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EXECUTIVE SUMMARY

Baseline Study of Girls and Mayan Participation in Primary Education

Introduction

During August and September 1994, a study to establish a baseline for assessing a series of indicators of girls and Mayan participation in Guatemalan primary education was conducted in a representative sample of schools from the three major classroom innovations being carried out by the Ministry of Education (MOE) with funding support from the USAID Basic Education Strengthening (BEST) project. These innovations: bilingual intercultural education (PRONEBI); multigrade methodology for unitary schools (Nueva Escuela Unitaria); and girls education (Programa de la Niña) are designed to contribute to the objectives of the BEST project to improve the efficiency, coverage, and quality of basic education services to traditionally underserved populations. Primary schools with similar characteristics to those implementing each classroom innovation served as a comparison group for the study. The remainder of this document summarizes the study methodology, the major findings of the study, and implications based on the findings.

Method

The sample consisted of 51 schools that represented the five principal linguistic groups in Guatemala (Spanish, K'iche, Kaqchikel, Mam, and Q'eqchi') in proportions similar to those in which these language groups occur in the national population. A multi-method design consisting of inventories, checklists, classroom observation forms and focused interviews was employed to measure the increased participation of girls and Mayans in primary education over the life of the BEST project. Fieldworkers were trained and a series of quality controls such as field manuals, spot-checks of data collected, and editing of instruments while in the field were developed to ensure the quality of the data. Data analysis consisted of calculating the absolute and relative frequencies of each indicator of participation and making within-group and between-group contrasts between the BEST programs and the comparisons groups.

Major Findings

The Ministry of Education's objectives of promoting primary school participation among girls and Mayans were found to be relatively well known by teachers and school directors. However, the lack of basic materials in many schools may impede reaching these objectives.

Almost three-fourths of the teachers in BEST programs and over 60% of teachers throughout the educational system were able to articulate MOE objectives related to the participation of girls and Mayans in primary education. In-service training was the principal dissemination mechanism for learning MOE objectives about girls and Mayan participation.

Material resources of the most basic type such as blackboards erasers, chalk, teachers guides, and paper were lacking. Little more than one-half of the schools surveyed had the basic materials generally considered necessary to successfully conduct classes and thereby promote children's participation.

The BEST program is having a positive impact on the attendance of both girls and Mayan students. However, girls attendance is still lower than that of boys.

Overall, above 80% of girls in BEST program schools were in attendance in the classroom. This was two percentage points higher than the overall attendance of girls in comparison schools. This trend was consistent for *Eduque a la Niña* and NEU where at least 6% more girls were attending school than in comparison schools. In PRONEBI, however, almost 4% fewer girls were attending school than in the comparison group. In all BEST and comparison schools, boys had higher attendance rates than girls.

Overall Mayan attendance was almost 10 percentage points higher in BEST schools. Attendance among Mayan students in the different interventions ranged from 6.7% higher than comparison schools in PRONEBI to more than 47% higher in NEU.

The BEST program is having a positive impact on reducing dropouts among girls and Mayans in rural areas where dropout is traditionally high among such students. The BEST program has also affected girls promotion rates, but appears to have had little effect on Mayan promotion or repetition.

Where the BEST program interventions have had the greatest impact to date is in the area of retaining girls and Mayans in school by reducing dropouts. BEST schools were generally found in more rural locations and had less facilities such as light and potable water than comparison schools. This would suggest the higher dropout rates normally associated with rural poverty and isolation in Guatemala. However, overall and for each BEST program, girls had dropout rates of at least two percentage points lower than girls in comparison schools. Mayan students in BEST schools had dropout rates of between one and 25 percentage points lower than comparison groups.

Overall, girls in the BEST program had higher promotion rates and lower repetition and dropout rates than girls in comparison schools. The rates of girls on these indicators were

not appreciably different from those of boys in the BEST schools. Boys in the BEST program had better continuation rates than boys in comparison schools. Mayan students in BEST schools, on the other hand, had similar promotion rates and higher repetition rates than Mayan children in comparison schools.

The BEST program is having a positive effect on sixth grade completion among Mayan students. This appears to be the result of the longevity of the PRONEBI program.

The BEST project interventions have been successful in promoting the school completion of Mayan children. The relative frequency of Mayan children in sixth grade in BEST project schools is consistently higher than that of Mayan comparison children. This may be a result of the long period of time which PRONEBI has been functioning, as PRONEBI had the highest frequency of Mayan children in sixth grade (7.4% compared to 6.6% for BEST overall and 3.3% for the comparison group).

The BEST project has had little effect on sixth grade completion rates among girls, owing perhaps to the short time that programs focusing on girls participation have been implemented. Little difference was found between the percentage of girls or boys in sixth grade in the BEST program when contrasted with the comparison group children.

The MOE objectives for girls and Mayan participation have not yet been translated into teacher interaction patterns with target children in the classroom. The exception was when bilingual teachers were working with predominately Mayan-speaking children. In such cases, greater equity in interaction patterns was achieved.

Teachers in comparison schools tended to initiate slightly more interactions with girls, whereas girls in BEST schools initiated more interactions with teachers than comparison girls. However, in all cases, teachers had a relatively greater number of interactions with boys than with girls. With Mayan children, when teachers could speak the language of the students, higher indices of participation were found. The exception was in comparison schools where monolingual Spanish-speaking teachers were dealing with Mayan children who tended to be bilingual in Spanish and a Mayan language.

The BEST project does not appear to have had an effect on the gender or ethnicity of school staff.

Higher percentages of women teachers and directors were found in comparison schools and similar percentages of Mayan school staff were present in all schools.

Implications

Continued dissemination of MOE objectives promoting

participation of girls and Mayans combined with efforts to improve the availability of basic materials in rural schools is essential to improved participation of target students.

The success of the MOE in disseminating its objectives for the participation of girls and Mayans to teachers and school directors suggests that such efforts should be continued and perhaps expanded in order to reach all schools.

Greater efforts must also be made to ensure that schools implementing activities to encourage participation of girls and Mayans have an adequate infrastructure to effectively carry out the programs. Where basic classroom materials are lacking, it is unlikely that the effect of programs or activities encouraging the participation of girls and Mayans will be maximized.

The positive impact of the BEST project on the attendance rates of girls and Mayans and the continuation rates of girls suggests that the strategy of targeting children who are generally underserved in the primary school system can be effective.

Greater efforts should be made to continue to refine programs to address areas such as girls attendance and Mayan promotion and dropout, where indicators are relatively lower than those for boys and ladinos respectively. These efforts may include making the link between MOE objectives and the methodologies being implemented by the BEST project more explicit to teachers and school directors, as these methodologies are designed to encourage classroom participation.

The placement of bilingual teachers in schools with predominately Mayan students has the potential for increasing the participation and completion levels of such students.

The striking differences in access to the teacher by Mayan students and the attention given to these students when the teacher is bilingual, as well as the higher levels of completion among Mayan students in PRONEBI schools which emphasize bilingual teaching, suggest the importance of placing bilingual teachers in classrooms where children are largely monolingual in the mother tongue.

I. INTRODUCTION

This document presents the results of a study to establish a baseline for assessing a series of indicators of girls and Mayan participation in Guatemalan primary education. The study includes a representative sample of schools from the three major classroom innovations being carried out by the Ministry of Education (MOE) with funding support from the USAID Basic Education Strengthening (BEST) project, as well as public schools not participating in the BEST project. The study was conducted by members of the Academy for Educational Development (AED) technical assistance team during August-September 1993. It will be repeated systematically to determine increased participation of girls and Mayans over the life of the project.

A. BACKGROUND

The primary focus of the Guatemala BEST project has been to improve the efficiency, coverage, and quality of basic education services to underserved populations. This was to be accomplished through close collaboration with other donor agencies to maximize the impact of project activities. The first phase of the project (1990-1993) provided a range of technical assistance services in four areas: bilingual education for the indigenous population; support for classroom teachers, research and development of innovative methods for delivering education, and management information services for the Ministry of Education. The target populations for BEST project activities have been Mayan-speaking indigenous people, isolated rural populations, and girls--all groups traditionally underserved by the education system.

In 1993, following the completion of a midterm evaluation and an intensive reprogramming of USAID funding, the range of project activities was reduced to form a coherent and cohesive effort aimed at improving the quality and equity of education for the underserved populations through cost-effective innovations at the classroom level, and at strengthening the Ministry's ability to manage the education system.

The development of educational reforms that work in the Guatemalan context are of critical importance in the BEST strategy. Under classroom innovations, the multigrade classroom activity (*Nueva Escuela Unitaria*), based on active learning principles, targets the rural dispersed population, which has been difficult to reach with full primary education services. The bilingual education program targets the Mayan-speaking population, which has traditionally been delayed in its educational progress because of students' inability to understand the language of instruction in primary schools. The girls' education activities is designed to improve the ability of the

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education system to keep girls in school and to increase their achievement.

The combined effect of these programs is to address the needs of a widespread target population in rural Guatemala. The technical innovations are to be cost-effective when fully developed; they teach children how to learn, and they help children to complete school on time. Community participation and the involvement of local organizations form an important part of each activity. Each program looks to build coalitions for increasing participation in basic education.

In order to monitor the effects of these programs, the revised logframe for the BEST project identifies increases in the level of participation of girls and of Mayans in the primary education system as indicators of greater equity of educational practices and policies resulting from the BEST project. The revised logframe for the project identifies special evaluation studies as the means of verification for these indicators.

Each of the indicators are complex concepts that require the combination of qualitative and quantitative methods to measure accurately. The following pages discuss the procedures used to collect baseline data on educational participation. Subsequent chapters present the findings of the baseline study for girls and Mayans, respectively, and present conclusions and implications drawn from these findings.

B. METHOD

1. Indicators

The indicators are taken largely from U.S. literature on school/classroom effectiveness and on the growing body of international literature on classroom interaction (See attached bibliography). Three levels of indicators were developed related to greater participation of girls and Mayans. The first level consists of system support indicators or enabling factors that must be in place if participation is to lead to increased efficiency in terms of making normal progress through the school system and greater quality in terms of academic achievement. The second consists of indicators of participation of students in the classroom, school and later life. Third, are indicators of greater participation by target groups in the decision-making process of the school (See Appendix A for a complete list of these indicators).

2. Design

A multi-method design consisting of inventories, checklists, classroom observation forms and focused interviews was employed to measure the increased participation of girls and Mayans in primary education over the life of the project.

Sample. The sample of schools for the participation study was obtained using a random, stratified sample. Strata were formed by the different programs in the BEST project (*Nueva Escuela Unitaria* [NEU], *Programa Nacional de Educación Bilingüe Intercultural* [PRONEBI], and *Eduque a la Niña*). A comparison sample was created by choosing one non-program school for every two schools in a given program. Comparison schools were generally the nearest school to a sample school that had similar characteristics but was not participating in the BEST program.

The sample contains schools from the five principal linguistic groups in Guatemala (Spanish, K'iche, Kaqchikel, Mam, and Q'eqchi') in proportions similar to those in which these language groups occur in the national population. For NEU 11 schools were included in the sample. For PRONEBI 15 schools made up the sample and for *Eduque a la Niña* eight schools were represented in the sample. These schools were approximately 49%, 10%, and 25%, respectively, of all schools involved in each program. The proportionately larger sample selected for the "*Eduque*" program is a result of the need to include the three distinct interventions being implemented in that program.

The sample has an adequate number of schools and teachers to determine significant differences among groups (two or more standard deviations) with a power of 96% and a level of confidence of 95%. To examine the different interventions of the *Eduque a la Niña* program, the sample has a level of confidence of 95% with a power of 80%.

Instruments. In order to implement the multi-method design of the research, a series of instruments as developed. These instruments included inventories of instructional materials, classroom maps, classroom observation forms, card sorts, and focused interviews. The inventories were used to identify both BEST-developed and non-BEST materials available in each classroom. Maps were employed to identify the characteristics of the children and teachers and to examine the context in which they interact. Classroom interaction was measured through a teacher-student interaction protocol. This instrument focused on teachers' interactions with individual students and the nature of those interactions in different academic classroom activities. The form was used for ten minutes at six different times during the instructional day in classrooms at all grade levels. Two

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open-ended interview schedules were developed. These instruments explored the behaviors of teachers and director, respectively, in implementing the innovation with which they are working.

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 during 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 of 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, re-interviewing, and parallel observations by supervisors with a small number of sample teachers were developed to ensure the quality of the data collected.

Data Analysis. Data analysis consisted of calculating the absolute and relative frequencies of each indicator and making within-group comparisons between each BEST innovation and its comparison group. In addition, overall tendencies were calculated and compared to a combined comparison group. Given the difference in program objectives and types of schools in which the programs are being implemented, the relevant comparisons are those of each innovation with its comparison group. The overall comparisons are provided, however, as a heuristic device.

Where appropriate, other analyses such as chi-square or analysis of variance have been made. The card sort data were analyzed using cluster analysis, multi-dimensional scaling, and factor analyses. Where necessary, special indices were created to control for differences in enrollment or attendance among target groups, where such differences might affect participation.

3. Operational Definitions

- Dropouts = The sum of the number of children of each sex identified by individual teachers as having left school.
- Repeaters = The sum of the children of each sex in each class who are identified by the teacher as repeating the grade.
- Promotion = The sum of the total number of children in each classroom less the number of repeaters and deserters identified by each teacher. (Assumes that the number of repeaters from the previous year is a good indicator of 1994 repetition rates).
- Mayans = Teachers and directors who identify themselves as Mayans. Children who are identified by their teachers as Mayans. This definition was used in the case of children because the study deals with participation and teachers' perceptions of student ethnicity could influence their interactions with certain children.

Index of Active

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

C. ASSUMPTIONS

The study is based on several assumptions. First, the school and the class are the key units of analysis in planning and intervening to improve the quality of education. Second, the school is a social system and the interaction of all of the elements has an influence on student learning beyond that provided individually by inputs to the school. This is not to suggest that the uniqueness of each school makes aggregate measurement impossible, but rather that accurate measurement of the impact of school is a complex undertaking requiring the integration of multiple methodological approaches.

II. FINDINGS

A. STUDY CONTEXTS

All of the schools in the study were rural schools outside of local municipal centers. Consistent with the BEST program's objectives of reaching those populations that have generally been least favored by the Guatemalan education system, the conditions of most schools in the BEST sample were somewhat precarious. Conditions in the comparison sample were slightly better. As shown in Table 1, only 17% and 33%, respectively, of BEST and comparison schools had electricity, and only about half of the schools in each group had potable water (BEST 43%, comparison 56%). All of the comparison schools had bathrooms or latrines, but only 63% of the BEST schools had such facilities. Ninety-four percent of the schools in both groups had a recreation area of some sort. A higher percentage of the BEST schools (60%) offered a complete primary education (through sixth grade) than comparison schools (33%). This may be a result of the sampling bias in the selection of *Eduque a la Niña* and PRONEBI schools, which were required to have sixth and fourth grades respectively to participate in the programs. It may also reflect the NEU emphasis on multi-grade schools containing all six grades.

Table 1: Illustrative School Conditions

TYPE	ELECTRICITY	WATER	RESTROOMS	REC. AREA	COMPLETE
BEST (35)	17%	40%	63%	94%	60%
COMPARISON (18)	33%	56%	100%	94%	33%

The trend in individual programs was similar to the overall trend. NEU and PRONEBI had relatively fewer schools with restroom facilities than did the comparison schools, whereas the group implementing the "Eduque" program had relatively more schools with water but fewer schools with electricity than did their comparison group. As might be expected, given their relative size and isolation, the NEU and EU schools had the worst conditions with regard to electricity and water.

It is interesting to note that 100% of the comparison schools and 74% of the BEST schools had at least one multigrade class. In the non-unitary schools, these classes were usually either a combined fifth and sixth grade or a combined fourth and fifth grade.

B. SYSTEM SUPPORT - GIRLS

For participation of girls or Mayans to be meaningful in terms of Project efficiency, quality, and equity objectives, participation must lead to more girls or Mayans being promoted at each grade level, which assumes that more members of each target group will have higher levels of academic achievement. At the macro level, the school system must show support for girls' or Mayan participation if it is to be successful. This support can take various forms, including: (a) communication of expectations for the participation of girls or Mayans; (b) provision of services, such as training teachers on how to increase girls' and/or Mayan participation; and (c) making sufficient material resources available, so that girls and Mayans can take advantage of efforts to increase their participation in school activities.

1. Communication of expectations for participation of girls:

Seventy-three percent of BEST teachers were able to list MOE objectives for participation of girls. Sixty-two percent of comparison-school teachers were able to do so. Those teachers who mentioned objectives that clearly were not MOE objectives were not considered to have received a communication on the issue. A similar pattern was found in every program. Eighty-four percent of NEU teachers clearly listed MOE objectives on girls' participation, whereas only 50% of EU teachers did so; 69% of *Eduque* teachers did so; and only 45% of comparison teachers did so. Finally, 73% of PRONEBI teachers identified MOE objectives, and 68% of comparison teachers did so.

Teachers' interpretations of these objectives are also of interest. Most teachers identified objectives in only one category, but some mentioned objectives corresponding to two categories. These interpretations appear by category in Table 2.

The first two categories include two of the main objectives for girls' participation in the school system. Teachers' answers were coded on the first two categories when they clearly stated that the objective was either that girls finish elementary school, or that girls' school attendance should increase. Almost 20% of those BEST teachers mentioned MOE objectives identified the first category as an objective for girls participation, and almost 11% identified the second category as another objective. The first category was the one most often used by NEU and *Eduque* teachers. The second category was the second least frequently used by all BEST teachers.

The next three categories were less specific. The third category includes all answers in which teachers declared that the objective was to promote girls' participation in the classroom,

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the community, or the country. It was the category most used by comparison-school and PRONEBI teachers. Overall, 31% of BEST teachers who clearly identified MOE objectives for girls' participation mentioned girls' participation as an objective. By contrast, 50% percent of comparison-school teachers who also identified MOE objectives used this category.

The fourth category includes all answers in which teachers made reference to objectives regarding girls having the same rights as boys, girls having the same opportunities as boys, or that girls and boys should be equal. Of those teachers who clearly identified MOE objectives for girls' participation, 18% of PRONEBI and *Eduque* teachers and 9% of NEU teachers identified this category as a MOE objective. Only 7% of PRONEBI comparison teachers identified this category as a MOE objective.

The fifth category, raising parents' awareness of the need for girls to be sent to school, includes all answers in which teachers said the objective was to make fathers aware of the need to send their daughters to school or to make fathers aware of the importance of girls' education. Overall, of those teachers who identified MOE objectives, only 8% of BEST teachers identified the fifth category as a MOE objective, equal to the percentage of comparison-school teachers.

Table 2: Project Goals About Which Teachers Have Received Information

GOAL: PROGRAM:	GIRLS TO FINISH ELEMENTARY SCHOOL	TO INCREASE GIRLS' ATTENDANCE	PARTICIPATION IN CLASSROOM/ COMMUNITY	EQUALITY OF RIGHTS	TO RAISE PARENTS' AWARENESS	TO EDUCATE GIRLS
NEU	36.4	9.1	27.3	9.1	18.2	9.1
EU	0	0	100	0	33.3	0
EDUQUE A LA NIÑA	27.3	13.6	22.7	18.2	4.6	31.8
CONTROL LA NIÑA	16.7	0	50	0	0	33.3
PRONEBI	9.1	9.1	39.4	18.2	6.1	27.3
CONTROL PRONEBI	13.3	6.7	40	6.7	6.7	33.3
BEST	19.7	10.6	31.2	16.7	7.6	25.8
NON-BEST	12.5	4.2	50	4.2	8.3	29.2

* Percentages may not total 100% owing to multiple responses

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The last category includes very general answers regarding girls' education, improvements for girls, and the need to "educate girls well." These answers were included as acceptable because they generally reflected MOE objectives. It was not always clear, however, whether teachers were identifying this category as an objective specifically for girls' participation or as a general objective for the education of children. Overall, of those teachers who identified MOE objectives, 29% of comparison-school teachers and 26% of BEST teachers used this category. Only 9% of NEU teachers used it. Twenty-seven percent of PRONEBI teachers and 33% *Eduque* teachers also used the category. A similar pattern was observed in comparison school teachers.

Teachers learned of these objectives through different channels. The principal channel of communication with regard to issues of equality was training. Twenty-four percent of the sample teachers in the BEST program and 13.5% of the teachers in comparison schools identified this channel. Similar percentages of teachers identified talks by authorities (BEST 15.7%, Comparison 13.5%), and official documents (BEST 14.4%, comparison 10.8%) in both sample groups. BEST teachers were somewhat more likely to have heard about the system's expectations from people working in the project (14.4% vs. 8.1%) than were non-BEST teachers. Governmental memoranda and announcements were discounted as a communication channel by both groups. With slight variations, patterns similar to the overall result were found when the principal channels of communication were examined by program.

2. Provision of services:

Training is one of the main services teachers should receive in order to carry out MOE objectives on girls' participation. Regarding MOE's objectives on equality of education, 58.9% of BEST teachers confirmed having received such training. By contrast, only 29.7% of comparison-school teachers received such training.

Twenty-two of those BEST teachers who received some training received it from the *Eduque* program. No comparison-group teacher mentioned having received specific training on girls' participation nor on a related topic. Other training providers are shown in Table 3. As can be seen in Table 3, overall BEST teachers have received more training from a greater variety of training providers.

Table 3: Providers of Training on Education

PPOVIDER	BEST	COMPARISON
PRONEBI	43.4%	27.3%
EDUQUE A LA NIÑA	22.65	0
NEU	15.1	0
Supervisor	13.2%	81.8%
SIMAC	9.4%	25%
Department Director	9.4%	0
Others	62.3%*	36.4%**

* Regional directors (9.5%), Department Technical Director (3.8%), Curriculum Specialist (1.9%), Pedagogic Trainer (7.5%), others, 39.6%

** Curriculist (2.7%), Pedagogy Trainer (9.1%), others (27.3%).

Training, as presented above, is an activity that takes place in a specific time frame. As important as this kind of training is, training is provided by school directors on a more regular basis. Directors must themselves know MOE's objectives for girls participation if they are to provide training on those objectives. Of school directors in BEST program schools, 76.7% affirmed that they know these objectives. In the comparison schools, only 57% of directors interviewed knew of these objectives. As was the case with teachers, directors' interpretations of these objectives clustered in different categories. The interpretation of the objectives most commonly cited by BEST school directors was for girls to reach sixth grade and graduate from elementary school. Thirty-four percentage of directors who know about the objectives indicated that this was one of them (25% in the comparison group). In the comparison group, 50% of directors who had knowledge of this objective mentioned the less specific objectives of educating girls, and giving girls a good education (30.4% in BEST schools). Other interpretations were to increase girls' attendance (BEST 4.3%), girls' participation in school/community (BEST 17.4%, comparison 12.5%) and equality of rights (BEST 17.4%, comparison 12.5%).

Of those directors who knew the objectives, 80% gave some kind of training during the year. In the comparison schools, 87.5% of the directors who knew them with some detail gave some training. The most common vehicle for such training was through teachers' meetings: 80% of BEST schools directors and 62.5% of schools directors in the comparison schools used these meetings to communicate MOE objectives and to provide training. The other means of providing training was through personal communications: 35% of BEST school directors and 37.5% of the comparison school directors talked to teachers on one-to-one basis about the objectives.

3. Material resources.

Material resources are of vital importance in carrying out educational objectives. Teachers were asked about the availability of material resources considered to be essential. These essential instructional resources included chalk, blackboard erasers, and teacher guides. Teacher guides were the most commonly available material for teachers in the BEST program: 54.4% of BEST teachers have enough teacher guides (comparison teachers, 43.2%). Chalk was available for 52.2% of teachers in the BEST program (comparison teachers, 64.9%). The least available material was blackboard erasers (BEST teachers 33.3%, comparison teachers 43.2%). Overall, instructional materials availability was well below recommended standards.

Teachers were also asked if they have enough notebooks and paper for their students. Only about one-fourth of all teachers had enough notebooks (BEST 25.6%, comparison 24.3%). Less than a fifth had enough paper (BEST 18.9%, comparison 18.9%).

NEU Teachers had slightly greater availability of these materials. The most commonly available material was chalk in both NEU and EU (69.2% and 66.7%, respectively). The next most commonly available resource for NEU teachers was Teacher Guides. Fifty-four of NEU's teachers reported having enough guides. Other resources were available for less than 50% percent of the teachers. Notebooks, paper, and erasers were available to 46.2%, 38.5%, and 38.5% of teachers. Few EU teachers reported having enough of these materials. Only 33.3% reported having enough papers, notebooks and erasers, and only 16.7% reported having enough teacher guides.

In the *Eduque* program, 51.6% of all teachers had enough chalk, 48.4% had enough teacher guides, and only 35.5% had blackboard erasers. The availability of these materials was higher in the comparison schools: 63.6% of all teachers had enough chalk, 54.5% had enough teacher guides, and 63.6% had blackboard erasers. Regarding notebooks and paper for students, 32.3% of *Eduque* teachers and 27.3% of comparison schools had enough notebooks. Only 22.6% of the former and 9.1% of the latter had enough paper.

Finally, resources were somewhat more scarce in PRONEBI schools than in comparison schools, with the exception of teachers guides: 58.7% of PRONEBI teachers had enough guides, compared to 45% of the comparison schools. Of other instructional materials, chalk was the most commonly available (PRONEBI 47.8%, comparison 65%). About a third of all teachers had blackboard erasers (PRONEBI 30.4%, comparison 35%). Student instructional materials were the scarcest: only 15% of PRONEBI teachers and 20% of comparison teachers had enough notebooks for their students, and only 10.9% of the former and 20% of the latter had enough paper.

C. STUDENT PARTICIPATION - GIRLS

1. Attendance:

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Overall, on any given day, schools in the BEST program had higher attendance of girls than comparison schools. As can be seen in Table 4, the attendance of girls in BEST schools is several percentage points higher than in comparison schools. This general trend is found both in schools implementing the *Eduque* program and also in NEU. PRONEBI, on the other hand, had a slightly lower percentage of girls enrolled in the sample schools who attended on the days the study was carried out than did its comparison schools. It is important to note that girls' attendance is high (close to 80%) in all schools implementing BEST interventions. However, in all cases, the relative frequency with which boys attend school is higher than that of girls.

Table 4: Attendance by Gender

Program	BEST		Comparison	
	Males	Females	Males	Females
Overall	85.6%	80.6%	82.1%	78.1%
<i>La Niña</i>	84.3%	78.9%	90.3%	71.4%
NEU	85.6%	79.1%	63.4%	69.2%
PRONEBI	86.5%	82.2%	83.8%	85.9%

2. Continuation:

Repetition rates in 1994 had not yet been determined when the study took place because the study was carried out prior to the administration of final exams. Thus, the number of boys and girls in each class currently repeating the grade was taken as the indicator of repetition. Dropouts were the actual number of children teachers in each class identified as having left school since the start of the academic year. Promotion rates were calculated by subtracting repeaters and dropouts from the total number of enrolled children for each target group.

Table 5 presents the relative rates of continuation for girls in each of the BEST interventions with that of their comparison group. Overall, the BEST program has slightly higher rates of promotion than the combined comparison groups. This tendency is consistent for both the *Eduque* and PRONEBI interventions. NEU, on the other hand, has a somewhat lower promotion rate than the traditional multigrade schools in the sample. This appears to be a result of the NEU teachers' lack of complete mastery of the flexible promotion concept. Children who were working at a slower rate than others in some subjects may have been identified as repeaters, even if they made advancement in relation to their initial level in the subject, as is appropriate in the NEU program.

Where the BEST program interventions have had the greatest impact to date is in the area of retaining girls in school by reducing dropouts. Overall, and

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for each BEST program, girls had dropout rates at least two percentage points lower than girls in comparison schools. This is especially important in light of the data presented previously on the characteristics of the BEST schools and the comparison schools suggesting a bias among the BEST project schools toward a more rural location and greater isolation.

Table 5: Girls' Continuation Rates

Program	BEST			Comparison		
	Pro.	Rep.	Drop.	Pro.	Rep.	Drop.
Overall	77.5	15.3%	7.2%	74.2%	15.7%	10.01%
<i>La Niña</i>	79.3%	14.7%	6.7%	75.9%	14.8%	9.3%
NEU	74%	19.9%	6.1%	80.9%	10.3%	10.3%
PRONEBI	77.3%	14.8%	7.9%	72.6%	18.9%	10.01%

Table 6 shows that the project interventions are also having a positive effect on retaining boys in school. Although repetition is slightly higher overall in BEST sample schools, promotion rates are higher owing to the consistently lower dropout rates for boys in all BEST programs.

Table 6: Boys' Continuation Rates

Program	BEST			Comparison		
	Pro.	Rep.	Drop.	Pro.	Rep.	Drop.
Overall	78.1%	15.7%	6.2%	74.5%	15.2%	10.3%
<i>La Niña</i>	82.6%	12.5%	4.9%	74.7%	15.6%	9.7%
NEU	75.1%	18.2%	6.7%	80.9%	10.2%	16.1%
PRONEBI	75.4%	17.3%	7.3%	72.6%	13.7%	7.8%

3. Completion:

For the purpose of this study, completion has been defined as the number of students enrolled in sixth grade divided by the total enrollment. Project indicators call for a difference between project and comparison schools, and for similarity between boys and girls.

Overall, students in sixth grade were the 6.5% of the total enrollment in the BEST schools and 6.1% in the comparison schools. Boys in sixth grade were 4.1% of the total enrollment and girls 2.4% (comparison 3.7% and 2.4%, respectively). Girls had a smaller representation in sixth grade enrollment compared to their total enrollment. Although girls constituted 43.2% of total

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school enrollment, they were only 36.4% of the total enrollment in sixth grade. A similar pattern was found in the comparison schools; girls were 44.2% of the total school enrollment, but only 39.1% of sixth-grade enrollment. Enrollment of girls in sixth grade as a proportion of the total enrollment of girls was also somewhat smaller than that of boys. Girls in sixth grade were 5.5% of total girls enrollment. and boys in sixth grade were 7.3% of total boys enrollment.

The pattern of results was similar for each of the programs. In PRONEBI schools, students enrolled in sixth grade were 7.6% of total school enrollment (comparison schools 5.6%); they were 5.5% of total enrollment in NEU schools (EU schools 7.8%) and 5% in *Eduque* schools (comparison schools 5.7%). Girls in sixth grade were 2.9% of the total enrollment and boys were 4.9% in PRONEBI schools (comparison schools 2.7% and 3%), 1.8% and 3.7% in NEU schools (EU schools 10.5% and 5.3%), and 1.6% and 3.4% in *Eduque* schools (comparison schools 7.3% and 3.9%). Girls' enrollment in sixth grade as a proportion of total girls' enrollment was somewhat lower than that of boys. In PRONEBI schools, girls enrolled in sixth grade were 6.6% of the total girls' enrollment, and boys 8.4% of total boys' enrollment (comparison schools 6.6% and 5%). In NEU schools, girls were 4.1% of total girls enrollment, and boys 6.7% of total boys' enrollment (comparison schools 10.5% and 5.3%); and in *Eduque* schools, girls in sixth grade were 3.9% of total girls' enrollment and boys 5.7% of total boys' enrollment (comparison schools 3.9% and 7.3%).

4. 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. Other indicators of interaction are: the relative frequency with which target children receive honors in the classroom; and the number of former students of the school who are involved in volunteer activities in the community and who take part in democratic activities such as voting.

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 with different characteristics. The second measures the attention given to children with different characteristics 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.

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Tables 7 and 8 show that there are few consistent trends in terms of the indices of participation of girls in the sample schools. The results confirm previous research indicating that male students are generally favored in Guatemalan primary school classrooms, as in many parts of the world. In all cases, for both BEST schools and comparison schools, boys have higher indices of participation than girls. The overall results suggest that comparison schools are providing girls with relatively greater opportunities to initiate interactions with the teacher, whereas teachers in BEST schools tend to give relatively more unsolicited attention to girl students. When individual interventions are examined, however, the overall trend does not hold. The *Eduque a la Niña* program has a somewhat more equitable balance than its comparison group on the index of child-initiated interactions, whereas the other programs have less equitable indices than their comparison groups. On the receptive index, NEU provides relatively more attention to girls than its comparison group, whereas the *Eduque* program has a slightly lower index in relation to its comparison group.

Table 7: Girls' Index of Active Participation

Program	BEST		Comparison	
	Males	Females	Males	Females
Overall	1.24	.68	1.19	.76
<i>La Niña</i>	1.18	.74	1.25	.68
NEU	1.24	.72	1.11	.86
PRONEBI	1.30	.59	1.15	.81

Table 8: Girls Index of Responsive Participation

Program	BEST		Comparison	
	Males	Females	Males	Females
Overall	1.11	.85	1.14	.83
<i>La Niña</i>	1.13	.81	1.13	.84
NEU	1.13	.85	1.14	.81
PRONEBI	1.09	.87	1.10	.87

IAP and IRP were also calculated by the sex of the teacher for BEST and the combined comparison group. This was done to control for any bias in the

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general analysis that might be the result of the sex of the teacher. Table 9 shows that the same interaction pattern favoring boys over girls that occurred in the general analysis is present with teachers of both sexes. There is, however, a tendency on the part of female teachers of both groups to permit greater access to girl students and to pay more attention to girl students than to their male counterparts.

Table 9: Indices of Interaction by Sex of Teacher

MALE TEACHERS				
	BEST		Comparison	
Indicator	Boys	Girls	Boys	Girls
IAP	1.29	.60	1.36	.54
IRP	1.12	.84	1.13	.84
FEMALE TEACHERS				
	BEST		Comparison	
Indicator	Boys	Girls	Boys	Girls
IAP	1.19	.75	1.06	.93
IRP	1.10	.87	1.11	.88

Another measure of girls' participation is the honors boys and girls receive at school. These honors may include being on the honor roll, being chosen to be a flagbearer, and being chosen to participate in school government. If equity exists in awarding these honors, one would expect that the proportion of boys and girls who receive them would be equal.

Overall, very few students received these honors. Combined, 10% of girls and 13% of boys received one or more honors. Of the combined total, 3.5% of girls and 4.3% of boys were in the honor roll; 2% of girls and 3.8% boys were members of the school government; and 5.1% of girls and 5.2% of boys were chosen to be flagbearers. In most cases, boys received a higher proportion of honors than girls. Table 10 presents this by program. It is interesting to note that although NEU stresses school government, teachers reported 15% of boys and 6% of girls involved in more traditional types of honors.

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Table 10: Proportion of students receiving honors by sex and program

PROGRAM	HONOR ROLL		SCHOOL GOVERNMENT		FLAGBEARERS		OVERALL HONORS	
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
NEU	NA	NA	15.8%	6.1%	NA	NA	NA	NA
EU	0.8%	8.9%	0.8%	5%	6.2%	6.4%	8%	20%
EDUQUE A LA NIÑA	2.5%	3.3%	1.1%	2%	5.1%	6.4%	9%	13%
COMPARISON	9.6%%	11%	NA	NA	8%	10%	20%	20%
PRONEBI	4.6%	3.8%	2.3%	1.3%	4.9%	4.8%	12%	10%
COMPARISON	0.9	1.2%	1.3%	0.04%	7.9%	6.4%	10%	8.1%
BEST	4.3%	3.5%	3.8%	2%	5.2%	5.1%	13%	13%
COMPARISON	3.7%	4.4%	0.08	0.09	7.5%	6.7%	12%	12%

Another measure of girls' participation involves alumni behavior in the school and in the community. To measure this, directors were questioned about both boy and girl alumni participation in voluntary activities in the school, the community, and in democratic activities. Overall, 78% of all directors confirmed that alumni participated in school voluntary activities, 84% said that alumni participated in community voluntary activities, and 59% stated that alumni participated in democratic activities. Results were similar in each program.

Overall, girl alumni participated less in school voluntary activities (34.8) and in democratic activities (25.8%). Whereas girl alumni participated less in community activities (47%), this proportion of participation was somewhat higher than the proportion of girls enrolled in the school.

The pattern of results for participation in school voluntary activities was similar in all three programs: 38.7% in NEU schools, 33.9% in PRONEBI schools, and 27.6% *Eduque* schools. Participation in community voluntary activities differed from program to program. In NEU schools, girl alumni were 61.7% of all participants. By contrast, girl alumni in PRONEBI schools were 31%, and in *Eduque* schools girl alumni participating in community voluntary activities were 19.8%. Finally, girls' alumni participation in democratic activities was consistently low in all three programs: 19% in NEU schools, 15% in PRONEBI schools, and 30.5% in *Eduque* schools.

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4. Teacher participation:

Girls' participation in school can also be encouraged if women participate of schools activities, in particular, if women hold positions as school directors and as teachers.

Overall, in the BEST schools, 34.4% of school directors were women. By contrast, 62.5% of comparison- school directors were women. Regarding the programs, 50% of NEU directors were women (EU 66.7%), 12.5 % of *Eduque* directors were women (none in the comparison school), and 33.3% of PRONEBI directors were women (comparison schools 85.7%). As can be seen, most BEST schools had fewer women school directors, than the comparison schools.

Regarding the gender of teachers, 39.3% of BEST teachers were women, whereas in the comparison schools, 45.9% of teachers were women. The NEU and PRONEBI schools had a slightly lower number of women teachers, 30.8% (EU 66.7%) and 37% respectably (comparison 50%); "*Eduque a la Niña*" schools had a somewhat higher number of women teachers, 45.2% (comparison 27.3%).

D. SYSTEM SUPPORT - MAYANS

1. Communication of expectations for participation of Mayans:

Seventy-six percent of all BEST teachers were able to articulate MOE objectives regarding participation of Mayans. By contrast, 65% of comparison-school teachers articulated these objectives. In both cases, a greater percentage of teachers mentioned aspects that they believed were MOE objectives for participation of Mayans. However, those teachers who mentioned objectives that clearly were not related to participation of Mayans were considered not to have received communication regarding the objectives or to know them.

Teachers of each program showed slight differences when mentioning these objectives. In analyzing results by program, it was found that 80% (comparison 82%) of PRONEBI teachers, 73% of *Eduque* teachers, (comparison 54.5%), and 61% of NEU teachers (EU 33.3%) clearly articulated these objectives.

Teachers' interpretations of these objectives are also informative. Teachers' interpretations are classified in two categories. In the first, teachers' interpretations of MOE objectives neatly correspond to MOE objectives for Mayan participation. Teachers' answers were coded in these categories only if the answers made explicit reference to them.

The second category includes a less specific set of objectives. The category "To teach Spanish" is no longer the MOE main educational policy for Mayan populations; the main objective is now bilingual education. The category "To educate the Mayans," which might appear to be quite specific, in fact referred to answers such as "Provide education," "Educate [Mayans] as good citizens," or "Educate them so that they can become good persons." This category and the category "To fight illiteracy" are pertinent to Mayan students, but they are also pertinent to ladino students. It may be that

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teachers interpret these less Mayan-specific MOE objectives as MOE objectives for Mayans' participation because of a lack of clarity in the articulation of the objectives.

Overall, about half of teachers' interpretation of MOE objectives fell in the very specific category of answers. The category "Bilingual Education" was the most mentioned: 26% of all teachers mentioned it (comparison 7.7%). The other two categories, "Participation of Mayans" and "To maintain culture and language," were mentioned by 12% (comparison 16%) and 9% (comparison 8%) of all teachers, respectively. In the less specific category, 19% of all teachers mentioned the category "To educate the Mayans" (comparison 15%) and 7% gave answers grouped in the residual category "Others" (comparison 5%).

Table 11: Teachers' interpretation of MOE objectives

PROGRAM	BILINGUAL EDUCATION	PARTICIPATION OF MAYANS	TO MAINTAIN CULTURE AND LANGUAGE	TO TEACH SPANISH	TO FIGHT ILLITERACY	TO EDUCATE THE MAYANS	OTHER
NEU	23.1	7.7	0	15.4	0	7.7	7.7
EU	0	16.70	0	0	16.7	0	0
EDUQUE A LA NIÑA	30.3	3	9.1	0	3	24.2	6.1
CONTROL	0	4.6	18.2	0	9.1	18.2	0
PRONEBI	24.4	20	11.1	0	0	17.8	6.7
CONTROL	13.6	18.2	4.6	9.1	9.1	18.2	9.1
BEST	26.4	12.1	8.8	2.2	1.1	18.7	6.6
NO BEST	7.7	15.8	7.7	5.1	10.3	15.4	5.1

Source: Teacher interviews

There was no clear patterns of results from program to program. As can be seen in table 11, with the exception of "Bilingual Education", there was little agreement among programs. This again may indicate that the MOE has not communicated these objectives clearly enough for teachers to make a uniform interpretation of them. (Channels through which teachers learn about MOE objectives are discussed above in the section on girls.)

2. Provision of Services.

A detailed discussion of provision of services appears above in the Girls' participation section. Reference is limited in this section MOE training objectives with regard to Mayan participation.

In the BEST schools, 43% of all teachers received training from PRONEBI in some topic regarding MOE objectives for Mayan participation (this does not include NEU schools). In the comparison schools, 27% of all teachers received this training from PRONEBI. As PRONEBI has concentrated its training efforts in those schools that are part of the program, this may suggest teacher mobility among PRONEBI and other schools.

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In the BEST schools, 43% of all teachers received training from PRONEBI in some topic regarding MOE objectives for Mayan participation (this does not include NEU schools). In the comparison schools, 27% of all teachers received this training from PRONEBI. As PRONEBI has concentrated its training efforts in those schools that are part of the program, this may suggest teacher mobility among PRONEBI and other schools.

Directors' knowledge of MOE objectives for Mayan participation was lower than for girls' participation. About 60% of all directors mentioned these objectives. By program¹, 71% of PRONEBI directors, 62% of *Eduque* directors, and 40% of NEU directors were able to mention these objectives.

E. STUDENT PARTICIPATION - MAYANS

1. Attendance

Overall, schools in the BEST program had relatively higher attendance of Mayans on a given day than comparison schools. As can be seen in Table 12, the attendance of Mayans in the BEST schools is at least seven percentage points higher than in comparison schools in all cases, and is consistently above 80%. The attendance of Ladinos in the BEST schools is less consistent, varying between 52% and 100%. The perfect attendance which occurred in the PRONEBI schools among ladinos is a result of the low number of such students identified among the student population (63 of 1625 sample children). With this exception, BEST schools consistently had higher attendance among Mayans than among ladinos, whereas in comparison schools ladino children attended in relatively higher or similar frequencies to Mayans.

Table 12: Mayan Attendance

Program	BEST		Comparison	
	Mayans	Ladinos	Mayans	Ladinos
Overall	85.3%	64.9%	75.8%	76.8%
La Niña	86.4%	52.6%	78.5%	100%
NEU	95.1%	61.0%	47.7%	71.2%
PRONEBI	83.2%	100%	76.5%	76.0%

2. Continuation

¹ The percentage figures should be interpreted with care for frequencies in each program are low NEU = 4; PRONEBI = 10; *Eduque* a la Niña = 8)

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Table 13 presents the relative rates of continuation for children of Mayan origin, as identified by the teacher in each of the BEST interventions with that of their comparison group. Overall the BEST program and the combined comparison groups had similar rates of promotion. However, the two groups differ on the patterns of repetition and dropout. With the exception of *Eduque* schools, repetition is generally higher in BEST schools. This is especially true among Mayan children in the NEU program. Again, the relatively high repetition rate in NEU may reflect teachers' lack of complete mastery of the flexible promotion concept. As this tendency does not occur with *ladino* children (see Table 14), however, communication difficulties between Mayan students and monolingual teachers in the NEU program may also result in greater repetition.

As with the retention of girls, the BEST program interventions have had the greatest impact to date the area of retaining Mayans in school by reducing dropouts. In comparing the relative frequency of dropouts in BEST and non-BEST schools, overall, BEST has a dropout rate of two percentage points lower than comparison schools. For each BEST program, Mayan dropout rates are between one and 24 percentage points lower than comparison schools.

Table 13: Mayan Continuation Rates

Program	BEST			Comparison		
	Pro.	Rep.	Drop.	Pro.	Rep.	Drop.
Overall	75.7%	16.2%	8.1%	75.2%	14.6%	10.2%
La Niña	81.5%	12.8%	5.7%	76.0%	13.9%	10.1%
NEU	62.0%	29.1%	8.9%	47.1%	18.8%	34.1%
PRONEBI	76.5%	16.3%	7.2%	77.1%	14.8%	8.1%

Table 14 shows that the project interventions are also having a positive relative effect on *ladino* students. Repetition rates are lower for all BEST sample schools accounting for relatively higher promotion rates. The trend toward lower dropout rates continues with *ladino* students in *Eduque* and NEU. PRONEBI schools, on the other hand, have slightly higher dropout among *ladino* students than in comparison schools.

Table 14: Ladino Continuation Rates

Program	BEST			Comparison		
	Pro.	Rep.	Drop.	Pro.	Rep.	Drop.
Overall	79.8%	11.5%	8.7%	74.4%	16.9%	8.7%
La Niña	78.3%	16.4%	5.3%	59.1%	25.6%	15.3%

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NEU	90.2%	6.6%	3.2%	81.6%	11.6%	6.8%
PRONEBI	80.4%	11.1%	9.5%	69.3%	22.1%	8.6%

3. Completion:

For the purpose of this study, completion has been defined as the number of students enrolled in sixth grade divided by the total enrollment. The indicator calls for a difference between project and comparison schools, and for similarity among Mayan and *ladino* students.

Overall, students in sixth grade were 6.4% of the total enrollment in BEST schools and 6.1% in the comparison schools. Mayans in sixth grade were 5.6% of the total enrollment and *ladinos* 0.8% (comparison 2.2% and 3.9%, respectively). Mayan enrollment in sixth grade as a proportion of total school enrollment was more than two and half times higher in BEST schools than in the comparison schools (BEST 5.6%, comparison 2.2%). Likewise, Mayan enrollment in sixth grade as a proportion of total Mayan enrollment was two times higher in BEST schools than in the comparison schools; by contrast, *ladino* enrollment in sixth grade as a proportion of total *ladino* enrollment was similar to that of Mayan enrollment in BEST schools (Mayans 6.6%, *ladinos* 5.2%), but was much higher in the comparison schools (Mayan 3.3, *ladinos* 11.5%).

4. Interaction

As discussed throughout this document, participation is a complex issue. The study attempts to measure participation at a number of levels. These levels include numbers of women/Mayan teachers and directors; participation of teachers in school decision-making; and female/alumni involved in community activities. The primary indicator for Girls'/Mayan participation is a measure of participation at the classroom level through the observation of student-teacher interaction. This participation is expressed as indices of child-initiated interactions, and indices of teacher-initiated interactions with individual children.

Tables 17 and 18 show variations in the patterns of interactions both across the combined sample and within programs when examined across the two indicators. Overall, the combined comparison group appears to offer Mayan children greater access to the teacher. Despite the low percentage of *ladinos* in most BEST programs, they have an extremely high index of access to the teacher. This is likely a result of the Spanish-speaking ability of these children, which gives them almost exclusive access to monolingual teachers and may contribute to their use as language models and in classrooms with bilingual teachers.

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	Mayas		Ladinos		Total	
	BEST	NO BEST	BEST	NO BEST	BEST	NO BEST
Matricula sexto grado de grupo meta como % de matricula total de grupo meta	6.6	3.3	5.2	11.5		
Matricula sexto grado de grupo meta como % de matricula total	5.6	2.2	0.8	3.9	6.4	6.1
Porcentaje de grupo meta en matricula total	85.3	66.3	14.7	33.7		

	Mayas		Ladinos		Total	
	PRONEBI	COMP.	PRONEBI	COMP.	PRONEBI	COMP.
Matricula sexto grado de grupo meta como % de matricula total de grupo meta	7.4	4.2	4.8	30.6		
Matricula sexto grado de grupo meta como % de matricula total	7.3	3.8	4.8	3.1	6.9	6.1
Porcentaje de grupo meta en matricula total	98.3	89.8	1.7	10.2		

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	Mayas		Ladinos		Total	
	NEU	COMP.	NEU	COMP.	NEU	COMP.
Matricula sexto grado de grupo meta como % de matricula total de grupo meta	3.4	0	6.8	10		
Matricula sexto grado de grupo meta como % de matricula total	1.5	0	4.7	9.1	5.8	9.1
Porcentaje de grupo meta en matricula total	30.6	9.1	69.4	90.9		

	Mayas		Ladinos		Total	
	Niña	COMP.	Niña	COMP.	Niña	COMP.
Matricula sexto grado de grupo meta como % de matricula total de grupo meta	5.1	4.2	4	7.2		
Matricula sexto grado de grupo meta como % de matricula total	4.04	2.2	0.8	3.5	5.7	9.1
Porcentaje de grupo meta en matricula total	78.4	51.6	21.6	48.4		

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Table 17: Index of Mayan Active Participation

Program	BEST		Comparison	
	Mayans	Ladinos	Mayans	Ladinos
Overall	.88	2.02	.93	1.21
<i>La Niña</i>	.97	1.05	1.00	.99
NEU	.86	1.26	1.96	.81
PRONEBI	.87	3.65	.87	1.58

In terms of providing students with attention, the BEST interventions come closer to the definition of equity developed for this study than the comparison schools. Overall in the BEST program, there is very close to a 1:1 relationship in the attention provided to Mayan and ladino students. However, the overall trends are not consistent among the different interventions.

Table 18: Index of Mayan Responsive Participation

Program	BEST		Comparison	
	Mayans	Ladinos	Mayans	Ladinos
Overall	.99	1.07	1.07	.78
<i>La Niña</i>	1.03	.75	1.10	.33
NEU	1.10	.80	1.21	.96
PRONEBI	.97	1.59	1.06	.74

In order to examine the importance of bilingualism in teachers' interactions with bilingual teachers, indices of participation were calculated for children based on the self-reported language ability of the teachers. As can be seen in the table, there is a great increase in the interactions initiated by Mayan students when the teacher is bilingual. In the BEST program, the bilingual teachers come very close to the study definition of equity. Similarly, the bilingual teachers in the BEST program provide greater attention to Mayan children than do monolingual teachers. The results are less consistent for the comparison group. Bilingual teachers provide access to Mayan students but allow relatively greater access to ladino students. However, the teachers initiate few interactions with these students that are not initiated by the students themselves.

As might be expected, monolingual teachers in the BEST program both allow greater access and provide greater attention to *ladino* children. A rather unexpected result is that monolingual teachers in comparison schools allow greater access and provide more attention to their Mayan students. This may be a result of the relatively lesser isolation of the comparison schools, which

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would contribute to greater numbers of bilingual Mayan students who could interact with monolingual teachers.

Table 19: Teachers' Indices of Interaction by Language

BILINGUAL TEACHERS				
	BEST		Comparison	
Indicator	Mayans	Ladinos	Mayans	Ladinos
IAP	1.00	1.02	.96	2.11
IRP	1.01	.77	1.04	.13
MONOLINGUAL TEACHERS				
	BEST		Comparison	
Indicator	Mayans	Ladinos	Mayans	Ladinos
IAP	.75	2.00	1.02	.98
IRP	.91	1.35	1.15	.81

Honors that both ladino and Mayan students received were also used as indicators of participation. If equity exists in awarding these honors, one would expect the proportion of Mayan and ladino students who received them to be equal.

Aggregating all honors, 12 percent of Mayan students (comparison 12%) and 11 % of ladino students (comparison 8%) were awarded one or more of these honors. Of this total, 4% of Mayan students (comparison 4%) and 3% of ladino students (comparison 5%) were on the honor roll, 3% of Mayan students (comparison 0.3%) and 4% of ladino students (comparison 2%) were chosen to form part of the school government, and 5% of Mayan students (comparison 7%) and no ladino students (comparison 0) were chosen to be flagbearers. Table 20 presents results by program.

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Table 20: Proportion of students receiving honors, by ethnic origin

пжЕГжЯЕ	тЕЕж чЕѳ		ШӘГЕЕѳ ТЕГГжЕГЕс		сЯГГЯГжГжS		ЦГГжЯѳ тЕЕжS	
	ХЯЯЕS	Ladinos	ХЯЯЕS	Ladinos	ХЯЯЕS	Ladinos	ХЯЯЕS	Ladinos
хСЦ	хП	хП	ЗИЕНВ	ЗзЕЯВ	хП	хП	ЗИЕНВ	ЗзЕЯВ
СЦ	нЕЯ	нЕЗ	ж	ИЕН	Л	ж	Зн	К
<i>Eduque a la Niña</i>	зЕК	зЕЛ	ЗЕК	Ззз	ЙЕН	ж	Зж	н
РЕЕЕЯжFSEЕ	зЕК	нЕК	Е		зЕН	ж	Зк	н
пчЦхСпУ	нЕН	ЗЕЛ	ЗЕЛ	ж	нЕК	ж	ЗЗ	з
РЕЕЕЯжFSEЕ	жЕЛ	ЗЕЛ	жЕН	ЗЕЛ	КЕз	ж	кЕК	ИЕК
пСШш	н	ИЕз	зЕК	ИЕЛ	ЙЕз	ж	Зз	ЗЗ
РЕЕЕЯжFSEЕ	ИЕН	ЙЕН	жЕН	зЕН	КЕз	ж	ЗЗ	к

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Other measures of Mayan participation included alumni participatory behavior in the school, the community, and in democratic activities. While alumni participation cannot be attributed to the project, it is a good indicator of current participation patterns. Mayan alumni participated more than ladino alumni, but the proportion of the Mayan population in the schools was higher than the proportion of Mayan alumni participation. If the Mayan alumni proportion in the community was similar to that of the school, and if the proportion of Mayan students in the past was similar to that of today, one would expect that Mayan alumni participation were near to 90%. In such a case, the smaller proportion of Mayan alumni participating in these activities would suggest that in fact Mayan participation is smaller than expected, or that Mayan enrollment in the school was smaller (which is the fact), or both. Overall, of the total of alumni participating in school voluntary activities, 75.7% were Mayan alumni. Of those participating in community voluntary activities, 74% were Mayan alumni. Finally, of those participating in democratic activities, including elections, 73% were Mayan alumni. This compares to 61%, 64% and 87%, respectively for control schools.

These result patterns were somewhat different from program to program. In those NEU schools in which the director reported that alumni were participating in school voluntary activities, 48% of the participating alumni were Mayans; by contrast, 96% of participating alumni were Mayan in PRONEBI schools, and 67% in *Eduque* schools. Regarding participation in community voluntary activities, 53% of participating NEU alumni were Mayan, 50 of participating PRONEBI alumni were Mayan, and 72% of participating *Eduque* alumni were Mayan. Finally, in

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activities related to democratic participation, 47% of participating NEU alumni were Mayan, all (100%) of participating PRONEBI alumni were Mayan, and 60% of participating Eduque alumni were Mayan. These results should be analyzed as functions of the proportion of Mayan students in each program: 55% in NEU, 96% in PRONEBI, and 84% in *Eduque*.

3. Teacher participation

The percentage of Mayan directors and Mayan teachers in schools was used as an indicator of teacher participation. Overall, 44% of all directors were of Mayan origin. In PRONEBI schools, 71% of all directors were Mayan; in NEU schools, 30% of all directors were Mayan; and in *Eduque* schools, 12.5% of all directors were Mayan. The percentage of Mayan teachers was higher than that of directors. Overall, 57.7% of all teachers in project schools were Mayans. The Mayan origin of interviewed teachers was somewhat smaller: 52.8% of all teachers interviewed were Mayan. This may have been true as well for Pre-school teachers. Although pre-school teachers were not interviewed, the directors included them when talking about all teachers. A similar pattern was found in all programs. In Region II NEU schools, 87.5% of all teachers were of Mayan origin; in PRONEBI schools, 54.3% of all interviewed teachers were of Mayan origin, and 59% of all teachers were of Mayan origin; and in *Eduque* schools, 60% of interviewed teachers were of Mayan origin, and 54 of all teachers were of Mayan origin.

III. CONCLUSIONS AND IMPLICATIONS

As the purpose of the study was to provide a baseline on which to assess the progress made in increased participation of girls and Mayans within the Guatemalan primary education system, recommendations for possible changes are not appropriate. However, certain conclusions can be drawn from the results of the study and these conclusions suggest a series of implications related to improving the participation of girls and Mayans.

A. CONCLUSIONS

The Ministry of Education has generally been successful in communicating the importance of educating girls and Mayans to school personnel. Almost three-fourths of the teachers in BEST programs and over 60% of teachers throughout the educational system were able to articulate MOE objectives related to the participation of girls and Mayans in primary education.

Ministry support for girls and Mayan education as evidenced by in-service training has been relatively high in BEST project schools, but less successful in non-BEST schools. Nearly 60% of BEST project teachers have received training courses related to girls' education and more than seventy percent had been given orientation in this area by the directors of their schools. In contrast, only about 30% of non-BEST teachers had received courses in this area and less than half of the teachers had received orientation from school directors. Similarly, training is the principal dissemination mechanism for learning MOE objectives about Mayan participation with 43% of the BEST teachers and 27% of the comparison group having received training in this area.

Material resources of the most basic type such as blackboard erasers, chalk, teachers guides and paper are insufficient. Little more than one-half of the schools surveyed had the basic materials generally considered necessary to successfully conduct classes. Thus, a classroom infrastructure that would help to encourage girls and Mayans to remain in school is lacking in many cases.

The BEST project has been successful in encouraging children's attendance at school. However, boys attendance is higher than that of girls. Girls in BEST project schools were found to have higher average attendance rates during the research than girls in comparison schools (81% to 78%). Boys in the BEST program also had higher attendance rates than comparison boys (86% to 82%) and this rate was higher than that of girls in the BEST program schools. Mayan children in BEST schools had consistently higher rates of attendance than Mayan students in comparison schools (85% to 76%). However, the relative frequency of ladino attendance was somewhat lower in BEST schools.

The BEST project has been successful in encouraging girls' continuation in primary school. Overall, girls in the BEST program had higher promotion rates and lower repetition and dropout rates than girls in comparison schools. The rates of girls on these indicators were not appreciably different from those of

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boys in the BEST schools. Boys in the BEST program had better continuation rates than boys in comparison schools. Mayan students in BEST schools, on the other hand, had similar promotion rates, higher repetition rates and lower dropout rates than Mayan children in comparison schools.

The BEST project has had little effect on sixth grade completion rates among girls, owing perhaps to the short time that programs focusing on girls participation have been implemented. Little difference was found between the percentage of girls and boys in sixth grade when contrasted with the comparison group children. Boys, however, made up a higher percentage of sixth grade students in all schools.

The BEST project interventions appear to have been successful in promoting the school completion of Mayan children. The relative frequency of Mayan children in sixth grade in BEST project schools is consistently higher than that of Mayan comparison children. This may be a result of the long period of time which PRONEBI has been functioning, as PRONEBI had the highest frequency of Mayan children in sixth grade.

Within the classroom, the BEST project has not affected girls or Mayan participation as measured by the interaction of students with their teachers. However, the bilingual ability of the teacher is an important factor in increasing the participation of Maya-speaking children. Teachers in comparison schools tended to initiate slightly more interactions with girls whereas girls in BEST schools initiated more interactions with teachers than comparison girls. However, in all cases, teachers had a relatively greater number of interactions with boys than with girls. With Mayan children, when teachers could speak the language of the students, higher indices of participation were found. The exception was in comparison schools where monolingual Spanish-speaking teachers were dealing with Mayan children who tended to be bilingual in Spanish and a Mayan language.

The BEST project does not appear to have had an effect on the gender or ethnicity of school staff. Higher percentages of women teachers and directors were found in comparison schools and similar percentages of Mayan school staff were present in all schools.

Although not attributable to the BEST project, participation in school appears to influence subsequent participation patterns. School directors stated that more than a third of former female students and more than 70% of former students of Mayan origin participated in voluntary activities involving the school. Similar percentages were also given for participation in other types of community activities and for voting patterns.

B. IMPLICATIONS

The success of the MOE in disseminating its objectives for the participation of girls and Mayans to teachers and school directors suggests that such efforts should be continued and perhaps expanded in order to reach all schools.

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The positive impact of the BEST project on the attendance rates of girls and Mayans and the continuation rates of girls suggests that the strategy of targeting children who are generally underserved in the primary school system can be effective. Thus, greater efforts should be made to continue to refine programs to address areas such as girls attendance and Mayan promotion and dropout, where indicators are relatively lower than those for boys and ladinos respectively.

Although teachers can articulate the objectives of the MOE to encourage greater participation of girls and Mayans in primary schooling, these objectives have not yet been translated into classroom behavior. Both boys and ladinos tend to interact more frequently with teachers in both BEST and comparison classrooms than do girls and Mayans, respectively. Thus, greater emphasis must be placed on classroom techniques that encourage participation of target children. Ways in which to make the link between MOE objectives and the methodologies being implemented by the BEST project to meet such objectives more explicit to teachers must be sought.

Greater efforts must also be made to ensure that schools implementing activities to encourage participation of girls and Mayans have an adequate infrastructure to effectively carry out the programs. Where basic classroom materials are lacking, it is unlikely that the effect of programs or activities encouraging the participation of girls and Mayans will be maximized.

The high frequency of multigrade classrooms found throughout the sample schools suggests that aspects of the NEU methodology may be appropriate for most rural primary schools. Thus, the possibility for wider dissemination of this methodology in order to provide a tool for teachers in graded schools who have multigrade classrooms should be investigated.

The relatively high frequency of participation of school alumni in voluntary and democratic activities reinforces the importance of encouraging children to stay in school. Although not directly attributable to the project, the relationship between primary school participation and taking an active part in community and national life after school completion suggested by the results of this study, supports the Ministry objectives and the BEST project activities designed to help reach these objectives.

IV. BIBLIOGRAPHY

- Blum, Robert E. (1990). Effective Schooling Practices: A Research Synthesis. Portland OR: Northwest Regional Education Laboratory.
- Chesterfield, Ray (1992). Basic Education: Review of Experience. Washington, DC: USAID/LAC/DR/EHR.
- Chung, Fay (1992). "Recent Developments in Research into School Effectiveness in Zimbabwe". Paper presented at conference on Schooling Effectiveness: Cross-National Findings: Harvard University, Cambridge MA, Sept. 10-12, 1992.
- Creemers, Bert, et al. (eds) (1989). School Effectiveness and School Improvement. Amsterdam: Swets and Zeitlinger.
- Fuller, Bruce (1986). "Raising School Quality in Developing Countries: What Investments Boost Learning". Discussion Paper No. 2. Washington, DC: World Bank.
- Hawes, Hugh and David Stephens (1990). Questions of Quality: Primary Education and Development. Essex, England: Longman.
- Holmes, Mark, et al. (eds) (1989). Educational Policy for Effective Schools. Toronto, Ontario: OISE Press.
- Lockheed, Marlaine E. and Adriaan M. Verspoor (1991). Improving Primary Education in Developing Countries. New York: Oxford university Press.
- Mortimore, Peter (1991). "School Effectiveness Research: Which Way at the Crossroads". School Effectiveness and School Improvement, 2(3), pp. 213-229.
- Shann, M. (1990). Making Schools More Effective: Indicators for Improvement. Boston, MA: Boston University.
- Snyder, Wes, and Philemon T. Ramatsui (eds.) (1990). Curriculum in the Classroom: Context of Change in Botswana's Junior Secondary School Instructional Programme. Botswana: Ministry of Education/MacMillan Botswana.
- Windham, D.M. (1988). Indicators of Educational Effectiveness and Efficiency. Tallahassee, FL: Educational Efficiency Clearinghouse.

APPENDIX A. INDICATORS

Three levels of indicators are related to greater participation of girls and Mayans. First, are system support indicators or enabling factors that must be in place if participation is to lead to increased efficiency in terms of making normal progress through the school system and greater quality in terms of academic achievement. Second, are indicators or participation of students in the classroom, school, and later life. Third, are greater participation by target groups in the decision-making process of the school.

1. System Support

- a. Communication of expectations for participation of girls/Mayans
 - educational leaders above the school level communicate frequently and publicly the goals for participation.
- b. Provision of Services
 - school supervisors inform teachers of promising instructional practices regarding participation of girls/Mayans
 - training on increasing participation is provided to school directors and teachers
- c. Material Resources
 - instructional materials available in sufficient quantity and in appropriate languages so that all students have access to them
 - teachers have guides that outline what to teach and how to teach it with regard to participation of girls/Mayans
 - students have sufficient paper and implements to practice what is taught
 - Classrooms equipped with blackboards, chalk and enough desks to seat all enrolled children

2. Student Participation

- a. Attendance
 - daily attendance high/increases from year to year over LOP
- b. Continuation

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- number of repeating students is low/decreases from year to year over LOP
- number of dropouts from each class and between grades is low/decreases from year to year over LOP

c. Completion

- the percentage of grade one entrants who successfully complete all grades is high/increases over LOP

d. Interaction

- frequency of instructional interaction with teachers is high/increases over LOP
- frequency of academic interaction with peers is high/increase over LOP
- students (older- 3rd grade?) can express their beliefs intelligibly to adults
- number of alumni involved in volunteer development activities is high/increases over LOP
- number of alumni who participate in "democratic process" including elections is high/increases over LOP

3. Teacher Participation

a. Decision-making

- Increased number of Mayan/women teachers
- Increased number of Mayan/women school directors
- Increased number of Mayan/women supervisors
- Frequency of expressed participation in decision-making