

Gender Differences in the Schooling Experiences of Adolescents in Low-income Countries: The Case of Kenya

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Although a growing proportion of young people is spending some time in school between puberty and marriage, little research on education in developing countries has been focused on adolescent issues. This article examines the school environment in Kenya and the ways it can help or hinder adolescents. Gender differences are considered with a view toward illuminating some factors that may present particular obstacles or opportunities for girls. Using both qualitative and quantitative data, 36 primary schools in rural areas in three districts of Kenya are studied. These schools are chosen to reflect the spectrum of school quality in the country. The focus in this study is on primary schools because the majority of adolescents in school attend primary school. In these schools, where considerable variation in performance and parental educational status is found, disorganization coexists with strict punishment, minimal comforts are lacking, learning materials are scarce, learning is by rote, and sex education is not provided. In the primary-school-leaving exam, girls' performance is poorer than that of boys. Teachers' attitudes and behavior reveal lower expectations for adolescent girls, traditional assumptions about gender roles, and a double standard about sexual activity. (STUDIES IN FAMILY PLANNING 1998; 29, 2: 167–184)

In Africa, the phase of the life cycle between physical and social maturity—typically defined as adolescence—is lengthening, due, in part, to ever-larger school enrollments of adolescents. As a result, the school is an increasingly important institution in the socialization and training of the next generation. In premodern society, training and preparation for adulthood was exclusively a family and community affair. The onset of puberty was often the occasion for sexually segregated rituals to signal the beginning of adulthood, at which time information about sexuality, reproduction, and adult roles was shared between men and boys and between women and girls. Today, children are likely to be in school at the time of physical maturation and, therefore, exposed to nonfamilial attitudes, information, and ideas emanating from teachers, peers, and a centrally designed curriculum.

Understanding what happens to adolescents within

the school environment, therefore, becomes critical to comprehending the contemporary experience of adolescents in Africa. Where transportation and communication are poor and where many parents are illiterate, the school provides a setting in which children can meet authority figures other than their parents, acquire specific academic and life skills, and learn about the world that lies beyond their local community. For girls, in particular, even more may be at stake; school may be the only place where they can meet women in the workplace and learn that existing gender roles and competencies are potentially challengeable and changeable. The impact of schooling on the children who experience it may be enormous, encompassing not only the development of cognitive abilities that will affect their adult productivity, but also the formation of values, norms, and aspirations that will affect other dimensions of their lives, in particular the types of families they form and the roles they play within them.

Little research on education in developing countries has focused on adolescent issues. At the same time, beyond an interest in family life education, demographic research on adolescents in Africa has rarely explored

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schooling as a key dimension of the adolescent experience. Recognizing the critical importance of schools as socializing agents, this study is designed to shed light on both research gaps by taking an in-depth look at the school environment and at the ways that potentially it can help or hinder adolescents. An interesting contrast exists between the education literature and the demographic literature in that each appears to be saying different things about the benefits of schooling for girls. In the demographic literature, education is seen as uniformly positive in that it leads women to delay marriage and childbearing and ultimately to bear fewer children and to invest more in each child (United Nations, 1995; Jejeebhoy, 1995; Ainsworth et al., 1996). In the education literature, the picture is more complex; although girls are found to acquire critical knowledge and skills at school, at the same time, schools are seen as conservative institutions that reinforce gender inequality (Anderson-Levitt et al., 1998; Davidson and Kanyuka, 1992; Hyde, 1997; Appleton, 1995a and 1995b; Stromquist, 1994; Obura, 1991; Herrera, 1992). Schools appear simultaneously to be reinforcing existing gender bias and inducing more “modern” forms of behavior that have the potential to help women acquire greater autonomy.

To understand the processes that underlie these apparently contradictory outcomes, the traditional production-function approach to education that assesses cognitive competencies as a function of time devoted to learning, material inputs, and effective teaching (Lockheed et al., 1991) needs to be broadened to allow for the assessment of a wider range of inputs and outputs. On the input side, not enough attention has been given to teachers’ attitudes and classroom dynamics. On the output side, not enough attention has been given to school attendance and staying in school on the one hand and reproductive outcomes on the other.

The research results presented here cover a range of contemporary schooling experiences of adolescents in rural areas of three districts of Kenya—Nyeri, Nakuru, and Kilifi—drawing on primary-school data collected as part of a larger study of adolescents in Kenya. This study considers those elements of the educational process that have some independent support in the literature as reflecting good practice either from the point of view of developing cognitive competencies or from the point of view of enhancing gender equity. Because adolescence is the phase of the life cycle when the roles and responsibilities of adulthood emerge and when gender differences become sharply defined, these two dimensions of the school environment will be important to assess if we are to understand the ways in which schools shape adult gender roles and influence later productive and reproductive outcomes.

Few studies have been conducted in developing countries concerning the aspects of schooling that are most important to girls’ future productivity or to their reproductive health and the achievement of their reproductive goals. Furthermore, little is known about the determinants of educational continuity and success either at the school or at the family level. Here the range of school experiences for adolescents in Kenya is described to illuminate some of the factors that may present particular obstacles or opportunities for girls.

In presenting results from the field study, schools are categorized here as “high-performing” or “low-performing” according to the female students’ scores on the national exams, and differences and similarities are noted between the two groups for various dimensions of school quality. Conclusions are based on both qualitative and quantitative data from school visits.

Schooling in Kenya

Primary school in Kenya consists of eight levels or grades, known as standards. Most primary schools are co-educational government schools; relatively few have boarding facilities. In Kenya (as well as in most other countries of sub-Saharan Africa), the majority of school-going adolescents attend primary school. In the three districts considered here, the percent of school-going adolescents aged 12–18 currently attending primary schools was 79 percent in Nyeri, 81 percent in Nakuru, and 94 percent in Kilifi (Mensch and Lloyd, 1997). Adolescent enrollment in primary school is high for several reasons: (1) Many children begin their schooling after the normal age for starting (Lloyd and Blanc, 1996; Glewwe and Jacoby, 1993); (2) grade repetition occurs because of irregular attendance resulting from familial demands on children’s time, nonpayment of school fees, and the students’ need for extra preparation time before they sit for national exams; and (3) national exams administered at the end of primary school are designed to ration access to the far fewer places available in secondary schools (Appleton, 1995a). Surprisingly, despite this age pattern of attendance, the limited research on adolescents in schools is often based on samples of secondary-school students (see, for example, Youri, 1994).

At the beginning of adolescence, enrollment rates in Kenya are high (more than 90 percent for those aged 12), but the large majority of adolescents are behind grade for their age because of late ages of entry and grade repetition. Only 79 percent of children aged 14 have completed standard 4 out of the eight standards in primary school (Lloyd and Blanc, 1996). Enrollment rates fall off steadily during the teenage years, reaching

roughly 57 percent by age 18 (Montgomery and Lloyd, 1997). No more than 40 percent of those leaving primary school are able to go on to public secondary schools because of the limited places available.

In Kenya, overall enrollment rates for boys and girls are roughly equal at the younger ages (Lloyd and Blanc, 1996). Gender differentials emerge in grade progression, exam performance, and dropout rates during the teenage years. Among 10–14-year-olds who have ever attended school, 49 percent of girls and 57 percent of boys have completed standard 4. For those younger than 19 who have completed some primary school, the proportion of girls who have dropped out during the primary school years is estimated to be 31 percent higher than that for boys (Appleton, 1991).

Students who succeed in the national primary-school-leaving exam, the Kenyan Certificate of Primary Education (KCPE), can continue to secondary school, which extends study for another four years. The exam consists of seven compulsory papers that are given equal weight: English; Kiswahili; mathematics; science and agriculture; geography, history, civics, and religion; arts, crafts, and music; and home science and business education. Each student is given both a numerical score ranging from 0 to 700 and a letter grade that is standardized and ranges from A to E, with the median between C and C+. Because the exam is meant to serve as a terminal qualification and not just as a means of determining selection into secondary school, it covers a broad range of material, much of which is designed to provide “practical” skills to children in rural areas (Appleton, 1995b.)

Girls perform poorly relative to boys in all subjects of the KCPE except Kiswahili and English (Makau, 1994). The mean gender difference is greater than or equal to one-third of a standard deviation in math, science, and the humanities (Appleton, 1995b).

Enormous variation exists in physical facilities and other aspects of school quality among Kenyan government primary schools. Because fees are set by each school through the parent-teacher associations, they vary according to parental willingness and ability to pay. Government funding is limited to teachers’ salaries, with parents paying building costs and other recurrent costs. Recent estimates suggest that parents pay nearly 60 percent of the cost of primary schooling in Kenya (Appleton, 1995b). Parents are not obligated to send their children to a particular school. Within communities, parents have some choice, and children from small geographic areas are distributed among several primary schools.

One important regulation that is set nationally and has implications for adolescents relates to pregnancy. The official Kenyan policy is that girls who become pregnant while they are in school must drop out temporarily.

Although abortion is illegal, such services are available. Girls who have access to these services and whose pregnancies are not detected by the school administration are able to remain in school. Girls who give birth are not prohibited from returning to the same school, although whether any schools permit reinstatement is unclear. As for boys, no equivalent Ministry regulation exists for those who are found to have impregnated girls, and thus each school is free to set its own policy.

Data on Primary Schools

To explore the relationship between school quality and differential adolescent outcomes for boys and girls, a small-scale field study was conducted in rural areas of three districts in Kenya—Kilifi, Nakuru, and Nyeri—in May through August of 1996. A key feature of the study design is the linkage of school-based data with a population-based sample of both in-school and out-of-school adolescents, so that ultimately the implications of school quality can be explored for a broader range of educational and reproductive outcomes. The study was fielded after extensive focus-group work and pretesting with adolescents. For the purposes of this article, findings from school-based data are presented, with an emphasis on results that contribute to a greater understanding of gender differences in the primary-school experiences of adolescents.

Sampling Strategy

Because budget and time constraints precluded visiting a representative sample of schools, a purposeful strategy was used to select the widest range of school environments possible in order to become acquainted with examples of the best and the worst, as well as the more typical, school situations in Kenya. The sampling strategy for the schools was designed in three stages.

The first stage was to select three of Kenya’s 50 districts representing the range of school environments from the point of view of national examination results and of girls’ participation in school. Using district rankings on 1993 KCPE scores as well as primary and secondary enrollment rates for boys and girls, Nyeri was selected as reflecting the high end, Nakuru the middle, and Kilifi as the low end of the schooling spectrum.

The second stage was to select clusters from the national sampling frame, again to reflect the high, middle, and low ends of the educational spectrum as measured by KCPE scores within each district. Based on KCPE performance, 12 clusters per district were chosen for preliminary listing by the Central Bureau of Statistics (CBS) in

geographically proximate (but, given the nature of the national sampling frame, not contiguous) groups of three to four clusters.

The third stage was to select specific clusters and schools from the CBS listings so as to maximize the overlap of adolescents from our community-based sample and schools. The constraints of the sampling budget allowed for 36 primary schools as well as a sample of 15 secondary schools (results not presented here). Choice of the specific primary schools to be visited was based on the goal of a minimum of 60 percent coverage of the school-going adolescents in each cluster. The sample includes ten primary schools in Kilifi and 13 each in Nakuru and Nyeri.¹

Research Methodology

Situation analysis—a research methodology developed by the Population Council to evaluate the functioning of family planning services through on-site visits to a large number of service-delivery points—has been adapted for this study to the evaluation of the schooling environment. The primary schools in each geographic area were visited for two full days each and were assessed using five instruments. The data, which were collected via both observation and interview, provide a description of the quality of schooling in both quantitative and qualitative terms.

Within the family planning field, previous evaluations of service sites often had relied on expert opinion of those based in capital cities or was limited to interviews with community informants. Situation analysis is considered innovative because it involves clinic visits, and entails (1) interviews with managers, providers, and family planning clients; (2) detailed recording of clinic facilities, equipment, and commodities available on the day of the field-team visit; and (3) nonparticipant direct observation of client-provider interactions. The survey instruments are designed to be comprehensive, enabling the researcher to describe the functioning of the clinics in detail and to assess the quality of services provided (Miller et al., 1997).

The objectives for situation analysis of schools parallel those for family planning clinics. The situation analysis includes observation of English and math classes for standards 7 and 8, an interview with the head teacher, interviews with those English and math teachers who are observed, interviews with students, and observation of school facilities and of boy-girl interactions in hallways, lunchrooms, and near the toilets. In the classroom observation, special attention is given to teachers' differential treatment of boys and girls in both teacher- and student-initiated exchanges, following on

the pioneering work of Sadker and Sadker (1995) in the United States. Although surveys conducted in developing countries have collected data on school characteristics (see, for example, Glewwe et al., 1995; Abraha et al., 1991; and Harbison and Hanushek, 1992), few have been as exhaustive as the situation analysis (one notable exception is Fuller's work in Botswana; for example, see Fuller and Snyder, 1991, and Fuller et al., 1994).

Table 1 shows the five school-based instruments, their mode of administration, and the target number administered for each school. Each of these instruments is used to capture critical elements of the school environment. Student data collected from standards 7 and 8 are used to characterize adolescents' collective experience in the school; classroom data are used to characterize experiences of adolescents in standards 7 and 8 in two of the most important subjects—English and math—in each school; and interviews with teachers observed in these classrooms are used to characterize the qualifications and attitudes of some of the most important teachers whom adolescents encounter in the school. Details on the data collected in each instrument are provided in Mensch and Lloyd (1997).

Analytic Strategy

As already indicated, the primary schools in the sample are not representative of the underlying population of primary schools in Kenya. Instead, the districts and clusters in which the schools are located contain within them the range of schools available to Kenyan adolescents if they are evaluated according to average scores on the primary-school-leaving exam. Because some relevant features of adolescent schooling are common across this diverse sample of schools, the conclusion can be reached that these are situations that most adolescents experience. However, many other aspects of the school environment vary across schools. To the extent that these variations are associated with schooling outcomes, potential avenues for further exploration and testing can be identified.

The schools are categorized here into two types: (1) high-performing schools, those with high exam scores

Table 1 Characteristics of school instruments used for situation analysis, Kenya, 1996

Instrument	Mode of administration	Number per school
Head teacher	Interviewer administered	1
Teachers	Interviewer administered	2 math, 2 English
Students	Self-administered	30 girls, 30 boys
Classroom observation	Observation	4 math, ^a 4 English ^a
School inventory and observation	Observation	1

^aTwo classes per teacher.

for girls² (N = 12); and (2) low-performing schools, those with low exam scores for girls (N = 21). The dividing point between the two groups is based on the proportion of girls scoring above B-. For Kenya as a whole, approximately one-fourth of students score this well; thus the point used here to divide the schools into the two groups is .25. Because KCPE exams are graded nationally according to one standard, results from different districts can be compared meaningfully. All results are presented according to this categorization scheme.³

As expected, students in the high-performing schools come from families that, for the most part, are better educated than the families of students in the low-performing schools. Based on student reporting, an index was created measuring parental education, with a value of zero when both parents have had primary schooling or less, .5 when one parent has had secondary schooling or more, and 1.0 when both parents have had secondary schooling or more.⁴ The index averages .53 for high-performing schools and .37 for low-performing schools, ranging from .11 to .74 for low-performing schools and from .27 to .75 for high-performing schools. Thus, students from better-educated families can be found in both high- and low-performing schools. Indeed, the correlation coefficient between parents' education and school performance is surprisingly low: .34. Whenever qualitative data from the schools is described, the school will be identified by whether it is high- or low-performing as well as high or low on parental education, defined according to whether the school falls above or below .51, the median of the parental education index.

With the exception of the data from teachers, the unit of analysis in presenting the results from the situation analysis is the school. In the case of data drawn from instruments that are administered only once in each school, the analysis is straightforward. In the case of data drawn from multiple questionnaires or observations per school, the data are first aggregated to produce a school-based estimate before being aggregated again to present averages across schools by type of school. For example, the 12 high-performing schools contain a total of 749 students who filled out a student questionnaire, whereas the 21 low-performing schools contain 1,214 students who did so; as a result, the student-based results are robust. Because of the multiple sampling and analysis layers, conventional tests of statistical significance for differences between high- and low-performing schools are not appropriate.

Schooling Experiences of Adolescents

The results of the study of Kenyan primary schools, us-

ing the typology of high- and low-performing schools, are presented using qualitative and quantitative data on school outcomes as well as on various dimensions of school quality. School outcomes include KCPE performance, age for grade, attendance, and reproductive health knowledge. The dimensions of school quality include material inputs, opportunities to learn, teachers' attitudes, school and classroom dynamics (including harassment), and family life education.

Performance, Progress, and Attendance

Table 2 presents data on exam performance, age, and attendance and indicates from which of the survey instruments each outcome is derived. For example, 41 percent of girls score B- and above on the KCPE exam in the 12 high-performing schools, whereas 11 percent score that well in the 21 low-performing schools. As is the case for Kenya as a whole, boys in our sampled schools do better; 47 percent of boys score B- and above in the high-performing group, compared with 21 percent of boys in the low-performing group.

Given that approximately one-fourth of Kenyan students score B- and above on the KCPE, any school in which more than 25 percent of students score B- and above is "better" than the average Kenyan school, and any school where fewer than 25 percent score B- and above is "worse" than the average. For our 36 schools, the proportion scoring B- and above ranges from 3 percent to 78 percent, with a median of 23 percent, suggesting that, at least on this dimension, the sample is representative of Kenyan schools.⁵

As mentioned earlier, many adolescents are behind standard for their age because of delayed entry and

Table 2 Performance, progress, and attendance, 33 primary schools, Kenya, 1996

Variable	Instrument	Low-performing schools (N = 21)	High-performing schools (N = 12)
KCPE score (percent)			
Boys scoring B- and above	Head teacher	21	47
Girls scoring B- and above	Head teacher	11	41
Age			
Mean age of boys in standard 7	Student	14.8	14.8
Mean age of girls in standard 7	Student	14.4	14.5
Mean age of boys in standard 8	Student	15.5	15.4
Mean age of girls in standard 8	Student	15.0	15.1
Attendance (percent)			
Average daily attendance of boys in standards 7 and 8 in week preceding survey	Inventory	90	94
Average daily attendance of girls in standards 7 and 8 in week preceding survey	Inventory	93	95

grade repetition. If a child begins standard 1 at six, the recommended age at entry, he or she would be 12 or 13 in standard 7 and 13 or 14 in standard 8 if promoted each year. For the schools in the sample, the mean age in standard 7 as reported by students ranges from 13.1 to 16.1, with a median of 14.5.⁶ Interestingly, the mean age in standard 8 is 15.3, with a range from 13.7 to 16.3, that is, students do not age a year in going from standard 7 to standard 8. This finding is not unexpected, because the highest rate of dropping out occurs during this year (Makau, 1994), and those who drop out are presumably older for their standard. However, mean age in standards 7 and 8 does not vary by performance level of the school. On the other hand, a pattern occurs across all schools; for both standards, girls are younger than boys, perhaps because parents are more willing to pay for another year of schooling for their sons, indeed may encourage grade repetition in the belief, evidently mistaken, that it will increase the likelihood of their sons' passing the KCPE.⁷ In standard 7, the median age of boys for the sample of schools is 14.8, whereas for girls it is 14.4. In standard 8, the median is 15.5 for boys and 15.1 for girls. Thus, girls who drop out of primary school do so at a younger age than boys do.

The attendance rate is another outcome that was thought likely to reveal differences between boys and girls; however, there appears to be little variability in attendance levels between schools and, within schools, between boys and girls. Indeed, the data suggest a very high level of attendance for standards 7 and 8 in the week prior to the field-team visits, with 28 of all 36 schools having rates above 90 percent. The rates for the low- and high-performing schools are 91 and 95 percent, respectively. Given that the field-team supervisors frequently commented about students' absences resulting from unpaid fees⁸ and mentioned the poor quality of school records, these attendance data, provided by the head teacher, are of doubtful value.

For other important school outcomes, data are lacking or interpretation of data is ambiguous. For example, schools appear not to maintain accurate records of numbers of students who withdraw and their reasons for withdrawing. Thus, determining whether a girl has left school because of a pregnancy is not possible. In addition, promotion rates from grade to grade appear to be important. Yet policies for promotion vary; some high-performing schools have low promotion rates because the less capable students are held back so as to keep KCPE exam scores high.⁹ In contrast, weaker schools may have higher promotion rates because their promotion requirements are less stringent. Finally, in some schools, promotion may depend on timely payment of school fees, which is difficult for many parents.

Various Dimensions of School Quality

In selecting which dimensions of school quality to present here, the criterion for inclusion was that the dimension might affect girls and boys differently or might be differentially available to them.

Material Inputs

Various material inputs are thought to affect school quality, including the availability of basic amenities, the presence of instructional materials, access to and quality of basic facilities, and curriculum beyond the core (Lockheed et al., 1991; Heyneman and Loxley, 1983). Facilities and materials that might have a disproportionate impact on girls' attendance and performance at school or those to which girls might have limited access are of particular interest here. In Table 3, data are presented for water and toilet facilities, sports facilities, and textbooks.

The quality of water and toilet facilities might affect adolescent girls more than boys because of menstruation. Given the average length of a Kenyan school day—approximately eight hours¹⁰—the adolescent girl who has her period may want to change her sanitary pads, cotton wool, or rags, and may need water to wash her hands. Although girls who attend high-performing schools are much more likely to have water on the premises—67 percent of these schools have water compared

Table 3 Material inputs to school quality, 33 primary schools, Kenya, 1996

Variable	Instrument	Low-performing schools (N = 21)	High-performing schools (N = 12)
Water			
Water at school (percent)	Inventory	38	67
Toilets (percent)			
Girls' toilet clean	Inventory	48	25
Barrier between girls' toilets	Inventory	67	83
Toilets secure from observation	Inventory	14	17
Boys observed hanging around girls' toilets	Inventory	14	58
Sports facilities			
Hours field used per day (number)			
By boys	Inventory	2.1	2.3
By girls	Inventory	2.3	2.7
Number of sports played			
By boys	Inventory	2.2	2.3
By girls	Inventory	3.0	3.2
Sports field used after school (percent)			
By boys	Inventory	48	25
By girls	Inventory	43	17
Textbooks (percent)			
Observed having text			
Boys/math & English	Observation	44	38
Girls/math & English	Observation	50	40
Boys/math only	Observation	47	47
Girls/math only	Observation	55	53
All recommended texts			
Boys	Student	11	16
Girls	Student	12	15

with 38 percent of low-performing schools—the toilet facilities are equally inadequate in both groups. Many are neither clean, functional, nor secure from observation. According to our data, 48 percent of girls' toilets are clean in low-performing schools and 25 percent in high-performing schools, with clean defined generously as "more than half of the facilities in good order, some stains, small amount of litter." Furthermore, only 14 percent of girls' toilets are secure from observation in low-performing schools. The high-performing schools do not fare any better, with only 17 percent being sufficiently private. The field teams were instructed to spend time near the toilets at each break and at lunchtime on each day of the two-to-three-day school visit. Boys were observed hanging around girls' toilets in 14 percent of low-performing schools and in 58 percent of high-performing schools. The field supervisors were explicit about the state of the toilets in their data-collection notes.

The toilets of this school are in a state of disrepair. The boys stand at the door and urinate while the girls are forced to go in. The wooden planks (the floor) look like they could give way any time. (*High parental education, high-performing school*)

The boys' school toilet is just after the girls' toilet. The deputy head teacher said they have now completed a new toilet for boys because they're mischievous to girls in or near the toilet. When pressed further to explain, he said boys are "cheeky" with the girls close to the toilet. (*Low parental education, low-performing school*)

Perhaps, considering the toilet facilities available in their homes, adolescent girls are not likely to expect anything better at school, and they appear to make do with what they have; only 5 percent of girls claim to have stayed away from school the last time they had their period. Although improving these facilities may not affect exam performance, doing so would certainly make life at school better for students.

Increasing emphasis is being put on girls' participation in sports, not only for the physical payoff but also for its potential social and emotional benefit. Because athletic facilities available to women worldwide are generally inferior (International Council for Health, Physical Education, Recreation, Sport, and Dance, 1996), in this study, girls were expected to be less likely to participate in sports. However, the measures of girls' access to sports facilities suggest that, in primary schools, girls are at least as likely as boys to participate. Three indices, which measure the number of hours sports fields are used during the school day, the sports played, and the proportion of schools where fields are used after school, indicate a small advantage for girls, with the

high-performing schools doing slightly better on the first two and the low-performing schools doing slightly better on use after school. However, the slight advantage for girls is entirely due to the widespread availability in Kenyan schools of netball, a sport played only by girls that is common in Britain and its former colonies and that requires less space than other sports.¹¹

Girls and boys should benefit equally from textbooks. Yet the question arises as to whether girls are as likely as boys to have them, especially when schools do not provide them but require that they be purchased. Parents may be more willing to invest in their sons' schooling, and girls may be at a disadvantage. Access to textbooks was measured in two ways. First, observers determined whether girls and boys had the textbook being used in the classes observed; second, students were asked whether they had all the required texts. Regardless of which measure is used, no relationship between textbook access and sex of the student was found; if anything, girls had a slight advantage. Neither girls nor boys had a full set of the recommended textbooks; only 16 percent of students had all recommended texts in high-performing schools and 11 percent in low-performing schools had them. In the mathematics classes observed, where presumably a text would be critical to performance, approximately half of the students had the text. In sum, with regard to the material inputs measured here, girls do not appear to be at a disadvantage relative to boys. The most striking observation to emerge is that, with the exception of students' access to water, high-performing schools are not better off materially than low-performing schools.

Opportunities to Learn

"Opportunities to learn" include those variables that capture, directly or indirectly, the amount of time devoted to learning. Although girls may not be expected to suffer disproportionately from a chaotic learning environment, the field supervisors' comments contain numerous references to the disorganized nature of many of the schools visited. These characterizations applied to both high- and low-performing schools as well as to schools with more- and less-educated parents. Frequently, head teachers were absent when the data-collection teams arrived and were reported to be away at meetings, tending to personal business, or going to funerals. Moreover, classroom teachers were often absent or late and classes were rescheduled, doubled up, or taught by other than the assigned teachers.

The factors considered here have a potential gender dimension or effect and include time devoted to chores, homework, and punishment, as well as class size, including distribution of boys and girls (see Table 4).

Table 4 Opportunities to learn, 33 primary schools, Kenya, 1996

Variable	Instrument	Low-performing schools (N = 21) (percent)	High-performing schools (N = 12) (percent)
Duties reported on previous day			
Menial chores			
Boys	Student	64	69
Girls	Student	73	81
Prefect/teacher assistant			
Boys	Student	12	8
Girls	Student	7	5
Homework			
Spent > 30 minutes on previous school day			
Boys	Student	56	60
Girls	Student	61	70
Students tutored in previous week			
Boys	Student	44	23
Girls	Student	40	39
Punishment			
Received any punishment on previous school day			
Boys	Student	26	16
Girls	Student	27	12
Type of punishment received ^a			
Assigned extra duties			
Boys	Student	2	1
Girls	Student	3	3
Assigned extra school work			
Boys	Student	2	2
Girls	Student	7	3
Caned/hit			
Boys	Student	17	10
Girls	Student	13	6
Reason for punishment ^a			
Didn't finish homework			
Boys	Student	4	4
Girls	Student	7	4
Performed badly on test or in class			
Boys	Student	7	5
Girls	Student	5	3
Spoke without permission			
Boys	Student	4	2
Girls	Student	4	3
Sex ratio			
Boys to girls, standard 7	Head teacher	1.1	0.8
Boys to girls, standard 8	Head teacher	1.5	1.0
Class size (N)	Observation	(36)	(36)

^a Percentages listed under the headings "type of punishment received" and "reason for punishment" do not equal, respectively, the total of all students who "received any punishment on previous school day." Too few other answers were given by respondents under these headings to be worth including.

Chores performed at school, particularly those that are more domestic in nature than others, may reduce time devoted to learning. The literature reviewed contains anecdotal accounts of girls performing more such duties at school than boys, mirroring their presumably greater responsibilities in the home. Students were provided with a list of duties. Some of these were more menial in nature, including preparing and serving food, running errands, and assisting teachers in their homes. Two were more academic—assisting teachers with younger students, and working as monitors or prefects. Assignment to perform the academic tasks supposedly is

based on school performance. Students were asked to indicate which tasks they had performed on the previous school day. A greater proportion of girls than boys, slightly more in high- than in the low-performing schools, are assigned menial chores. Moreover, girls are slightly less likely than boys to perform those duties designated for the better students.

If girls have more domestic responsibilities than boys do, they may have less time for homework. On the other hand, if girls are confined to home after school and boys are allowed more freedom, girls may use some of their free time to do more homework. Given that systematic information on adolescent mobility and use of time is rare for developing countries, a case could be made for either scenario. According to students' self-reports, girls do slightly more homework than boys do. The difference is greatest in high-performing schools, where 70 percent of girls did more than 30 minutes of homework the day before the interview, compared with 60 percent of boys.

In many developing countries, tutoring has become a major industry, whereby underpaid teachers supplement their salaries by coaching students for exams after school. If parents are more willing to invest in their sons than in their daughters, tutoring may be more common among boys. However, if tutoring is more prevalent among weaker students, and girls have more academic difficulties, then tutoring may be more widespread among girls. Students were asked whether, during the week prior to the interview, they were "given private tuition in any subject by private arrangement." The results indicate that considerable numbers of students are tutored. Although virtually the same proportions of girls and boys are tutored in low-performing schools, girls are more likely to be tutored in high-performing schools, which may account for their better performance.

Punishment is also included under "opportunities to learn," because time spent reprimanding or hitting students, for whatever reason, is time lost to teaching. Although the classroom observers saw few teachers disciplining students in class—students and teachers, being observed, were on their best behavior—in interviews, substantial numbers of students reported being disciplined. Moreover, the observers saw students being punished outside of classes, perhaps when the teachers did not realize they were being observed. The supervisors' comments about caning reveal, in some cases, a certain amount of brutality taking place at school:

The school is run by the cane. Students get caned for small offenses or at times, like we witnessed, for no reason at all. For example, a boy was being punished by one teacher, so as he stood up to go, another teacher grabbed him and started

caning him and then another. (*Low parental education, low-performing school*)

As usual, like in most Nakuru rural schools, the school is run by the cane. Students are caned severely for minor offenses and for getting low marks. The girls are caned on the thighs and hands. The students are so tense that when they see teachers passing, you can just see fear in their eyes. (*High parental education, high-performing school*)

The classroom observers also commented about punishment:

Three girls were missing writing materials. The teacher knocked their heads as a punishment for forgetting books at home. She promised to “deal” with them after the class. (*High parental education, low-performing school*)

All the students put up their hands claiming to have done it [the homework] but upon checking, the teacher discovered that some were lying. He pinched one girl on the arm, then remembered I was there, looked at me quickly, and stopped checking on the homework. (*High parental education, low-performing school*)

Only two boys had done an exercise she [had] asked them to attempt for homework the previous day. She was very annoyed and told them that the only reason why she did not punish them was because there was a visitor in the class. She said ‘otherwise, you know what would have happened. But she [the observer] will go and then we will sort this out.’ (*High parental education, low-performing school*)

More than one-fifth of boys and girls indicated they had been punished on the previous school day. More students were punished in low- than in high-performing schools. No difference was found between boys and girls in the proportion reporting punishment in low-performing schools and only a slight difference in high-performing schools. This finding was surprising, because boys are generally thought to be less well-behaved than girls (Anderson-Levitt et al., forthcoming). However, as the observers’ reports affirm, punishment is not given just for breaking school rules or misbehaving in class, but also for academic difficulties, and girls did not perform as well as boys did. The principal reasons students reported for being disciplined are performing badly in class or on a test, not finishing homework that had been assigned, or speaking in class without being called on by the teacher. The primary form of discipline was caning or hitting. Girls were more likely than boys to be given extra duties or school work; yet even for them,

the most common form of punishment was corporal—13 percent of girls in the low-performing schools indicated that they had been caned on the previous school day, compared with 6 percent in the high-performing schools.

Although the final set of variables in this section—class sex ratio and class size—are not strictly measures of time devoted to instruction, they may affect other aspects of the “opportunity to learn.” Some evidence is found that girls function better in single-sex schools, whereas boys do better in mixed schools (Jimenez and Lockheed, 1989; Lee and Lockheed, 1990). However, the authors know of no study in a developing-country setting that examines whether the sex ratio in mixed schools affects girls’ performance. The data presented here suggest that, where girls outnumber boys, girls indeed fare better, perhaps because they feel more comfortable or because the atmosphere is more conducive to learning. The sex ratios also indicate that there are fewer girls relative to boys in standard 8 than in standard 7. This finding is expected, because nationally, girls are more likely to drop out prior to taking the KCPE exam (Makau, 1994). Moreover, girls appear to drop out more commonly in the low-performing schools.

Class size is included here because, theoretically, the more students in a class, the less time the teacher can devote to each student. Considering the supposed passivity of girls, class size might affect their performance more than it does that of their male peers. Although the number of girls relative to boys apparently affects girls’ academic achievement, absolute numbers appear not to matter, a finding in accordance with earlier studies (Lockheed et al., 1991). On average, the number of students in classes observed by the field-workers is the same in high- and low-performing schools. If most of class time is devoted to the lecture or group response to teachers’ questions (see below), the number of students may be expected to be irrelevant for academic performance.

Thus, in contrast to the material inputs reviewed above, the factors considered under opportunities to learn—chores, homework, tutoring, punishment, sex ratio, and class size—have slightly different effects on girls and boys, particularly in high-performing schools. Girls do more homework, do more menial chores, get caned less, and are less likely to be assigned tasks for which selection is honorific.

School and Classroom Dynamics

Included in the school and classroom dynamics category are variables that reflect day-to-day life in the classroom and the school at large, namely teachers’ attitudes and behavior, as well as interactions among students, and between teachers and students. The investigators hoped

that classroom observation would be particularly revealing for this set of variables. However, many teachers were uneasy about being observed and were convinced, despite the best efforts of the field teams, that they were being inspected. As is clear from comments teachers made in class about student punishment and from the difference between students' reports of punishment and punishment that was observed, what the field-workers saw was atypical. Observation outside classes, where field-workers were less obtrusive, appears to have been more successful, especially in exposing the negative attributes of the schools.

Teachers' Behavior

In this sample of Kenyan schools, as in most developing-country schools that have been investigated, the principal mode of teaching is to lecture using the blackboard or to fire rapid questions at students when an individual or group response is expected. Largely absent is the kind of free-floating discussion common in many Western classrooms, where students are at liberty to challenge each other and the teacher. Some suggestion has appeared in the literature that girls learn best in a cooperative environment in which students share information and help one another (Sadker and Sadker, 1995). Although the observers were asked to indicate whether any class time was allocated to group work, almost no instances were noted (see Table 5). Indeed, Fuller and Snyder's (1991) aptly named "chalk and talk" approach was universally observed in the sampled classrooms (data not shown).

The observers were asked to indicate how class time was allocated, and in addition, they were asked to mark down each interaction between a student and teacher

and to determine its nature. The goal was to assess whether teachers pay more attention to boys and provide them with more encouragement or whether they treat girls and boys equitably. In constructing variables to measure "good interactions" an attempt was made to include all events recorded by the observers that had a positive or supportive tone—or, at least, those that did not have a negative one. Thus, such events included instances of students reading aloud; students making presentations in front of the class; teachers instructing or explaining; teachers acknowledging, extending, amplifying, or praising correct answers; teachers completing, explaining, or seeking responses to students' questions; and teachers positively acknowledging, expanding upon, or encouraging students' comments. Although teachers have more good interactions with boys than with girls in both low- and high-performing schools, fewer good interactions with students, particularly girls, were observed in high-performing schools, which is puzzling. That the data on student-teacher interactions are not particularly revealing is undoubtedly attributable to the pedagogical style in Kenyan schools. This situation is similar to that in Togo, where the classroom dynamic has been characterized by the absence of "direct communication [which] limits teacher/student interactions of any kind" (Biraimah, 1980: S207).

The observers were given a short gender-training course prior to the fieldwork. Their comments about what they saw and heard are perhaps more revealing of underlying attitudes toward girls than of the behaviors they tried to quantify:

The teacher told girls that they can never be household heads. This was prompted by the one girl who could not read the comprehension loudly and clearly. (*High parental education, high-performing school*)

Most questions were directed to boys and not girls. The teacher told the girls that if they do not improve, he could foresee them joining the local Mathenge technical institute instead of good boarding schools or institutions. . . . The teacher constantly told the class that the girls do not use common sense and that is why they might not make good sales persons. 'Lazy salesmen like some of you girls get very little commission,' the teacher told the class. (*High parental education, low-performing school*)

When the girls gave wrong answers, the teacher was very unhappy and pointed out that 'girls do not understand because they do not use their heads.' When marking the exercise, the teacher concentrated [on] showing girls examples he had already written on the board. When I inquired

Table 5 School and classroom dynamics: teachers' behavior, 33 primary schools, Kenya, 1996

Variable	Instrument	Low-performing schools (N = 21)	High-performing schools (N = 12)
Class time			
Class time devoted to group work	Observation	0	0
Student-teacher interaction (number)			
Good events ^a			
Involving boys	Observation	15.7	14.9
Involving girls	Observation	15.2	11.4
Student report of teacher behavior (percent)			
Teacher discouragement			
Reported by boys	Student	16	12
Reported by girls	Student	16	8
Equal treatment			
Reported by boys	Student	84	84
Reported by girls	Student	87	89
Receipt of academic prizes			
Boys	Head teacher	8	9
Girls	Head teacher	4	4

^aBecause the duration of classes and the composition of classes by sex vary, the number of good events was adjusted to a "standard" class of 40 minutes in duration with 20 students of each sex.

about the extra attention, the teacher said that girls in 8A are weak and lazy. (*High parental education, low-performing school*)

One class was reading a play and different students were assigned different roles. The play was about a young girl who had been abducted and beaten by a young man that her parents had chosen to marry her, but whom she had rejected. She then brings this young man to court and the play is about the hearing of the court case. The thing that struck me most about this case is that, first of all, the girl appeared helpless and the prosecutor even accused her of having gone to the young man's house willingly [implying that if this was true, then she deserved the beating]. Another thing that struck me was that the only female characters were Rukia [the girl who was abducted], her mother, and a witness. Their parts were very short. However, the teacher chose boys for the parts of the magistrate, court clerk, prosecutor, and policeman. When the teacher asked for volunteers for the part of policeman, a girl put her hand up and the teacher asked, 'Can you be a policeman? You do not have a commanding voice.' This did not make sense because the boy he chose sounded more or less like the girl he had rejected. (*High parental education, low-performing school*)

The awarding of academic prizes also appears to be biased in favor of boys. Whereas boys would be expected to earn twice as many prizes as girls in low-performing schools, where approximately twice as many boys score higher than B- on the KCPE, little difference should be found in the distribution of prizes in high-performing schools. Yet 9 percent of boys in high-performing schools earned prizes, compared with 4 percent of girls.

Although some evidence exists that girls learn better in single-sex schools, the question of whether girls' performance is enhanced when more of their teachers are women has not been examined. The data indicate that the ratio of male to female teachers is highest in low-performing schools. Indeed, more than two times (2.3:1) as many men as women are teachers in low-performing schools and nearly even numbers (1.3:1) of male and female teachers are found in high-performing schools.¹² As no systematic selectivity in assignment of teachers to schools has been observed, an investigation was conducted, through an examination of answers to attitudinal questions, concerning what about the presence of more female teachers may account for better performance among girls (see Table 6).¹³

Teachers' Credentials

In examining teachers' credentials and attitudes, the results are reported using the teacher, rather than the

Table 6 School and classroom dynamics: teachers' credentials and attitudes, 33 primary schools, Kenya, 1996

Variable	Instrument	Low-performing schools (N = 21)		High-performing schools (N = 12)	
		Male	Female	Male	Female
Teachers' credentials					
Teacher < P1 level	Teacher/ head teacher	12	19	17	0
Teacher = P1 level	Teacher/ head teacher	77	76	70	81
Teacher > P1 level	Teacher/ head teacher	12	5	13	19
(N)		(60)	(21)	(30)	(16)
Teachers' attitudes toward gender of students					
Prefer teaching boys	Teacher	17	43	21	19
Prefer teaching girls	Teacher	2	5	7	0
No preference	Teacher	81	52	71	81
(N)		(54)	(21)	(28)	(16)
Teachers' attitudes toward math					
Math important					
For boys	Teacher/ head teacher	80	48	73	81
For girls	Teacher/ head teacher	72	38	67	75
Math easier					
For boys	Teacher/ head teacher	68	62	67	69
For girls	Teacher/ head teacher	0	0	0	0
(N)		(60)	(21)	(30)	(16)
Teachers' attitudes toward schoolgirl pregnancy					
Pregnant girls should be forced to leave school	Teacher/ head teacher	80	81	87	94
Boys who make girls pregnant should be expelled	Teacher/ head teacher	13	5	10	6
Girls should be allowed to return to same school after delivery	Teacher/ head teacher	33	14	20	25
(N)		(60)	(21)	(30)	(16)

school, as the unit of analysis, in part because the gender composition of the sample of teachers in each school may not be representative of the actual gender makeup of teachers at that school. Moreover, the number of teachers sampled is small, varying between zero and four for each sex at different schools; hence school-based estimates are prone to considerable error.

In Kenya, although teachers in primary schools are not required to obtain a university degree, all teachers must have formal training. The most common certification level is designated P1, which can be obtained if one has achieved a grade of C or better on the Kenya Certificate of Secondary Education examination and has attended teacher training college for two years or has received a merit promotion from a lower level. Levels below P1, that is, P2, P3, and P4, which are given to those who enter the system without completing secondary school, are increasingly being phased out. Levels above P1 can be obtained either through attendance at univer-

sity or through merit promotions if a teacher has been at a grade for at least five years. The majority of teachers in the schools visited for this study have certification at the P1 level. The certification levels of male teachers do not vary much in high- and low-performing schools—although a greater proportion of those in high-performing schools are certified below P1; nevertheless, greater variation is found for female teachers, and it is in the expected direction. Female teachers in high-performing schools have higher levels of certification than do their counterparts at low-performing schools, or than do their male colleagues at high-performing schools.

Teachers' Attitudes

Preferences for teaching boys or girls were first explored. To the extent that teachers have a preference, they favor boys, as shown in the table. What is most striking is that female teachers at low-performing schools are more favorably disposed to teach boys than are their male counterparts at all schools and their female counterparts at high-performing schools. More than 40 percent of women on the faculty of low-performing schools prefer teaching boys. In high-performing schools, 81 percent of female teachers say they have no preference, whereas the remaining 19 percent are partial to boys. This proportion is roughly the same as that of male teachers in low-performing schools and not much different from that of male teachers at high-performing schools, with the exception that, among the latter, a few more prefer teaching girls.

To determine what teachers think about the importance of education for girls and boys and their respective capacity for learning, they were asked such questions as what level of education girls and boys should reach, what subjects would provide the knowledge and skills to prepare boys and girls for adult life, and what subjects boys and girls find easier. Given the low numbers of Kenyans who are able to attend university, the answers to questions about desirable level of education reveal a clear case of wishful thinking. Ninety-six percent of teachers think girls should go to university and 97 percent think boys should go (results not shown). Greater variation was found in the responses to questions on which subjects are important for each study. For example, regarding math, teachers' views about its importance differed for boys and girls. In high-performing schools, a slight tendency was found to think math more important for boys than for girls (73 percent compared with 67 percent for male teachers and 81 percent compared with 75 percent for female teachers). In low-performing schools, teachers also were apt to think math somewhat more important for boys, although female teachers in these schools, in contrast to their male counterparts, were much less likely to indicate that math is

important for both sexes. In keeping with conventional stereotypes, not one teacher in any school said that math is easier for girls.

Finally, attitudes toward schoolgirl pregnancy were explored. Teachers were asked whether girls who become pregnant should be allowed to stay in school until just before they deliver. The vast majority indicated that girls should be forced to leave, with teachers in high-performing schools, particularly women, greatly in favor of their being expelled. On the other hand, only a small proportion of teachers—more male than female—felt that a boy should be made to leave if he were found to have impregnated a girl, a clear case of the double standard at work. Not only do teachers think pregnant schoolgirls should be expelled, most think they should not be allowed to resume their education at the same school after childbirth.

Disaggregating teachers' responses by sex is not particularly illuminating, at least as far as explaining why girls perform better in schools with more female teachers. Female teachers are not more enlightened than their male counterparts and, in low-performing schools, have a clear preference for teaching boys. Although female teachers are thought to serve as role models for girls and their very presence is thought likely to improve female participation in school (Hyde, 1997), no evidence is offered from other studies that female teachers are more sympathetic to or encouraging of their female pupils (Stromquist, 1989; Anderson-Levitt et al., forthcoming); nor is any found here.

Harassment

Focus groups held with adolescents aged 12–14 and 15–19 in the same districts about six months prior to the school survey suggested that considerable sexual harassment takes place at school.¹⁴ Participants discussed sexual relationships between male and female students, between male teachers and female students, and between female teachers and male students. The following quotes illustrate the experiences of the adolescents in school:

Boys come and hold our breasts in class even when the teacher is there; he pretends that he is packing something. (*Girl, 15–19, Kilifi*)

This abusive behavior from boys happens everywhere, in the streets, in school, and in discos, and it is normally boys we know in school and at home. (*Girl, 15–19, Nakuru*)

Some touch their breasts even in classrooms. (*Boy, 15–19, Nakuru*)

They fondle the girls' breasts in the classroom, kiss them, and tickle them, by poking them in the ribs. (*Boy, 15–19, Kilifi*)

A girl was followed by a teacher. The teacher convinced her that he marks the KCPE composition so he would give her 30 or 33 out of 40. She gave in because of that, and they had sex. (*Girl, 15–19, Kilifi*)

Mostly relationships between teachers and girls are found in primary school due to immaturity on the part of the girls who fall for the teachers just because they are smartly dressed. (*Boy, 15–19, Kilifi*)

In situations where female teachers have affairs with boys, the teachers give the boys money and also favor them in exams; some female teachers have affairs with boys who come from rich families. (*Boy, 15–19, Kilifi*)

Maybe if the girl doesn't want sex, the headmaster might force and rape her. (*Girl, 12–14, Nakuru*)

When the girl goes to visit the teacher, the teacher will force her. (*Girl, 12–14, Nakuru*)

That boys and girls from several districts described the same behaviors (for example, touching of breasts in class) indicates that these are familiar occurrences. These findings suggested that the issue of harassment should be explored in greater depth. Students were asked whether they had experienced harassment and the field teams recorded whether harassment was detected outside classrooms, in hallways, or in the school yard. Although some boys were expected to report that they were harassed at school, surprisingly, nearly the same proportion of boys and girls reported that they had been pressured to have sex (see Table 7). Interestingly, the observers noticed no sexual harassment of boys at any school, but saw instances of sexual harassment of girls at 14 percent of low-performing and 17 percent of high-performing schools.

Whereas harassment of boys of a nonsexual nature was observed in a few schools, harassment of girls was seen in 62 percent of low-performing and 42 percent of high-performing schools. When boys and girls were asked about harassment in the student interviews, specifically whether they were teased, hit, tripped, or blocked by a member of the opposite sex, again there was more reporting of harassment of girls. An index was created ranging from zero to four measuring the prevalence and intensity of two types of harassment, verbal and physical.¹⁵ Both boys and girls were also asked whether harassment of girls occurred at the toilets, specifically whether boys tease girls or try to watch girls or block them from using the toilet. Both boys and girls indicated that there was less harassment of the opposite sex than that sex reported of itself. For example, the index of girls' reporting of girls' harassment in high-performing schools is 1.33, whereas the index for boys' reporting of girls' harassment is .62.

Table 7 School and classroom dynamics: harassment, 33 primary schools, Kenya, 1996

Harassment	Instrument	Low-performing schools (N = 21)	High-performing schools (N = 12)
Pressured to have sex (percent)			
Boys	Student	18	16
Girls	Student	12	17
Sexual harassment (percent)			
Boys	Inventory	0	0
Girls	Inventory	14	17
Nonsexual harassment (percent)			
Boys	Inventory	5	8
Girls	Inventory	62	42
Reporting of boys' harassment (index 0–4)			
By boys	Student	0.69	0.33
By girls	Student	0.33	0.35
Reporting of girls' harassment (index 0–4)			
By boys	Student	1.04	0.62
By girls	Student	1.32	1.33
Reporting of girls' harassment at toilets (percent)			
By boys	Student	8	2
By girls	Student	12	14
Pregnancy checks (percent)			
Reported by head teacher	Head teacher	14	8
Reported by girls this term	Student	3	2

Finally, the field team determined whether schools required girls to undergo pregnancy tests, a practice reported in other African countries (Hyde, 1997) that is labeled here "administrative harassment," because such tests can be seen as an unwarranted intrusion into girls' lives. The head teachers were asked whether girls at their schools are checked for pregnancy, and the girls were asked whether they had been checked for pregnancy after they returned from the last Easter holiday. On average, only a small proportion of students reported they had been checked the past term, although the practice is not rare, at least as reported by head teachers at the low-performing schools. The field-team supervisors discussed the issue of pregnancy tests with head teachers:

One head teacher told me that girls who are suspected to be pregnant are referred to the clinic for [a] pregnancy test. I [the supervisor] questioned what their criteria for suspicion were. He said that if a girl was once active in sports and suddenly became inactive, then she was a suspect. Also [he] mentioned that if she has a mild infection like fever which went on for a few days, she was to be checked. The other reason was that if a girl's performance drops suddenly, then she had something on her mind, which certainly, according to the head teacher, was pregnancy; the last reason was change in physical appearance. (*Low parental education, low-performing school*)

The head teacher believes that pregnancy is not a

major problem; but what usually happens is that when somebody is suspected, she is called by the head teacher and asked whether she is pregnant. If she denies, she is closely monitored for any changes in body. Most people who are suspected are normally girls who grow fat within a short period of time. (*High parental education, high-performing school*)

Although observers did not detect teachers behaving differently toward boys or girls or between high- and low-performing schools, interviews with head teachers, with other teachers, and with students, observers' reports from outside the classrooms, and focus-group discussions in the same districts from which the school data were collected indicate that some schools—perhaps even many—do not provide a friendly environment for adolescent girls. To the extent that teachers would rather teach one sex than the other, they prefer to teach boys. Teachers are eager to expel pregnant girls, but are tolerant of boys who impregnate girls. Harassment, both sexual and, more often, nonsexual, is common. Yet this unfriendly environment appears to be unrelated to students' performance, at least as measured by the KCPE exam. Although some girls manage to do well on exams despite the hostile atmosphere, the question remains whether these schools undermine girls in other ways. As noted above, the development of cognitive competency is but one element marking a successful transition to adulthood. The fulfillment of educational goals, the avoidance of pregnancy, and the development of self-esteem are others.

Family Life Education

The final input explored in this study was the availability of and attitudes toward family life education (FLE) in schools, as well as the reproductive health knowledge of students (see Table 8). While FLE is not an examinable subject and, therefore, may be taken less seriously by students and teachers alike, not providing information on reproductive health potentially exposes adolescents to considerable risk in societies such as Kenya's, where rates of sexual activity among young people are high (Bledsoe and Cohen, 1993). Given that girls are at risk of pregnancy and that the incidence of HIV is higher for adolescent girls than boys in East Africa because of the large age differences between sexual partners, girls are particularly disadvantaged by a lack of reproductive health information (Nunn et al., 1994; Barongo et al., 1992). Although all of the head teachers claim that "adolescent growth and development"¹⁶ is taught in school and most teach something about physical changes during puberty, whether the information transmitted is of any value is questionable. No school, either low- or

Table 8 Characteristics of family life education courses, 33 primary schools, Kenya, 1996

Characteristic	Instrument	Low-performing schools (N = 21) (percent)	High-performing schools (N = 12) (percent)
Curriculum			
Adolescent growth and development	Inventory	100	100
Development, change, puberty	Inventory	81	83
Biology, reproduction	Inventory	33	50
Boy-girl relations	Inventory	33	42
Consequences of irresponsible behavior	Inventory	19	8
Family planning	Inventory	0	0
STDs	Inventory	5	17
Teacher's attitudes			
Approves teaching of			
Adolescent growth and development	Teacher/head teacher	90	90
Puberty, menstruation	Teacher/head teacher	88	90
Reproductive physiology	Teacher/head teacher	86	83
AIDS/STDs	Teacher/head teacher	88	90
Sexuality	Teacher/head teacher	58	44
Family planning	Teacher/head teacher	49	35
Student's knowledge			
Percent of correct responses:			
AIDS/STD questions			
Total	Student	57	63
Boys	Student	60	65
Girls	Student	54	59
Pregnancy-risk questions			
Total	Student	34	39
Boys	Student	37	37
Girls	Student	30	40
Student's knowledge by whether curriculum covers STDs		Not taught (N = 30)	Taught (N = 3)
Percent of correct responses			
AIDS/STD questions			
Boys	Student	62	62
Girls	Student	55	60
Student's knowledge by whether curriculum covers biology/reproduction		Not taught (N = 20)	Taught (N = 13)
Percent of correct responses			
Pregnancy-risk questions			
Boys	Student	38	36
Girls	Student	32	36

high-performing, provides information on family planning, and only a few (one low-performing, two high-performing) teach anything about sexually transmitted diseases.

An examination of texts used in secondary school for the Social Education and Ethics course, a subject for which examinations are given and that is supposed to convey useful information on the problems encountered by adolescents, provides further confirmation that little of use on this topic is being conveyed in primary schools. The texts discuss physical changes at puberty but do not discuss sexuality, pregnancy, STDs, or contraception. Students are simply admonished to refrain from sex be-

fore marriage either because it can be dangerous or because, while pleasurable, it is morally reprehensible:

. . . even in the African traditional setup friendships between boys and girls were encouraged. . . . But what kind of friends do we need, and what for? . . . We should . . . try to make friendships with people who are unlikely to influence us into acts that may bring us problems. . . . Quite often young men tend to relate to young girls mainly for sexual ambitions and benefits. Common results of such type of relationships are often disease and pregnancy, which may easily have negative effects on our health and education. Therefore, despite the growing sexual urge that is common in this stage of development, refrain from sexual indulgences [sic] need to be understood as the best way to avoid the social and health problems of sex (Masolo and Ongonga, 1987: 36).

Another text uses a food analogy to make the point that sex is for procreation and thus should not be engaged in before marriage:

We must eat the appropriate amounts and at appropriate times. It is not good, for example, for a four-month-old baby to eat Kentucky Fried Chicken with *ugali* or to eat *chapati na kima*. In order to be pleasurable and nourishing, good food needs to be eaten only by people of a proper age in correspondingly appropriate amounts. . . . In ethical terms, this example shows us a very important principle: that the goodness of any act depends on the amount of objective good that it can produce at any given time. . . . Now, where does sex before marriage lie? Generally, sex is a pleasurable act. But like food, its value is not just pleasure. It also has a purpose or major value. . . . The purpose of sex is to raise children. . . . is sex permissible just between any adults? No. Why not? Because . . . its main purpose is to raise children. (Masolo, 1988: 43–44; emphasis in original)

In addition to determining what topics were included in the adolescent growth and development curriculum, teachers were asked whether they thought particular subjects should be taught. Most thought that discussions of puberty, menstruation, and reproductive physiology should be included in the primary-school curriculum. Although information on STDs is not being taught in the vast majority of schools currently, most teachers would like this topic to be covered. Far greater disagreement is found concerning sexuality and family planning. Fewer teachers are in favor of seeing these subjects brought into the curriculum. Those who work in

low-performing schools are more likely to approve of them, perhaps because they detect a greater need. The following comments illustrate the range of attitudes toward family life education.

The head teacher is only for family life education if it is taught by a committed Christian who is also a teacher, whether they are experimenting or not. . . . She is strongly against sex education. (*High parental education, low-performing school*)

The curriculum master is of the opinion that sex is a very big problem here that should be checked. Gave an example of two girls who have children, one gave birth only three months ago and is still breastfeeding. She is a standard 7 girl, aged 14. He says they should be taught everything in family life education as this would help reduce the rate of pregnancy. (*Low parental education, low-performing school*)

The head teacher is against family planning being taught in school, saying that this might make the students experiment. He, at the same time, says that they are even experimenting without necessarily being taught about family planning. (*High parental education, high-performing school*)

In the student instrument, 11 knowledge questions were asked about transmission and prevention of STDs including AIDS, and three about pregnancy risk, including when during the month a woman is most likely to become pregnant. From these questions two scores were computed, one measuring knowledge of AIDS and STDs and the other knowledge about pregnancy risk. Although students are moderately well informed about AIDS and STDs, many are ignorant about when and under what circumstances pregnancy is likely to occur. In the sample, the score for AIDS and STDs is 57 percent correct in the low-performing schools and 63 percent correct in the high-performing ones. The corresponding scores for pregnancy are 34 percent and 39 percent (see panel 3, Table 8). Girls are slightly less knowledgeable than boys. Surprisingly, compared with students in schools where the subject is not taught, students' reproductive health knowledge in schools that ostensibly include the material tested is not much greater, and for boys is about the same (see bottom panel of the table).

Finally, although a positive relationship exists between girls' cognitive ability, at least as measured by the KCPE, and their knowledge of reproductive health, it is weak; for boys, it is nonexistent. This finding suggests that basing the measurement of school effectiveness solely on students' performance on academic exams neglects a critical dimension of adult functioning, a dimen-

sion that can have consequences for their health as well as for their staying in school.

Conclusions

The data on Kenyan schools presented here depict a harsh environment for adolescent girls and boys in the final years of primary school, when they are preparing for a critical exam that will determine whether or not they will be able to continue to secondary school. In schools that range over the spectrum in terms of performance and of parents' educational status, disorganization coexists with strict punishment, minimal comforts are lacking, learning materials are scarce, learning occurs by rote, and sex is practiced but not taught. Girls score lower than boys in the national KCPE exams, especially in low-performing schools. Teachers' attitudes and behavior reveal lower expectations for adolescent girls, traditional assumptions about gender roles, and a double standard concerning sex.

The focus in this article has been on gender differences. No attempt has been made to identify all the factors that place a school in the high- or low-performing category, but instead, means were sought to determine in which ways low- and high-performing schools may differ in their treatment of girls. Girls are found to suffer from negative attitudes and discriminatory behavior in both sorts of schools. The high-performing schools employ more female teachers, who presumably serve as role models for girls, and these teachers are more even-handed in their attitudes than their female counterparts in the low-performing schools, who strongly prefer teaching boys. Other evidence suggests, however, that even girls in the high-performing schools are less likely than boys to experience good interactions with teachers or to receive other types of encouragement such as school prizes. Thus, "better" schools, measured solely according to exam performance, are not necessarily more gender-equitable even if they are better able to prepare students for the KCPE exam. Indeed, teachers in the high-performing schools are even less supportive of teaching sexuality or family planning than are teachers in the low-performing schools, probably a reflection of fears among teachers in schools that do relatively well that family life education could introduce a disruptive element into the school environment.

Girls have much to gain from doing well in school, even if they are treated poorly. Those who have a chance to go on to secondary school will reap significant returns from better job and marriage opportunities. Unfortunately for most students in Kenya, a primary certificate is a terminal degree. The goal of primary school is to

provide students with practical skills. To the extent that primary schools limit students' access to information about the practical realities of sex and family planning, it does them a disservice, particularly girls, who are more likely to suffer by not having accurate information. Furthermore, by demeaning girls' intelligence and not providing them with special encouragement to counteract the sexual stereotypes they encounter outside of school, primary-school teachers limit girls' incentives to continue their education and to delay marriage and childbearing.

Notes

- 1 Three of the primary schools in Nakuru are single-sex schools (two are for girls only and one is for boys). Therefore, data from these schools cannot be included when gender differences are being examined.
- 2 The two all-girls' schools fall into the high-performing category; indeed, among the 36 schools, one is the highest scoring, the other, the ninth highest.
- 3 To determine whether a school should be categorized as high or low on exam scores, the proportion of girls scoring B- and above in six out of seven of the required papers was averaged together. The Kiswahili exam was not included in the average because performance on this paper did not correlate highly with performance on the other six (correlation coefficients between .19 and .33).
- 4 If the student knew the education level of only one parent, that information was used and weighed so that the parent counts twice. Students who did not know the education level of either parent were considered missing. In 24 of the 33 schools, some students did not know the education level of either parent. In only five of those schools, however, did the number of students without knowledge of parental education reach 10 percent and in no case did it exceed 20 percent.
- 5 The score used to compare the sample to Kenya as a whole is not the score used to divide the sample into two groups. (See note 3.) Here Kiswahili was added. Moreover, boys' scores were also included.
- 6 The supervisors made numerous comments about the poor quality of the student data maintained by the school. The supervisor stated upon arrival at a Kilifi primary school: "It was noticed that just like in the previous two schools, records on age and enrollment/promotion were not . . . accurate." Thus data on students' ages discussed here come from the self-administered student questionnaire. Because students were randomly selected for the interview and, in small schools, constitute the entire student body in the standards under consideration, the age data derived from the student sample should be representative of all students who attend school unless absence is selective according to age.
- 7 The reality is that, although resitting the exam may be beneficial, grade repetition apparently is not (Appleton, 1995b).
- 8 In one Nakuru school, the supervisor commented: "Most classes were empty or with very few students. This she [the home science teacher] said was because pupils had been sent home for school fees; most parents don't bother to pay fees on time during weeding season from mid-April to mid-May because they need an extra hand at home. This, she said, was true for both girls and boys."

- 9 About one school in Nakuru the supervisor said: "Repeaters are so many in this school. This is because [of the] importance . . . attached to good performance, so that only the best students are promoted."
- 10 For the 28 primary schools that have one shift, the average school day is more than eight hours long; for the eight double-shift schools, the school day is about four hours long. Some of the time in which school is open is devoted to "prep," for which students are left alone to do schoolwork. Typically, the field teams arrived at the schools between 7:00 and 7:30 in the morning to find the students busy with prep. Classes begin around 8 A.M. and end around 4 P.M., although students often stay later. Speaking about a primary school in Nakuru one supervisor said: "The students work very hard getting to school by 7 A.M. and leaving at 6 P.M. They really complain that they don't have their own free time."
- 11 Interestingly, in an article about Tegla Loroupe, the Kenyan winner of two New York City Marathons, *The New York Times* stated that "In the East African nation, many girls compete in sports through high school, but their careers often reach a premature finish line marked by the societal expectations of marriage and domestic subservience" (Longman, 1996).
- 12 In two low-performing schools, a problem relating to the data on the sex distribution of teachers arose; thus, the data presented refer to 19 of 21 schools.
- 13 Teachers are assigned to schools centrally through the Teacher Service Commission. Because transfers are permitted, more staff turnover occurs in less desirable regions or schools.
- 14 These focus groups were held with adolescent boys and girls aged 12–19 in November 1995 to aid in developing the structured questionnaires for the school and community surveys.
- 15 The measures were 0 = no harassment; 1 = either verbal or physical harassment occurring occasionally; 2 = both verbal and physical harassment occasionally or one of them often; 3 = one type often and the other occasional; and 4 = both types often.
- 16 Because of the sensitivity surrounding family life education in Kenyan schools—periodically the President makes public statements denouncing it and there has been a widely publicized public burning of FLE texts in Nairobi—the authors of this study were instructed by Ministry of Education colleagues to use the expression "adolescent growth and development." In the top panel of Table 8, where courses taught are referred to, the subjects are those named by head teachers or other teachers as part of the adolescent growth and development curriculum at the school. Because no standard curriculum is used, similar topics are grouped together for data analysis. Thus, if "development" or "change" or "puberty" was taught, these were put into one category.

References

- Abraha, Seged et al. 1991. "What factors shape girls' school performance? Evidence from Ethiopia." *International Journal of Educational Development* 11,2: 107–118.
- Ainsworth, Martha, Kathleen Beegle, and Andrew Nyamete. 1996. "The impact of women's schooling on fertility and contraceptive use: A study of fourteen sub-Saharan African communities." *World Bank Economic Review* 10,1: 85–122.
- Anderson-Levitt, Kathryn M., Marianne Bloch, and Aminata M. Soumare. 1998. "Inside classrooms in Guinea: Girls' experiences." In *Women and Education in Sub-Saharan Africa*. Marianne Bloch, Josephine Beoku-Betts, and Robert Tabachnick. Boulder, CO: Lynne Reinner Publishers.
- Appleton, Simon. 1991. "Education." In *Public Services and Household Allocation in Africa: Does Gender Matter?* Eds. Simon Appleton et al. Washington, DC: Women in Development Division, World Bank.
- . 1995a. "Gender Inequalities in Human Capital Accumulation: Evidence from Two African Countries." *Centre for the Study of African Economies Working Paper*. Oxford: Oxford University Press.
- . 1995b. "Exam determinants in Kenyan primary school: Determinants and gender differences." McNamara Fellowships Program, Economic Development Institute of the World Bank. Washington, DC: The World Bank.
- Barongo, Longin R. et al. 1992. "The epidemiology of HIV-1 infection in urban areas, roadside settlements and rural villages in Mwanza Region, Tanzania." *AIDS* 6, 12: 1,521–1,528.
- Biraimah, Karen Coffyn. 1980. "The impact of Western schools on girls' expectations: A Togolese case." *Comparative Education Review* 24, Supplement: S197–S209.
- . 1989. "The process and outcomes of gender bias in elementary schools: A Nigerian case." *Journal of Negro Education* 58, 1: 50–67.
- Bledsoe, Caroline H. and Barney Cohen. 1993. *Social Dynamics of Adolescent Fertility in Sub-Saharan Africa*. Washington, DC: National Academy Press.
- Davidson, Jean and Martin Kanyuka. 1992. "Girls' participation in basic education in southern Malawi." *Comparative Education Review* 36, 4: 446–466.
- Fuller, Bruce and Conrad W. Snyder. 1991. "Vocal teachers, silent pupils? Life in Botswana classrooms." *Comparative Education Review* 35, 2: 274–294.
- Fuller, Bruce and Prema Clarke. 1994. "Raising school effects while ignoring culture? Local conditions and the influence of classroom tools, rules, and pedagogy." *Review of Educational Research* 64,1: 119–157.
- Fuller, Bruce, Haiyan Hua, and Conrad W. Snyder. 1994. "When girls learn more than boys: The influence of time in school and pedagogy in Botswana classrooms." *Comparative Education Review* 35, 2: 274–294.
- Glewwe, Paul and Hanan Jacoby. 1993. "Delayed Primary School Enrollment and Childhood Malnutrition in Ghana: An Economic Analysis." *World Bank Living Standards Measurement Study, Working Paper* No. 98. Washington, DC: The World Bank.
- . 1994. "Student achievement and schooling choice in low income countries." *The Journal of Human Resources* 29, 3: 843–864.
- Glewwe, Paul, Margaret Grosh, Hanan Jacoby, and Marlaine Lockheed. 1995. "An eclectic approach to estimating the determinants of achievement in Jamaican primary education." *The World Bank Economic Review* 9,2: 231–258.
- Harbison, Ralph W. and Eric A. Hanushek. 1992. *Educational Performance of the Poor: Lessons from Rural Northeast Brazil*. Report published for the World Bank. New York: Oxford University Press.
- Herrera, Linda. 1992. "Scenes of Schooling: Inside a Girls' School in Cairo." *Cairo Paper in Social Science*, No. 15, Monograph 1. American University of Cairo Press.
- Heyneman, Stephen P. and William A. Loxley. 1983. "The effect of primary-school quality on academic achievement across twenty-

- nine high- and low-income countries," *American Journal of Sociology* 88, 6: 1,162–1,194.
- Hyde, Karin A.L. 1993. "Sub-Saharan Africa." In *Women's Education in Developing Countries; Barriers, Benefits, and Policies*. Eds. Elizabeth M. King and M. Anne Hill. Baltimore: Johns Hopkins University Press.
- . 1997. "Barriers to equality of educational opportunity within mixed-sex secondary schools in Malawi." In *Gender Issues in International Education: Beyond Policy and Practice*. Eds. Sheena Erskine and Maggie Wilson. New York: Garland Press.
- Hyde, Karin A.L. and Esme Kadzamira. 1994. "Girls' attainment in basic literacy and education project: Knowledge, attitudes and practices pilot survey." Final report. Zomba: Centre for Social Research, University of Malawi.
- International Council for Health, Physical Education, Recreation, Sport and Dance. 1996. *Theme: Women and Sports Past, Present and Future* (The Brighton Declaration on Women and Sport). First ICHPER-SD Asia Conference on Women and Sports, Manila, Philippines, 7–10 March.
- Jejeebhoy, Shireen. 1995. *Women's Education, Autonomy, and Reproductive Behavior: Experience from Developing Countries*. Oxford: Clarendon Press.
- Jimenez, E. and Marlaine Lockheed. 1989. "Enhancing girls' learning through single-sex education." *Educational Evaluation and Policy Analysis* 11,2: 117–142.
- Lee, Valerie E. and Marlaine E. Lockheed. 1990. "The effects of single-sex schooling on achievement and attitudes in Nigeria." *Comparative Education Review* 34,2: 209–231.
- Lloyd, Cynthia B. and Ann K. Blanc. 1996. "Children's schooling in sub-Saharan Africa: The role of fathers, mothers, and others." *Population and Development Review* 22,2: 265–298.
- Lockheed, Marlaine E. and Adriaan M. Verspoor et al. 1991. *Improving Primary Education in Developing Countries*. Oxford: Oxford University Press.
- Longman, Jere. 1996. "When Loroupe runs, the women of Kenya run along with her." *The New York Times*. 13 October: Section B, pp. 11–12.
- Makau, Benjamin M. 1994. "Review of significant statistics on education of girls and women in Kenya." Paper presented at the National Symposium on Education of Girls, Machakos, Kenya, 21–24 March.
- Masolo, D.A. 1988. *You and Your Society: A Social Education and Ethics Course for Forms 3 and 4*. Nairobi: Longman Kenya.
- Masolo, D.A. and J.J. Ongonga. 1987. *You and Your Society: Social Education and Ethics for Junior Secondary Schools*. Nairobi: Longman Kenya.
- Meekers, Dominique, Anastasia Gage, and Li Zhan. 1995. "Preparing adolescents for adulthood: Family life education and pregnancy-related school expulsion in Kenya." *Population Research and Policy Review* 14,1: 91–110.
- Mensch, Barbara, Judith Bruce, and Margaret Greene. 1998. "The Dynamics of Disadvantage: Adolescent Girls in the Developing World." Forthcoming.
- Mensch, Barbara S. and Cynthia B. Lloyd. 1997. "Gender Differences in the Schooling Experiences of Adolescents in Low-Income Countries: The Case of Kenya." *Policy Research Division Working Paper No. 95*. New York: Population Council.
- Miller, Robert et al. 1997. *The Situation Analysis Approach to Assessing Family Planning and Reproductive Health Services: A Handbook*. New York: Population Council.
- Montgomery, Mark R. and Cynthia B. Lloyd. 1997. "High Fertility, Unwanted Fertility and Children's Schooling." *Policy Research Division Working Paper No. 100*. New York: Population Council.
- Nunn, Andrew J., Jane F. Kengaya-Kayondo, Sam S. Malamba, Janet A. Seeley, and Daan W. Mulder. 1994. "Risk factors for HIV-1 infection in adults in a rural Ugandan community: A population study." *AIDS* 8,1: 81–86.
- Obura, Anna P. 1991. *Changing Images: Portrayal of Girls and Women in Kenyan Textbooks*. Nairobi: ACTS Press.
- Sadker, Myra and David Sadker. 1995. *Failing at Fairness: How Our Schools Cheat Girls*. New York: Simon & Schuster.
- Sadker, Myra, Joyce Bauchner, David Sadker, and Leslie Hergert. No date. "Observer's manual for intersect: Interactions for sex equity in classroom teaching." Unpublished.
- Stromquist, Nelly. 1989. "Determinants of educational participation and achievement of women in the third world: A review of the evidence and a theoretical critique." *Review of Educational Research* 59, 2: 143–183.
- . 1994. "Gender and education." In *The International Encyclopedia of Education*, second edition, volume 4. Eds. Torsten Husen and T. Neville Postlethwaite. Tarrytown, NY: Elsevier Science/Pergamon. Pp. 2,407–2,412.
- United Nations. 1995. *Women's Education and Fertility Behavior: Recent Evidence from the Demographic and Health Surveys*. New York: United Nations.
- Youri, Pat (ed.). 1994. *Female Adolescent Health and Sexuality in Kenyan Secondary Schools: A Research Report*. Nairobi: African Medical and Research Foundation.

Acknowledgments

The authors worked with many collaborators in their field study in Kenya, and each one brought special talents to the collaboration. They wish first to acknowledge the official support of Kenya's Ministry of Education and the Office of the President, in particular the collaboration of Elizabeth Masiga, the Chief Inspector of Schools at the time the study was conducted. The research team included Ayorinde Ajayi as Project Director, Annabel Erulkar as adolescent specialist, Karin Hyde as educational consultant, and Cecilia Ndeti as field-study coordinator.