries. Despite the differing origins and routes, compulsory schooling has become a ubiquitous aspect of childhood, along with its accompanying features such as small family size, reduced infant mortality, reduced child contributions to family and community, and increased age segregation.

The historical changes leading to the present do not end in this moment. New generations will face changed circumstances and will develop new approaches that resemble current forms of childrearing in some ways and depart from them in others, reflecting distinct cultural histories as well as local and global change.

Despite its current ubiquity, compulsory, extensive mass schooling itself is a short experiment. Even during its century of existence in the United States, a number of transformations in its purposes and formats can be seen (along with some sturdy continuities, such as age-grading and standardized “measures” of students).

Although developmental researchers often treat schooling as a “natural” part of child development, as Diana Slaughter-Devoe has pointed out (in a planning meeting on child development and learning at NSF; July 1998), there is reason to question whether schooling will continue to play the same role throughout the coming century. She posed the question, if schools are likely to cease to exist in 75 years, how should developmental researchers and policymakers currently be conceptualizing and contributing to the design of arrangements for children’s learning and development? We regard this thought experiment as extremely valuable for broadening the perspective on how future practices and institutions can be designed to support children’s development for the circumstances of the future.

Investigating the arrangements for children’s learning in settings where Western schooling has not been prevalent for generations provides key information for considering resources for aiding children’s learning. Such research not only helps us understand the role of Western schooling in children’s lives in societies where this institution is central to children’s lives, but also draws attention to the ways that children learn in communities where schooling is not pervasive. In many such settings, children learn by keen observation in the process of being involved in their communities’ activities with people of a wide age range, motivated by the importance of the activities and the value of their contributions (Rogoff et al., 2003).

In commenting on the reduction in children’s opportunities to engage in shared endeavors with adults, working side-by-side to accomplish a joint task together, Heath pointed out the importance of such situations for child and

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19 Her speculation was based in part on increasing use of home schooling, private schooling, and opportunities for other forms of learning (such as distance learning and use of the internet as an learning resource).
The importance of early childhood education cannot be overstated. Children who receive high-quality early childhood education are more likely to succeed in school and in life. This is due to the positive effects of early childhood education on cognitive, social, and emotional development.

In conclusion, early childhood education is crucial for the development of young children. It provides them with the skills and knowledge they need to succeed in school and in life. By investing in early childhood education, we can ensure a bright future for all children.

References:


And others.
Schooling in Human Development


Schooling in Human Development

263

B. Rogoff, M. C. Cross-Cultural, and M. Nurturing Care.

...