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INCENTIVES FOR THE PARTICIPATION GUATEMALAN INDIGENOUS GIRLS IN

PRIMARY EDUCATION: THE FIRST YEAR OF IMPLEMENTATION

OF THE *EDUQUE A LA NIÑA* PILOT PROJECT

DRAFT

I. INTRODUCTION

This document presents the results of the first year of implementation of the *Eduque a la Niña* Pilot Project. A series of indicators were used to examine the participation of girls in schools where different "packages" of interventions designed as incentives for encouraging girls to remain in school are being tested. The study included a representative sample of rural schools using the three packages or combinations of incentives, as well as rural public schools not presently receiving one of the packages. The study was carried out by members of the technical assistance team of the Academy for Educational Development as part of a broader study to establish a baseline to measure the effects of the USAID-financed Basic Education Strengthening (BEST) project on participation of girls and indigenous students in primary education. The study was conducted during the months of August and September 1994.

A. BACKGROUND

In defining an action plan for investment in primary education, USAID/Guatemala began in 1989 to examine both worldwide and Guatemalan data on women's primary school education. The consistency of the international evidence on the impact of girls' education on indicators of social and economic development (e.g. fertility, infant and child mortality and morbidity, nutrition, educational attainment, agricultural, industrial, and domestic productivity), combined with the discrepancy between girls' and boys' school attendance rates and the high illiteracy among women in Guatemala convinced the Mission of the importance of investment in girls' education to Guatemalan development. An initial effort was to plan a seminar for key Guatemalan leaders to bring the issue and the evidence to their attention.

As a result of the seminar, which was co-sponsored by USAID, the UNDP, and the National Office of Women in the Ministry of Labor, Guatemalan leaders, after a careful examination of the data, formed the Association for Girls' Education (*Asociación Eduquemos a la Niña*). This group developed a National Plan of Action on Girls' Education that consisted of a variety of activities to promote girls' education including support of incentives to encourage girls to remain in school. A major

effort in examining incentives is the *Eduque a la Niña* pilot project.

B. *EDUQUE A LA NINA*

Eduque a la Niña is a three-year pilot project that is testing combinations of interventions in 36 communities in six departments of the country where the gap between girls' and boys' primary school enrollment is greatest. The purpose of the project is to determine cost-effective strategies for promoting girls' attendance, and completion of primary school. These strategies will then be considered by the *Asociación Eduquemos a la Niña* for expansion and replication in other areas of the country. The project has the support of seven donor organizations. A local NGO is the implementing organization for the project (supported by USAID matching funds). Five other public- and private-sector organizations are participating in the project, under the coordination of the Guatemalan Association for Girls' Education.

Three packages of interventions (combinations of educational actions) are being tested. The actions include:

- small scholarships of Q25 (or about \$5) per month. This is consistent with Guatemalan and international research that suggests that small economic incentive motivate families to send their daughters to school;
- community outreach workers (Mayan women) who are assigned to each community to assist in the organization of parents' committees and to provide academic tutoring and moral support to the girls;
- parent committees, which select the scholarship recipients and monitor the activities of the program in the community;
- educational materials for students and teachers, including a teachers' manual, two posters, a flipchart program, four reading books, and a collection of children's literature and music focused on the education of girls (written in Spanish and the four major Mayan languages).

As shown in Table 1, these actions are organized into three distinct packages, each of which is being tested in three communities representing each of the four major indigenous language groups: K'iche; Kaqchikel; Mam; and Q'eqchi'.

Table 1: Eduque Intervention Packages

| Packages | Outreach Worker | Educational Materials | Small Scholarships | Parent Committees |
|----------|-----------------|-----------------------|--------------------|-------------------|
| 1. | x | | x | x |
| 2. | x | | | x |
| 3. | | x | | |

C. METHOD

A multi-method design consisting of inventories, checklists, classroom observation forms and focused interviews was employed to measure the increased participation of girls in the first year of implementation of the Eduque a la Niña project.

Sample. The sample of schools for the participation study was obtained using a random, stratified sample. Strata were each of the different packages of actions in the Eduque project. A comparison sample was chosen from the 12 schools created as a comparison group for the project. Comparison schools were schools with similar characteristics but not participating in the BEST program. Nine schools, three representing each package, made up the sample. These schools are 25% of the schools involved in the program. The sample has an adequate number of schools and teachers to determine significant differences among groups (two or more standard deviations) with a level of confidence of 95% with a power of 80%.

The universe of 36 Eduque schools and 12 comparison schools formed the basis for data on year-long attendance and final dropout, repetition and promotion rates.

Instruments. In order to implement the multi-method design of the research, a series of instruments was developed. The principal instruments were records of attendance collected by the outreach workers, enrollment, promotion, failure and dropout data collected by the management information system of the Ministry of Education, as well as classroom observation forms, and focused interviews used during the BEST participation and teacher effectiveness studies. The teacher records and the Ministry data provided end-of-year results at the school level. The classroom interaction form focused on teachers' interactions with individual students and the nature of those interactions in different academic classroom activities on selected days at one point in time. The form was used for ten minutes at six different times during the instructional day in classrooms at all

grade levels. Two open-ended interview schedules were also developed. These instruments explored the behaviors of teachers and director, respectively, in implementing the innovation with which they are working, and collected additional data on enrollment, repetition and dropout.

Training of Fieldworkers. Dr. Ray Chesterfield, together with Lic. Fernando Rubio, and the study supervisors, designed and carried out the training. Training took place over a four-day period the week of August 8-12. Training was holistic in the sense that each aspect of successful qualitative research or fieldwork in the school settings was continually related to other aspects and learning was highly experiential. The general content of the training was: introduction the BEST project (Gabriela Nuñez); introduction to the study (Fernando Rubio); introduction to qualitative methods, role management, use of checklists, use of observation protocol (Ray Chesterfield); field interviewing techniques (Fernando Rubio); and simulation fieldwork in local schools (Chesterfield, Rubio, and field supervisors). Training included exercises using videotapes of classroom interaction in schools, and served to pilot and refine the instruments.

Field procedures were developed in which local researchers worked in two-person teams and spent one or two days at each school. Field manuals were developed as a reference guide to field procedures during the investigation and procedures such as instrument editing, reinterviewing and parallel observations by supervisors with a small number of sample teachers were developed to ensure the quality of the data collected.

Data Analysis Preliminary data analysis consisted of calculating the absolute and relative frequencies of each indicator and making within-group comparisons between each Eduque package and the comparison group. Special indices were created to control for differences in enrollment or attendance among target groups, where such differences might affect participation.

Operational Definitions

Attendance = Number of children of each sex observed to be present on a given day of research compared to the total enrollment of children of that sex. The same statistic was used to examine the attendance of children over the school year, as measured by the records gathered by the outreach workers.

Completion = The number of children completing the year compared to the initial enrollment of children (assumes enrollment of children during the year to be random in study schools).

Dropouts = Number of children of each sex identified by

individual teachers as having left school at the time of data collection in August and at the end of the school year.

Enrollment = The number of children enrolled as reported by the director in the school records.

Failure = The number of children of each sex designated by their teachers to repeat the same grade.

Promotion = Number of children of each sex advanced to the next grade by their teachers at the end of the school year.

Index of Active

Participation (IAP) = the ratio of the percent of interactions initiated by target children and the relative frequency of attendance of these children.

Index of Responsive

Participation (IRP) = the ratio of the percent of interactions initiated by target children and the relative frequency of attendance of these children.

II. FINDINGS

A. PARTICIPATION

1. Daily Attendance

The participation study dealt with first through fourth grade, as those grades have been the major focus of the BEST classroom interventions. Although *Eduque a la Niña* deals with all six grades, the observed attendance provides an indication of the effect of the program. Overall, the *Eduque* program had a higher observed average attendance among girls (78.9%) than did the comparison group for the program (71.4%). The opposite was true for boys' attendance as control schools had an average attendance of 90.3% compared to 84.3% in *Eduque* schools. As can be seen in Table 2, the higher attendance found for girls was largely a result of package #1, consisting of scholarships, a community outreach person and parents committees. This intervention not only had significantly higher attendance among girls than the other *Eduque* packages and the comparison groups, but is the intervention where girls' attendance is higher than that of boys. The relatively high attendance of girls in schools with this package of interventions also led to a relatively higher overall attendance in these schools.

In schools with the other two packages of interventions, girls' attendance was similar to that of the comparison group. Boys' attendance was slightly lower than that of boys in the comparison group in schools with package #1 and #3 and significantly lower in schools with package #2, which consisted of outreach personnel and parents' committees.

Table 2: Attendance by Incentive "Package"

| PACKAGE | ATTENDANCE | | |
|------------|------------|-------|-------|
| | BOYS | GIRLS | TOTAL |
| 1. | 84.1% | 87.9% | 85.7% |
| 2. | 79.5% | 73.3% | 77.0% |
| 3. | 88.9% | 71.5% | 81.3% |
| Comparison | 90.3% | 71.4% | 80.1% |

When attendance was examined by sex of the teacher, the same general pattern was found. Girls' attendance was higher than that of boys only in the schools with the first package of interventions. Also, only in these schools was attendance of both boys and girls higher in classrooms with women teachers. The general pattern found in the other schools, regardless of the

incentive package, was that both boys and girls attended classes with male teachers in greater frequency than they did classes with female teachers.

Table 3: Relative Frequency of Attendance by Sex of Teacher

| PACKAGES | ATTENDANCE (%) | | | |
|--|----------------|-------|----------------|-------|
| | Male Teacher | | Female Teacher | |
| | Boys | Girls | Boys | Girls |
| 1. Scholarship, Community Outreach, Parent Committee | 78.9 | 82.1 | 87.8 | 92.0 |
| 2. Community Outreach, Parent Committee | 88 | 83.7 | 72.9 | 65.7 |
| 3. Motivational Materials | 93.6 | 71.6 | 78.3 | 71.4 |
| 4. Comparison Schools | 94.7 | 77.0 | 79.2 | 60.3 |

2. Dropout After Six Months of Classes

Data on dropouts were collected in August, as part of the participation study. While not a reflection of the entire year, these data give an indication of trends within the schools implementing the intervention packages with approximately two months left in the school year. Overall, the *Eduque a la Niña* program had lower dropout rates among both boys and girls than comparison schools. As shown in Table 4, girls averaged more than 2.5 percentage points less dropout in Eduque than in comparison schools and boys' dropout rate was more than four percentage points lower.

Table 4: Dropout rates by Intervention "Package"

| PACKAGE | DROPOUT RATE (%) | |
|------------|------------------|-------|
| | Boys | Girls |
| Overall | 4.9 | 6.7 |
| 1. | 4.8 | 5.3 |
| 2. | 4.1 | 7.8 |
| 3. | 5.9 | 7.6 |
| Comparison | 9.3 | 9.7 |

All of the intervention packages have lower dropout rates for both sexes than comparison schools. However, consistent with the attendance data, the lowest dropout rate for girls is found in schools with the package that includes scholarships, community outreach and parents committees.

When dropout rates are examined by sex of teacher (see Table 5), it appears that both boys and girls in the classes of male teachers are less likely to dropout. In keeping with the general trend, dropout rates in the intervention schools tend to be lower for children of both sexes regardless of the sex of the teacher. The relatively large differences in dropout rates between the Eduque program and the comparison schools is a result of the extremely high dropout rates among children with female teachers in the comparison schools. Consistent with the other trends, both male and female teachers in schools with the first intervention package, have lower overall dropout rates in their classrooms than teachers in schools with the other packages of incentives.

Table 5: Dropout Rate by Sex of Teacher

| PACKAGES | DROPOUT (%) | | | |
|--|--------------|-------|----------------|-------|
| | Male Teacher | | Female Teacher | |
| | Boys | Girls | Boys | Girls |
| 1. Scholarship, Community Outreach, Parent Committee | 4.8 | 5.1 | 4.8 | 5.4 |
| 2. Community Outreach, Parent Committee | 5.3 | 4.1 | 3.1 | 10.4 |
| 3. Motivational Materials | 5.6 | 7.8 | 6.5 | 7.1 |
| 4. Comparison Schools | 7.5 | 7.1 | 18.9 | 15.9 |

3. Interaction

Student-teacher interaction data collected through observation of naturally occurring classroom activities form the principal means of examining the student interaction component of participation. As mentioned previously, indices based on the attendance of children on a given day were derived to control for bias that may result from the predominance of one type of child (e.g. boys rather than girls) in a classroom. The indices were based on two different types of behavior: interactions initiated by a child with the teacher and interactions initiated by the teacher with individual children. The first provides a measure of the openness of the classroom in providing access to the

teacher for children of different genders. The second measures the attention given to children of different genders by teachers. In each case, the assumption is made that in an equitable classroom, the indices should approach 1. That is, the percent of interactions initiated by target children should be equal to the relative frequency of attendance of these children. These indices are called the Index of active participation (IAP) and the Index of Responsive Participation (IRP), respectively.

Table 6 shows that male students are generally favored in Guatemalan primary school classrooms, as in many parts of the world. In all cases, for both *Eduque* schools and comparison schools, boys have higher indices of participation than girls. It is notable, however, that intervention package #1 has a significantly higher index of active participation than the other intervention packages or the comparison group schools. These result suggests that teachers in these schools are providing girls with relatively greater opportunities to initiate interactions with them, although not to the degree that boys have access to the teacher. On the indicator of teacher provision of unsolicited attention to girl students, there are relatively similar trends for each intervention package and the comparison group.

Table 6: Indices of Active and Receptive Participation by "Package"

| PACKAGE | IAP | | IRP | |
|------------|------|-------|------|-------|
| | Boys | Girls | Boys | Girls |
| 1. | 1.14 | 0.83 | 1.18 | 0.79 |
| 2. | 1.23 | 0.64 | 1.08 | 0.86 |
| 3. | 1.22 | 0.55 | 1.10 | 0.83 |
| Comparison | 1.26 | 0.68 | 1.13 | 0.84 |

Female teachers allow greater participation of girls in the classroom than male teachers. As can be seen in Table 7, female teachers generally allowed significantly more active participation of girls than did male teachers. The one exception in the case of the first package of interventions, where girls with male teachers had a somewhat higher index of participation than girls with female teachers. In all cases, however, the participation of boys is higher than that of girls. Female teachers in the comparison school actually came closest to equitable participation of children. However, because of the small number of female teachers in the comparison sample, these interactions to not

change the overall indices.

Table 7: Index of Active Participation by Sex of Teacher

| PACKAGES | INDEX OF ACTIVE PARTICIPATION | | | |
|--|-------------------------------|-------|----------------|-------|
| | Male Teacher | | Female Teacher | |
| | Boys | Girls | Boys | Girls |
| 1. Scholarship, Community Outreach, Parent Committee | 1.11 | 0.86 | 1.16 | 0.80 |
| 2. Community Outreach, Parent Committee | 1.26 | 0.59 | 1.16 | 0.74 |
| 3. Motivational Materials | 1.38 | 0.30 | 1.25 | 0.67 |
| 4. Comparison Schools | 1.28 | 0.64 | 1.02 | 0.99 |

Women teachers also tend to initiate interactions with girls to a greater extent than male teachers. As shown in Table 8, with one exception, the indices of response participation for girls in the classes of female teachers are higher than those of girls in the classes of male teachers. Again, however, boys' indices of participation are generally higher than those of girls in all classrooms.

Table 8: Index of Responsive Participation by Sex of Teacher

| PACKAGES | INDEX OF RESPONSIVE PARTICIPATION | | | |
|--|-----------------------------------|-------|----------------|-------|
| | Male Teacher | | Female Teacher | |
| | Boys | Girls | Boys | Girls |
| 1. Scholarship, Community Outreach, Parent Committee | 1.20 | 0.75 | 1.15 | 0.80 |
| 2. Community Outreach, Parent Committee | 1.16 | 0.75 | 0.98 | 1.03 |
| 3. Motivational Materials | 1.10 | 0.83 | 1.18 | 0.79 |
| 4. Comparison Schools | 1.16 | 0.79 | 1.01 | 0.99 |

B. COMPLETION

1. Overall Attendance

Overall attendance was calculated using data collected at the third grade level from teachers in intervention and comparison schools. Third grade was chosen because it is the grade at which all BEST project activities are monitored. Three indicators were examined: attendance of children in function of the teachers' attendance; attendance of the students by sex, and attendance of the students and teachers before the interventions were fully implemented and after each of the interventions were in place.

As can be seen in Table 9, there are no differences in overall attendance of students when the teacher is present. However, of the scheduled work days, teachers in Eduque schools gave classes approximately 70% of the time. Teachers in the comparison schools on the other hand, gave classes on only 53.6% of the scheduled class days. Teachers actual attendance in the school was actually somewhat higher than the days of class. It was 77%, 83%, 78% and 59% for intervention packages #1, #2, #3, and the comparison group respectively.

Table 9: Attendance of Teachers and Students

| PACKAGE | STUDENT ATTENDANCE | CLASS DAYS |
|---------|--------------------|------------|
| 1. | 89.3% | 69.6% |
| 2. | 85.5% | 71.9% |
| 3. | 89.9% | 70.9% |
| 4. | 89.5% | 53.6% |

Source: Cuadernos de asistencia de los maestros.

The average attendance was slightly higher among students in the first part of the year. This is expected given the heavy rains that occur in the latter part of the year combined with the large number of holidays in the second half of the school year. In the second half of the year, the attendance of teachers and students remained relatively consistent in Eduque schools. There was however a significant drop in the attendance of comparison group teachers in the latter part of the year. This is also reflected in the attendance of students in the comparison schools. As the implementation of the Eduque a la Niña project was fully implemented in May, this suggests that the project had an impact on the attendance of teachers, which may also explain the higher attendance of students in project schools.

Table 10: Attendance Before and After the Initiation of the *Eduque a la Niña* Project

| PACKAGE | ATTENDANCE FEB. - MAY | | ATTENDANCE JUNE - OCT. | |
|---------|--------------------------|----------|---------------------------|----------|
| | Students | Teachers | Students | Teachers |
| 1 | 90.6 | 76.0 | 87.4 | 73.8 |
| 2 | 87.6 | 83.6 | 83.2 | 82.3 |
| 3 | 90.1 | 76.1 | 88.9 | 79.0 |
| 4 | 92.6 | 78.7 | 71.7 | 43.4 |

Source: Cuadernos de asistencia de los maestros.

When the attendance of girls was analyzed for the entire year, it can be seen that girls had slightly higher attendance in *Eduque* schools than in comparison schools. Girls attendance in project schools was also several points higher than that of boys in project schools, whereas in comparison schools the attendance of girls and boys was almost the same.

Table 11: Overall Attendance of Girls and Boys

| PACKAGE | ATTENDANCE OF GIRLS | ATTENDANCE OF BOYS |
|---------|---------------------|--------------------|
| 1 | 90.7 | 87.7 |
| 2 | 90.1 | 82.6 |
| 3 | 92 | 88.5 |
| 4 | 88.1 | 87.6 |

Source: Cuadernos de asistencia de los maestros.

2. Completion Statistics

Completion was calculated by subtracting the number of children enrolled at the end of the year from the number of children enrolled at the beginning of the year. As can be seen in Table 12, there is a slightly higher completion rate among girls participating in all of the intervention packages when contrasted with the comparison group. This is a result of the relatively high frequency of girls in preschool who deserted in comparison schools. The percentage of 18.8% was twice as high as that in schools with any of the interventions. Completion rates were also examined for each grade level. However, except for the higher dropout in pre-school, no consistent tendencies were found.

Table 12: Overall Completion Rates

| PACKAGE | OVERALL COMPLETION RATES* | |
|---------|---------------------------|-------|
| | Boys | Girls |
| 1. | 89.9% | 92.6% |
| 2. | 89.1% | 91.5% |
| 3. | 92.4% | 94.4% |
| 4. | 89.2% | 89.4% |

* Includes preschool

Table 13 presents the general promotion, failure and dropout rates for the three intervention packages and the comparison group. As can be seen, there are no distinct trends for any of the interventions with relation to one another or to the comparison group. The exception is the higher dropout rates among the comparison group. This again is a reflection of the high preschool dropout rates in the comparison schools. It is, however, important to note that in all of the intervention packages, girls have lower dropout rates than boys, which differs from the comparison group and from the general trend in Guatemala.

Table 13: National Educational Statistics on *Eduque* Schools

| PACKAGE | PROMOTION | | FAILURE | | DROPOUT | |
|---------|-----------|-------|---------|-------|---------|-------|
| | Boys | Girls | Boys | Girls | Boys | Girls |
| 1. | 71.4%* | 72.6% | 20.9% | 22.6% | 10.1% | 7.4% |
| 2. | 65.9% | 62.7% | 18.3% | 23.1% | 10.9% | 8.5% |
| 3. | 68.1% | 61.6% | 19.8% | 21.6% | 7.6% | 5.6% |
| 4. | 74.4% | 73.3% | 19.3% | 20.3% | 10.8% | 10.6% |

III. CONCLUSIONS

As mentioned previously, data were collected at two levels. One was national school statistics on school level data. The second was direct observation and data collection in individual classrooms. Thus, conclusions are organized to reflect these different data sets. Given the limited implementation period of the

AT THE SCHOOL LEVEL

The intervention packages had a consistent effect on lowering dropouts among girls and a slight effect on girls completion rates. For all three incentive packages, girls had dropout rates at least two percentage points below that of boys, despite the fact that the interventions were in place for only the last five months of the school year. Girls also had higher completion rates than boys and completion rates for girls in schools with the interventions ranged from two to five percentage higher than those of girls in comparison schools. There are, however, no consistent trends to distinguish one intervention from another at the school level.

The intervention packages had a positive effect on teachers' attendance, which resulted in greater instructional time for both boys and girls. The attendance of teachers in schools with all of the interventions remained constant throughout the school year, whereas that of teachers in comparison schools decreased in the second half of the year, a time of inclement weather and an increased number of official and unofficial holidays. The consistent attendance of teachers resulted in approximately 20 additional days of instruction for children in the schools with incentive packages. Attendance of girls was also consistently high among girls in the intervention programs than among boys. Again there were no consistent trends to distinguish one package from another.

AT THE CLASSROOM LEVEL

The package of incentives, that includes scholarships for girls, community outreach workers, and the formation of parents committees to monitor the scholarship program, has been successful in encouraging the attendance of girls. When compared to the other incentive packages and to the comparison group, only this intervention had higher observed average daily attendance of girls than of boys. With the other incentive packages, girls attended with the same frequency as in the comparison group, which in all cases was much lower than that of boys.

All of the incentive packages appear to have been successful in promoting lower dropout rates among both boys and girls. Consistent with the national trends, dropout rates collected from

the teachers for children participating in schools with any of the incentive packages were at least three percentage points lower than those of children in comparison schools. These dropout rates, collected three months after the incentives packages began and six months into the school year differed from the national statistics in that boys' dropout rates were lower than those of girls in all cases. As with attendance, the package that included scholarships had the greatest success with girls, as dropout rates for this package were at least two and a half percentage points lower than any of the other schools.

The package of incentives, that includes scholarships for girls, community outreach workers, and the formation of parents committees to monitor the scholarship program, has been successful in encouraging more active participation of girls in the classroom. Girls in schools with this package of incentives had an index of participation at least fifteen points higher than that of girls in other interventions or in the comparison group. However, boys active participation was higher than girls in all cases.

Female teachers are more likely to encourage the participation of girls in the classroom. However, such participation has not influenced girls' continuation in school. In six of eight comparisons, girls in classes with female teachers had higher active and responsive participation rates than girls with male teachers. Relative attendance and dropout rates, on the other hand, generally favored girls in classes with male teachers.

A package of incentives that includes scholarships for girls appears to sensitize male teachers to the importance of encouraging girls' participation. Male teachers in schools participating in the package of incentives that included scholarships had significantly higher indices of active participation among girls than other male teachers. In addition, girls in these classrooms had generally high attendance and low dropout rates.

B. IMPLICATIONS

Although the incentives packages have had a positive effect on girls attendance and dropout rates, there has been little effect on promotion, in the short time that the packages were in place. This suggests that more than one year (actually five school months) may be needed to obtain improvement in promotion, which is the ultimate aim of the incentive programs.

Scholarships are an important part of an incentive package if changes in classroom participation is an objective. The consistently higher participation of girls in classrooms of both male and female teachers with this package suggest that scholarships, either because of the recognition given teachers to the scholarship program or because of the greater willingness to

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participate among scholarship girls, will involve girls more actively in the classroom.

Incentive packages for girls will increase the commitment of teachers in terms of attendance. This will result in more instructional time in terms of days of instruction for both girls and boys.

Greater classroom participation, if it remains below equitable levels may not be sufficient, especially in the short term, to promote girls continuance in school. Although girls had higher participation levels in classrooms with female teachers, their participation was consistently below that of boys, and girls had lower levels of continuance in classes with female teachers.