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STUDY OF BILINGUAL EDUCATION GRADUATES IN GUATEMALA

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I. INTRODUCTION

Bilingual education is considered one of the solutions for improving the education achievement of Indigenous boys and girls. This document presents the results of an study of graduates of PRONEBI/DIGEBI that was carried out among the pilot schools of the National Bilingual Education Project that was begun in Guatemala in 1979. It includes a sample of the original 10 schools from the Mam, Q'eqchi', Kaqchikel y K'iche' linguistic areas where the project was developed and a sample of similar schools in the same areas that have never offered bilingual education. The purpose of the study was to determine the influence of participation in an bilingual multicultural education program on the adult life of graduates, in terms of personal well-being, participation in civil society, and the maintenance of Mayan culture.

A. Background

The Bilingual Education Project (PRONEBI) began as a pilot effort in 1979. At that time the program incorporated 40 schools in the four principal Mayan language groups: K'iche', Mam, Q'eqchi' y Kaqchikel. The experimental project was funded by USAID/G from 1979 to 1984. The design of the project was a transition model of bilingual education, in that the language of instruction would gradually increase from the maternal language to Spanish over a period of four years. The project designed prototype bilingual instructional materials for four grades and trained teachers in the 40 pilot schools. In 1985, based on the results of an evaluation of the pilot project, it was transformed into a program within the Ministry of Education.

This was a period of intense civil war in the country, when it was dangerous to support any initiative related to the Mayan people. When the project began, 42% of the Guatemala populace were members of Mayan Indian groups. These groups made up a majority of the rural population of the country and were largely subsistence agriculturalists. They traditionally had been poorly served by the education system. Only 40% of the school age population was estimated to attend school and of these about 50% dropped out at the end of their first year of study.

The Guatemala Bilingual Education model has its origin in the National Program of Bilingual Education (PRONEBI), which was created by Government Decree No. 1093-84, under Government Agreement No. 726-95. This decree expanded the pilot project to 400 complete schools where the program worked with preschool and the first four primary grades, as well as 400 incomplete schools in which PRONEBI only worked with preprimary classes. PRONEBI was supported by USAID through the Rural Primary Education Improvement Project (1984-1989) and the Basic Education Strengthening (BEST) Project (1990-1997). The purpose of these projects was to provide a relevant bilingual education to rural Indigenous boys and girls and create a permanent capacity in the Ministry of Education to deliver this education.

PRONEBI had a phased implementation plan for the design, production and distribution of textbooks as well as the placement and training of teachers. The program was under the Ministry Education Directorate of Rural Education (Dirección Socio-Educativo Rural) which was responsible for all rural primary education in the country. PRONEBI consisted of five components: Administration and Supervision, which had responsibility for the administration of bilingual education throughout Guatemala; Curriculum Development, which was responsible for the development of bilingual texts and instructional materials; Infrastructure that carried out the printing of bilingual texts and guides as well as the purchasing of desks and furniture for rural schools; Training, which consisted of three activities - preparation of bilingual promoters for preschool, in-service training of teachers, and university training for supervisors and personnel of the central office of PRONEBI; and Evaluation that measured the academic performance of students in the program. During this period there was a concensus among the personnel of PRONEBI that the model being developed was that of parallel bilingual education. This model supported the development of the mother tongue of the students and Spanish was taught as a second language from preschool to fourth grade.

In 1995, through the Governmental Decree No. 726-95, PRONEBI was transformed into the General Directorate of Bilingual Intercultural Education (DIGEBI). Objectives of DIGEBI are: scientifically developing bilingual education for the student population of the country in all areas and educational levels; strengthening the identy of different ethnic groups in the country with their own cultural values in order to promote the self-realization of each person within his or her social unit; develop, implement and evaluate the Bilingual Intercultural curriculum in accord with the characteristics of different linguistic communities; and develop, consolidate and preserve an additive bilingualism and its maintenance withn the Mayan-speaking student population. Currently, DIGEBI attends more than 1400 schools and 14 linguistic groups in 11 departamentos and 135 municipalities. (DIGEBI, 1997).

II. METHODOLOGY

The objective of the study is to provide valid qualitative information on the experience of graduates of the National Program of Bilingual Education. The study covers the three periods of implementation of the Bilingual Education program: the project phase (1979-1984); the program phase (1985-1994), and the directorate phase (1995-2002). The same schools were used for the different phases under study. Graduates of both sexes were selected from a random sample of schools that participated in the first phase of the program. Schools near the selected schools but without a bilingual education program were chosen as a comparison group and students who attended and graduated from these schools during the same periods were interviewed.

A. Procedures

The principal instruments were open-ended interviews that provided data on the actual

situation of the graduate, their work situation and their experience in primary school. Also included were questions on the usefulness of their primary school education, their participation in community activities and their maintenance of Mayan culture in their family. In addition, a checklist was used to measure the economic situation of the respondent. Teachers were interviewed as to the development of the bilingual education program in their schools, including limits or obstacles to implementation.

The study took place in two phases. The first prase, wich took place in April of 2002, was a pilot study to test the procedures for identifying respondents and refine the instruments. Based on the pilot experience, the instruments were refined and the study was undertaken with 320 former students and 60 teachers, beginning in mid-May. Fieldwork took place over the following two months.

Ten fieldworkers were trained and supervised by members of the MEDIR team. Interviewers were experienced Myan profesionales, all with college education. Supervision occurred by periodic visits to the field to monitor the progress of data collection and assure the quality of the data. Follow up interviews were undertaken with the fieldworkers to check on data quality.

B. Definition of indicators and variables

Two sets of indicators were used. The first focused on the experience of the graduates during primary school. The degree of program implementation was determined through the respondents descriptions of their interactions with elements of the program. (See Table 1). The second dealt with the results of the primary school experience on later life. Three indicators were used: personal well-being; civic participation, and ethnic identity.(See Table 2).

Table 1: Sixth Grade Graduated Experience

Indicators	Variables	Analysis	Data Source
1. Program Implementation	a. Usage of Mayan	Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to the comparison cohort from the same time period.	Teachers interviews
	b. Usage of Spanish c. Usage of learning materials d. Usage of textbooks e. Usage of Mayan culture f. Preprimary program g. Parents participation		
2. Personal evaluation of the primary school experience	a. Usefulness for daily life of things learned at school b. Usefulness for work of things learned at school for c. Shortcomings of things learned at school	Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to the comparison cohort from the same time period.	Sixth grade graduated interviews

Indicators	Variables	Analysis	Data Source
	d. Additional necessary elements e. Additional content needed f. Opinion of intercultural bilingual education	Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to others PRONEBI/DIGEBI Cohorts	

Table 2: Results of Primary Education Experience

Indicators	Variables	Analysis	Data Source
1. Personal well being	a. Occupation b. Formal Education c. House construction and home appliances and belongigs	Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to the comparison cohort from the same time period. Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to others PRONEBI/DIGEBI Cohorts	Sixth grade graduated interviews House construction and home appliances and belongings checklist
2. Civic Participation	a. Alumnus is member of local community organizations b. Alumnus is member of a political party c. Alumnus has voted in elections	Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to the comparison cohort from the same time period. Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to others PRONEBI/DIGEBI Cohorts	Sixth grade graduated interviews
3. Ethnic Identity	a. Self-identification b. Usage of mother tongue in public contexts c. Usage of mayan dress d. Children speak Mayan language e. children attend a IBE school f. Positive opinion of IBE	Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to the comparison cohort from the same time period. Percentage of sixth grade graduates from a PRONEBI/DIGEBI cohort that identifies an element compared to others PRONEBI/DIGEBI Cohorts	Sixth grade graduated interviews

C. Instruments

Three instruments were used in the investigation: teacher interview graduate interview and verification list.

Teacher Interview. The purpose of the teacher interview was to examine changes in the school during the periods of interest to the study. The instrument had four blocks of questions. The first focused on the characteristics and experience that could have helped in his/her work in rural primary schools serving Mayan populations. The second dealt with the situation in the school when the teacher arrived. The third asked for an opinion about the changes that had taken place during his/her years of service. The last block asked for a self-identification of ethnicity and personal experiences with people of other ethnic groups.

Graduate Interview. The purpose of this instrument was to determine the influence of primary school, especially the first years of school on later life. The interview was generally conducted in the home of the respondent. The interview had six blocks of questions: 1) First, during the introduction the interviewer asked in what language the respondent would like to have the interview; the response was noted; 2) The first part of the interview dealt with the actual social situation of the person. It included what was thought about the economic and work situation in the country, what work the respondent did, what abilities were needed to carry out the work, and how the respondent acquired the abilities; 3) The second part of the interview dealt with the educational experience of the respondent during the first years in school. The focus was the teaching strategies that teachers used and the students' success in school. It also included questions about interactions with classmates and where these individuals might be located; 4) The third part asked for information on the utility of what the respondent had learned outside of the workplace; 5) The fifth block focused on how abilities developed in primary school were used in the respondents daily life and participation in community activities; and 6) The final block elicited information on the respondents ethnic self identification and experience with persons of different ethnic groups.

Verification List. This was an observation list that was used to determine economic status of the respondent. After finishing the interview and leaving the home, the fieldworker marked the household goods that had been observed and condition of the dwelling.

D. Sample

A sample of 4 schools was selected for each linguistic area and a researcher was assigned to each school. The researcher chose another school without bilingual education with similar characteristics that was close to the PRONEBI school. The fieldworker went to the school and introduced him/herself to the director, then asked for a list of graduates for the target year: 1987 for the pilot project; 1991 for the program, and 2001 for the directorate. If there were more than four graduates, the fieldworker randomly chose two boys and two

girls. If there were not sufficient subjects of a particular gender, the fieldworker took the graduates available. If there were not sufficient graduates in a given year, graduates were chose from the subsequent year to complete the sample.

Interviews were carried out with the teacher who had been in the school the longest and with a relatively new teacher (at least two years in the school).

Table 3: Interviews

Interviewee	PRONEBI pilot Schools	Comparison Schools
1. 1987 Sixth grade graduated	2 girls y 2 boys	2 girls y 2 boys
2. 1991 Sixth grade graduated	2 girls y 2 boys	2 girls y 2 boys
3. 2001 Sixth grade graduated	1 girl y 1 girl	1 girl y 1 boy
Total per escuela	5 girls y 5 boys	5 girls y 5 boys
4. Teacher with more time in school	1 Teacher	1 Teacher
5. Teacher with less time in school	1 Teacher	1 Teacher
School gran total	12 interviews	12 entrevistas

E. Analysis

The data analysis consisted of calculating absolute and relative frequencies of responses for each variable. Frequencies were used to make comparisons between each cohort of graduates in the comparison and bilingual education group. Within group comparisons were also made.

III. RESULTS

This section of the study examines the primary school experience of students who participated in the bilingual education program. These studentss' description of their primary schooling is compared to that of similar students who did not attend primary schools with a bilingual education program. The first section presents graduates' view of their program in terms of what aspects functioned well and how the bilingual education program differed from similar schools without bilingual teachers. The second section is a personal assessment by the students of how what they have learned have helped them in their daily life. These two sections are followed by sections detailing the outcomes of their primary school experience on their material well-being, civic participation and ethnic identity.

A. Primary School Experience

Age of Entry. The greatest differences found between the two programs were in the opportunity to attend preprimary classes prior to entering first grade and the use of mother tongue in the two types of schools. As can be seen from Table 4, significantly higher percentages of the PRONEBI/DIGEBI graduates attended preschool. Considering that one of the objectives of the program was to offer students a preschool to adjust to the formal school environment and learn preliteracy skills, this is not surprising. Perhaps more surprising is the relatively high number of comparison students that also attended preprimary classes.

Table 4: Percent of Students that Attended Preprimary School by Program Type

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Yes	176	92.6	138	68
No	14	7.4	65	32

$X^2 = 37.1, sig = .000$

The greater opportunity to attend preschool is reflected in the ages at which the two groups of children entered school. Table 5 shows that there were slightly higher percentages of young children, below the age of 7, who entered PRONEBI/DIGEBI schools. Similarly, higher percentages of students in the bilingual program entered first grade at the age of seven. Thus, there were relatively fewer overage children among the graduates making up the sample. The mean age of entry was 6.87 for graduates of the Bilingual Education program and 7.13 for graduates of comparison schools. This difference was significant at the .05 level of confidence. The overall differences were found in each period of implementation.

Table 5: Percent of Underage and Overage Students by Program Type

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Underage	74	39.2	68	33.9
7 Years of Age	80	42.3	76	37.8
Overage	34	18.5	57	28.4

Language Use in the School. When graduates were asked what languages the teacher who taught them in their first year in school used in the classroom, differences were found between the two groups. Students in the bilingual program identified a greater use of Mayan than students in other program. As might be expected in a bilingual program, there was also greater use of two languages among teachers of PRONEBI/DIGEBI students.

Table 6 shows the trends identified by the two groups of students. Use of Spanish by the teacher was almost twice as frequent in comparison than in the bilingual program as a whole, whereas 11% more students were exposed to Mayan and 14% to both languages in the bilingual program.

Table 6: Languages Used by Teacher in the First Year of Study by Program

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Mayan	57	30	38	18.7
Spanish	55	28.9	111	54.7
Both	75	39.5	52	25.6

$$X^2 = 26.6 \text{ sig} = .000$$

These results were confirmed by an additional question in which graduates were asked which language, Spanish or English they used more the teacher. Mayan was used more by 49% of the students compared to 40% of the comparison group students. Comparison group students, on the other hand, reported that they used more Spanish in 50% of the cases compared to 42% for PRONEBI/DIGEBI graduates. The graduates differed little in their use of Mayan with classmates. Seventy-seven percent of bilingual program graduates used either Mayan or both languages with peers, whereas 76% of the comparison group also used Mayan.

This emphasis on Mayan language was reflected in the responses when students were asked about the content that was learned in the school. Significantly more graduates of the bilingual education program identified reading and writing Mayan than did graduates of comparison schools (37.9 % versus 23.6%; $X^2 = 26.6 \text{ sig} = .002$). This was not true for other subject matter related to Mayan culture, as there were almost no differences in the percentages of graduates in the two groups that identified learning to read and write Spanish, the Mayan numbers or calendar, the agricultural calendar, and Mayan customs as content that they learned in school. With the exception of Spanish, which was mentioned by more than three-fourths of the students, none of the other contexts was mentioned by more than 15% of either group.

Opinions of Teachers. When asked about their opinions of their primary school teachers, there was little difference in the type of response between the two groups of graduates. There was no consistent pattern in the grade levels taught by either the favorite teacher or the least liked teacher. Similarly, the majority of the graduates identified either being angry, physical abuse, or not teaching anything as the reasons why they didn't like a certain teacher. Less than 5% identified being ladino or not speaking Mayan as the reason for dislike. For those teachers who were identified as good teachers, they were generally described by both groups by their teaching abilities or by their kind treatment of the

students. Again, only a very small percentage mentioned their ethnicity or bilingual ability.

Availability and Use of Materials Notebooks were the most common materials used by the graduates during their primary education experience. The blackboard and posters (*carteles*) were also fairly common. Materials in Mayan such as those produced by PRONEBI, were only identified by a small percentage of the sample all form the bilingual education program.

Table 7: Materials Identified by Students as Most Used in Primary School by Program

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Notebooks	71	37.4	71	35
Utensils (Pencils, paper, etc.)	25	13.2	31	15.3
Blackboard	36	18.9	39	19.3
Posters	30	15.8	42	20.7
Mayan Posters	2	1.1	2	1
PRONEBI Material	5	2.6	-	-
Natural Material	2	1.1	3	1.5

Despite the emphasis of PRONEBI/DIGEBI throughout its history on the development of texts in Mayan languages, textbooks in Mayan were not an important part of the materials identified by the graduates. Table 8 presents the distribution of responses when graduates were asked about the usefulness of textbooks. As can be seen, over two-thirds of the texts available were texts either from the Ministry of Education or from private venders. Less than 10% of the texts were those of the bilingual education program or other texts in Mayan. It is interesting to note that although the PRONEBI texts were not used widely in the bilingual classrooms, they did expand beyond the program schools. Seven percent of the graduates in comparison schools also mentioned the availability of PRONEBI texts.

Textbooks were used in a similar manner by both groups. Reading and writing was the most common use of texts. This was identified by more than forty percent of the sample of each group. Copying was identified by over 25% of the sample as the primary used of textbooks, whereas between 10% and 14% identified using textbooks to do homework.

Table 8: Most Useful Books by Program

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Dictionary	5	2.6	3	1.5
Textbooks (Official and commercial)	126	66.3	156	76.8
PRONEBI/Mayan texts	16	8.5	15	7.4
No Texts	12	6.3	7	3.4
No Response	31		22	10.8

Parent Participation The students in the sample identified similar levels of parent participation. More than 70% of each group stated that their parents participated in the school. There were, however, differences in the nature of participation. The most common response among the comparison group was that their parents participated by attending meetings. Among the bilingual education sample, parents were most likely to ask about their childrens performance or progress in school. This is likely a result of the bilingual ability of teachers, which allowed parents greater opportunity to express themselves.

Table 9: Parent Participation by Program

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Festive Days	20	15	21	14.3
Help (maintenance, cooking)	33	24.8	40	27.2
Attend Meetings	36	27.1	55	37.4
Ask about student progress	37	27.8	31	21.1

$$X^2 = 11.5; \text{sig} = .02$$

Program Differences. Examination of the different periods of implementation of the bilingual education program showed several changes in students' primary school experience over time that were not apparent in the aggregate comparison. The most important of these was the increase in the importance of Mayan language as the language of instruction in the classroom. Table 10 shows the relative frequency with which respondents identified the language used by teachers with the students in their first year of study and the language that they used most with the teacher. As can be seen, the use of Mayan by teachers and students in the bilingual education program was consistently greater than in the comparison group. During each period of implementation, at least 10% more teachers in bilingual education used Mayan than in the comparison schools. The percent of teachers using Mayan also increased over time from 27% to 42.5%. There was also an increase in the percentage of comparison teachers who were identified as using

Mayan in the classroom. This is probably due the influence of the Peace Accords, which promoted Guatemalan cultural and linguistic plurality.

The trend in classroom language use is even more apparent among the respondents. Their use of Mayan with the teacher was consistently higher than that reported by the comparison group and increased slightly over time. These differences were significant during the pilot and program stages of implementation. The comparison group, on the other hand, had a continued decrease in the use of Mayan and a corresponding increase in the use of Spanish with the teacher. This occurred despite the reported increase in the teachers use of Mayan among the comparison group.

Table 10: Reported Language Use by Teachers and Students by Implementation Period and Program

Implementation Period/program	Language Used by Teacher			Language Used by Student with Teacher		
	Mayan	Spanish	Both	Mayan	Spanish	Both
DIGEBI						
-Pilot	27.1%	27.1%	44.3%	51.4%	42.9%	5.7%
-Program	26.3%	31.3%	41.3%	45.0%	45.0%	8.8%
-Directorate	42.5%	27.5%	27.5%	52.5%	35.0%	12.5%
COMPARISON						
-Pilot	16.2%	59.5%	23.0%	41.9%	48.6%	9.5%
-Program	15.5%	53.6%	29.8%	39.3%	50.0%	10.7%
-Directorate	28.9%	48.9%	22.2%	37.8%	53.3%	8.0%

In terms of language use with classmates, the bilingual education program graduates consistently reported that between 71% and 72% used Mayan. The comparison group reported a similar percentage (71.6%) during the years of the pilot program. However, there was a drop to 57.8% use of Mayan among the 2001 graduates of comparison schools.

As with the overall trends, these differences are reflected in the reported bilingual intercultural subject matter learned by the students. Those reporting that they learned to read and write Mayan was consistently at least 12 percentage points higher than among the comparison group. In addition, the percentage increased from 39% among the 1987 graduates to 45% among the 2001 graduates. Among the comparison group, the percentage of students who learned to read and write Mayan dropped slightly from 26% to 24% over the same periods. The same trend was found with learning the Mayan numbers. The percentage of students in the bilingual programs who reported learning Mayan numbers rose from 15.7% to 25%, whereas the comparison group remained at about 18% through the three periods of implementation. Other areas of subject matter where similar for each program and period.

The age of entry into primary school followed the general pattern. Bilingual Education students had higher participation at each implementation period than students in comparison groups. This led to lower entry age than in the comparison group. Average age of entry for the three implementation periods was 7.01 years, 6.75 years, and 6.85 years for the bilingual education implementation periods and 7.44 years, 6.86 years, and 7.14 years for the comparison group.

No differences were found in terms of what students remembered most about their first year in school. For all groups, the highest percentage was learning pre-literacy skills followed by making friends and a variety of personal feelings (happiness, timidity, etc.). Consistent with their impressions, over two-thirds of the respondents identified pre-literacy skills as the most important subject taught during their first years. No differences in terms of instructional materials, use of book, favorite or least favorite teacher were found by implementation period. As with the overall results, less than two percent of the respondents mentioned being Indigenous or bilingual as what they liked about a teacher. In terms of failure, dropout and repetition, there was a tendency toward lower dropout in both groups over time. The bilingual education students went from a reported dropout rate of 11.4% during the pilot period to 5% in the directorate period. The comparison group had the same trend but reported a higher percentage of dropout (23% to 17.8%). No difference by parent participation were found for the different periods of implementation.

Gender Differences. When primary school experience was examined by the sex of the student very little difference was found within or across programs. PRONEBI/DIGEBI students of both genders entered school at a somewhat younger age than the comparison group. Although the mean age was less than seven years for both boys and girls in the bilingual education program, girls tended to be slightly older (6.91 years versus 6.85 years). In the comparison group, the average age of entry was slightly higher. In this case, however, girls were younger than boys (7.04 years versus 7.11 years). Language used by the teacher, language used with peers, the types of materials used and the subject matter learned were similar for males and females in both groups.

B. Personal Assessment

More than 95% of the sample of both groups of students stated that they found what they had learned to be useful. When asked what specifically had been useful the greatest number of responses related to reading, writing and speaking Spanish. As shown in Table 11, more than one-fourth of the responses were related to ability to use Spanish. Mathematics was also identified as important by about 20% of the respondents. The only other skill that was identified somewhat consistently was that of responsibility, which was identified by 7.2% of the respondents who had studied in a bilingual program. Reading, writing and speaking Mayan was identified by only 2.2% of the bilingual education graduates and 1.5% of the comparison school graduates as being something useful that they had learned in their primary education.

When respondents were asked specifically about what they had learned that contributed to their current job, similar trends were found for both groups of students. The basic school subjects of reading, writing, and mathematics made up 21.2% of the responses by bilingual education students and 26% of those by the comparison group. Most of the skills identified related to the type of work engaged in by the respondents. These included: art and design, use of tools, planting and harvesting, public defense and domestic arts. No meaningful differences were found by program and only one person identified being bilingual as an important skill.

Table 11: Principal Areas of Learning Useful in the Lives of the Graduates, by Program

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Reading, writing, speaking Spanish	49	27.1	60	30.2
Mathematics	37	20.4	39	19.6
Responsibilities	13	7.2	5	2.5
Reading, writing, speaking Mayan	4	2.2	3	1.5

Graduates were also asked in what areas they thought that they needed more training/education. As can be seen from Table 12, Mayan language and secondary education are important areas, making up over 50% of the responses. However, the emphasis is reversed. Whereas the largest percentage of PRONEBI/DIGEBI graduates identify continuing their studies at a higher level as the additional learning they need, only 15.9% of the comparison group identify this area. In contrast, 35% of this group identify Mayan languages as an area where they need to learn more. This difference largely accounts for the difference found at the 0.05 level of confidence in the X^2 analysis.

Table 12: Areas Where Graduates would like to learn More

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Mayan Language	16	20.5	29	35.4
Secondary Studies	30	38.5	13	15.9
Spanish	4	5.1	5	6.1
Vocational Training	4	5.1	9	21.1
Police Training	3	3.8	2	2.4
Technical Training	5	6.4	8	9.8
Other Languages	5	6.4	4	4.9
Other Cultures	1	1.3	1	1.2
Guatemala			3	3.7
Don't Know	10	12.8	8	9.8

$X^2 = 16.6$; sig = .05

In terms of areas where primary education can be improved, the graduates of both groups are very similar in their opinions. For both groups, teaching better is the principal area identified. Related to the issue of teaching are several other areas of teacher behavior such as treating students well and having regular attendance. Despite having attended bilingual schools, only 13.7% of the PRONEBI/DIGEBI sample mentioned more bilingual teachers as a way to improve primary education. This percentage was similar to the responses among the comparison group. Changes in student behavior and increased government assistance to schools, as well as involving parents to a greater degree in the primary school process, were each mentioned by a small percentage of respondents from both groups.

Table 13: Areas Where Primary Education Can Be Improved

Response	Bilingual Education		Comparison	
	Number	Percentage	Number	Percentage
Teachers Treat Students Well	13	6.8	18	8.9
Bilingual Teachers	26	13.7	22	10.8
Teach only in Spanish	10	5.3	11	5.4
Teach better	72	37.8	68	33.5
Teacher Attendance	12	6.3	13	6.4
Students Study More	18	9.5	22	10.8
Government help Schools	14	7.4	27	13.3
Involve Parents	10	5.3	6	4.4
Everything is good	8	4.2	2	1
Don't Know	7	3.7	11	5.4

As with most of the opinions of the two groups, there was little difference in the way in which they viewed bilingual education and the teaching of Mayan culture in the schools. As shown in Table 14, 79% of the sample was in agreement about the importance of Mayan-Spanish bilingual education being taught in the school. Most of those who did not respond positively had no opinion on the issue. The same high percentages of agreement were found for teaching Mayan culture in the schools. There was, however, about 45% of the respondents who felt this was not necessary. The respondents from both groups had greater difficulty stating an opinion on Interculturalism. About two-thirds of each group did not know what it was.

Table 14: Opinions About Bilingual Intercultural Education

Response		Bilingual Education		Comparison	
		Number	Percentage	Number	Percentage
Spanish- Mayan Bilingual Education	For	150	78.9	160	78.8
	Against	10	5.3	14	6.4
	Don=t know	30	15.8	30	14.8
Teach Mayan Culture	For	148	78.3	149	73.4
	Against	4	2.1	10	4.9
	Don=t know	37	19.6	44	21.7
Intercultural Education	For	64	33.7	66	32.5
	Against	1	1	2	1
	Don=t know	125	65.8	135	66.5
Teach better		72	37.8	68	33.5
Teacher Attendance		12	6.3	13	6.4
Students Study More		18	9.5	22	10.8
Government help Schools		14	7.4		13.3
Involve Parents		10	5.3	6	4.4
Everything is good		8	4.2	2	1
Don't Know		7	3.7	11	5.4

$X^2 = 16.6$; sig = .05

Differences by gender and program implementation period. Few differences were found in terms of respondents assessment of the utility of the primary school experience by either gender or period of program implementation. Almost all respondents stated that they would like to learn more. There was a slight increase in those who identified secondary education as the vehicle for learning more over time. In the Bilingual Education program this rose from 11% to 25%, whereas in the comparison group the increase was from 5.4% to 13%. Identification of learning more about Mayan language or culture remained below 12% for all groups.

C. Individual Material Well-being

In examining individual material well-being it was necessary to obtain information on the respondents view of the socio-economic situation in the country and their opportunities within the existing situation. As can be seen in Table 16, there is little difference in the respondents' view of the social situation in the country. The table lists the major problems identified by respondents in the Bilingual Education program and the comparison group. Violence and crime was the problem most often identified by both groups. However, economic problems were identified by more than a fourth of the respondents. Only 9% and

12% of the Bilingual Education group and the comparison group, respectively, reported that the economic situation is good.

Table 16: Most Frequent Views of Respondents of the Guatemalan Socio-economic Situation

Issues	Bilingual Education		Comparison	
	Number	Percent	Number	Percent
Violence/Crime	69	37.1	72	36
Economy	52	27.5	52	26
Government	21	11.3	24	12.6
Education	10	5.4	9	4.5
Discrimination	4	2.2	4	2
Situation Good	18	9	23	12

When asked how these conditions affected their ability to obtain work, the majority thought that there was no work available for them. Sixty-one percent of the Bilingual Education graduates and 56% of the comparison stated that there was no work available. An additional 22.5% and 27.6%, respectively, felt that work was only available for teachers or professionals. In some cases, this has meant working in agriculture (28.3% and 21%), not sending children to school (9% and 3%), or migrating to another area (4.3% and 9%). Twelve percent of Bilingual Education graduates and 10% of the comparison group thought that work was available if one looked for it hard enough.

Table 17: Major Occupations of Respondents by Program

Job Type	Bilingual Education		Comparison	
	Number	Percent	Number	Percent
Household	28	14.9	30	15.3
Domestic	3	1.6	1	0.5
Handicraft	19	10.1	22	10.8
Construction	6	3.2	10	4.9
Services	38	20.3	30	15.3
Education	13	6.9	19	9.4
Agriculture	58	30.9	42	20.7
Student	15	8	23	11.3
Doesn't Work	3	1.6	12	5.9

In terms of actual jobs, there is little difference between the two groups. Table 17 shows the occupations of the respondents. The principal differences are the somewhat higher

percentages of individuals employed in agriculture and services among the bilingual education sample. This is balanced by the higher percentages of the comparison group in education, in school, or unemployed. These differences are not significant.

The use of language in the workplace differed significantly between the two groups. Mayan was used much more in the bilingual education group than in the comparison sample. This group reported a higher individual use of both languages. Table 18 provides this comparison. Despite the difference in usage, the distribution of contexts in which Spanish and Mayan were used in the workplace did not differ for the two groups. The comparison group had higher percentages of respondents who needed to read (76% versus 67%) and write(69% versus 60%) to fulfill their jobs. Reading and writing skills were primarily in Spanish. Higher percentages of the comparison group also reported needing to know about other cultures in their jobs (58% versus 50%).

Table 18: Workplace Language Use by Program

Language used	Bilingual Education	Comparison
Mayan	43%	29%
Spanish	26%	29%
Both	27%	38%
No Response	4%	5%

$X^2 = 9.8$; sig = .02

As might be expected, gender differences were found in terms of the type of work engaged in by respondents with higher percentage of women in handicrafts and domestic endeavors and higher percentages of men in agriculture. Higher percentages of women in both groups reported using Mayan in their work (55% to 35% of Bilingual Education graduates and 33% to 26% of comparison school graduates). Higher percentage of men reported needing to write in their jobs (65% to 55% of Bilingual Education graduates and 72% to 64% of comparison students), whereas reading was more similar for both groups. Reading and writing skills were principally needed in Spanish, as when asked to specify language less than 14% of either group identified Mayan. There were also sex differences in terms of needing to know about other cultures, as a greater percentage of men identified this as important in their occupation in both groups.

Personal Wealth. Personal wealth was estimated by using aspects of the construction of the house in which the respondent lived and a series of possessions visible in the house. Characteristics of the house included the type of floor (cement, wood or dirt), type of roof (cement, metal or other), type of walls (block/brick or adobe), and if the house had electricity. Appliances included refrigerator, television, and small electric kitchen appliances. Graduates of the Bilingual Education program differed very little from the comparison school graduates in terms of personal wealth. There were no differences in

physical characteristics of dwellings. In terms of appliances, the comparison group had significantly more refrigerators than graduates of the Bilingual Education program. In addition, the comparison group had slight greater personal wealth on the average. As shown in Table 19, the indices for personal wealth for both men and women are higher for the comparison and men in both groups have a higher personal wealth than women. However, none of the differences are significant.

Table 19: Indices of Personal Wealth by Program and Gender

Program	Male	Female
Bilingual Education	4.82	4.49
Comparison	5.05	4.81

While there were no overall differences by gender, within the comparison group women had significantly more refrigerators than males. This difference accounts for the overall difference between groups on this indicator of wealth. When personal wealth indicators were examined by period of program implementation no significant within group or across group differences were found. It is interesting to note, however, that the trends over time differ for the groups. As shown in Table 20, the most recent graduates of the bilingual program have houses that are inferior to previous generations of graduates. This is not true among the comparison group, where there is an increase on the measures of quality of housing. As the houses were generally those of the parents among the most recent graduates, this result suggests that DIGEBI is serving a relatively poor population in comparison to other schools in the same area.

Table 20: Dwelling Characteristics by Program

Program	Cement Floor		Cement/Metal Roof		Block/Brick Walls	
	Bilingual	Comparison	Bilingual	Comparison	Bilingual	Comparison
Pilot	55.9%	53.6%	82.1%	72.5%	36.8%	40.0%
Program	51.3%	62.2%	67.9%	79.3%	32.9%	43.2%
Directorate	37.5%	64.4%	65.8%	84.4%	20.5%	45.7%

Education. Continuing education pursuits beyond primary school is another indicator of personal well-being. Graduates were asked about the highest level the completed in school. Table 21 shows that there was a difference favoring the comparison group. A higher percentage of this group continued their studies beyond primary school. There were also relatively more high school and college graduates among the comparison group, although the differences are small. When the mean level of education reached for each group was calculated, the comparison group was significantly higher (media = 7.11 Bilingual Education, media = 7.36 comparison; sig. = .03). No gender differences in educational attainment were found, and the recent graduation date of DIGEBI graduates did not allow for within program comparisons.

Table 17: Highest Education Level Reached by Program

Education Level	Bilingual Education		Comparison	
	Number	Percent	Number	Percent
Sixth Grade	131	72.2	129	66.8
First Year High School	9	5	6	3.1
Second Year High School	2	1	7	3.6
Third Year High School	11	6	15	7.7
Fourth Year High School	1	1	0	0
Complete High School	23	12.7	26	13.4
University Studies	4	2.2	8	4.1
University Complete	0	0	2	1

D. Ethnic Identity

The most direct measure of ethnic identity collected during the study was that related to the language used in the interview. The language of introduction was altered by the interviewer with each respondent to diminish bias in language preference. However, when asked in what language they preferred, graduates of the Bilingual Education program voiced a slightly greater preference for Mayan (37.2% to 35.7%). In the actual interview, those using Mayan were eight percentage points higher than the comparison group (36.2% to 28.4%). More importantly, the Bilingual Education graduates were able to carry the interview in almost the same percentage that they had stated a preference, whereas the comparison group was less able to do so.

When examined by period of implementation, this trend continued. As shown in Table 22, each group of Bilingual Education graduates gave similar percentages of interviews in Mayan. These percentages were consistently higher than those given by the comparison group. Especially notable is the difference between the most recent graduates, where there is a 15-percentage point difference between the groups in use of Mayan. The use of Mayan in the interview for Bilingual Education graduates was very close to their stated language preference, whereas that of the comparison group was consistently lower. This suggests that their perceived ability may be less than their actual facility with the language.

Table 22: Stated Mayan Language Preference and Actual Language Use by Program and Implementation Period

Program	Bilingual Education		Comparison	
	Preference	Actual Use	Preference	Actual Use
Pilot	34.4%	31.4%	29.7%	23.0%
Program	35.0%	38.8%	42.9%	35.7%
Directorate	40.0%	37.5%	28.9%	22.2%

School Choice for Off spring. The majority of the graduates with children were from the first period of implementation, when the Bilingual Education program was a pilot project. Most of the children of the graduates of at least seven years of age were in school. Ninety percent of the children of Bilingual Education graduates and 94% of the comparison group children were in school. When the type of school was examined, there was a difference between the two groups as to where they chose to place their children in the public primary education system. As shown in Table 23, Bilingual Education graduates placed their children in bilingual education schools with greater frequency than did parents in the comparison group. The difference in school choice was statistically significant. The trend was consistent for both implementation periods for which data were available. However, there are few offspring of school age as yet among the graduates of the program period of Bilingual Education.

Table 23: School Choice by Program and Implementation Period

Period/School Type		Bilingual Education		Comparison	
		Number	Percent	Number	Percent
Pilot	Bilingual	42	73.7	14	50
	Monolingual	15	26.3	14	50
Program	Bilingual	2	66.7	4	33.3
	Monolingual	1	33.3	8	66.7

Cultural Traits. Respondents were asked a number of questions about their lives in their communities. These questions included language use with different family and community members, type of clothing worn, and views of persons of different ethnicity. Very little difference was found between the two groups. Almost all (88.6% of the Bilingual Education program and 90.1% of the comparison group) defined themselves as Mayan. The remainder defined themselves as Guatemalans. Both groups had similar views of Mayans as people who spoke their language and who they worked with and relaxed with in their communities. Ladinos were also generally viewed positively but defined as people different from themselves who spoke differently. Almost all of the women respondents wore Mayan

dress and almost all of the male respondents stated that their wives wore Mayan dress. Slightly more female graduates of the Bilingual Education program stated that their husbands wore Mayan garb (35.5%) than in the comparison group (29.6%). When asked about their children's use of Mayan dress, higher percentages of children in the Bilingual Education program were reported to use typical dress. As seen in Table 24, more than twice as many boys used Mayan clothes. This difference was significant.

Table 20: Children's Use of Mayan Clothing by Program and Gender

Gender	Bilingual Education		Comparison	
	Number	Percent	Number	Percent
Boys*	16	17.6	7	7.2
Girls	86	83.5	63	75.9

$X^2 = 4.6$, sig = .03

E. Civic Participation

Organizational Membership Organizations are common in all the communities where the respondents live. Only four of the respondents in the comparison group stated that there were no organizations in their communities. There were no differences in the types of organizations identified by the two groups of graduates. Local development organizations were the most commonly named. They were mentioned by almost 70% of the respondents of both groups. Educational organizations followed and were named by 14% and 20% of the Bilingual Education and comparison school graduates, respectively. Religious organizations were mentioned by six percent of the cases and sports organizations by four percent of the respondents of each group.

Participation in community organizations was similar in both groups. However, both males and females in the comparison group had slightly higher participation than Bilingual Education graduates. Twenty-eight percent of the Bilingual Education graduates stated that they participated in community organizations compared to 32% of the comparison group. When examined by gender, 32% of the males in the Bilingual Education sample and 35.7% of the comparison group stated that they participated in local organizations of different types. Among women, participation levels were 21.6% for PRONEBI/DIGEBI and 27.7% for the comparison group. There were also gender differences in the types of organizations in which graduates participated. Among Bilingual Education graduates, men participated to a greater degree in development organizations (40.5% versus 12.6% and sports 29.7% versus 18.8%), whereas women had relatively higher participation in religious organizations (50% versus 21.6% for males). The same pattern was found in the comparison group for development organizations (men 45% and women 30.4%) and religious organizations (women 56.5% and men 37.5%). However, participation in sports

organizations was similar for both sexes and somewhat lower than among Bilingual Education graduates, at about 8%.

Type of participation varied by group and gender. As shown in Table 25, men were more likely to be officers in community organizations than women in both groups of graduates. Male and female comparison group graduates were more likely to be officers than graduates of the Bilingual Education program. However, these differences were not significant. No differences in community participation by period of program implementation were found.

Table 25: Type of Community Participation by Program and Gender

Membership	Bilingual Education		Comparison	
	Male	Female	Male	Female
Officer	40.5%	25%	52.5%	39.1%
Member	52.5%	75%	47.5%	60.9%

Political Participation. Membership in political organizations was almost non-existent among either group of graduates. Only about 2% of Bilingual Education graduates and 7% of the comparison group said that they had participated in political organizations or committees. Voting in political elections was more common. Forty-six percent of Bilingual education graduates and 51.7% of the comparison group stated that they had voted in elections. These different percentages did not reach statistical significance. Over 90% of those who had voted in elections voted in the most recent election. No differences between groups were found in terms of period of program implementation. However, there were gender differences. As shown in Table 26, males of both groups were more likely to vote than females. These within group differences were significant. Consistent with the general trend, higher percentages of men and women in the comparison group voted in political elections. However, these differences were not significant for either gender.

Table 26: Respondent Voting Record by Program and Gender

Voted	Bilingual Education				Comparison			
	Male		Female		Male		Female	
	No	%	No.	%	No.	%	No.	%
Yes	70	60.9	18	24	74	62.2	31	36.9
No	45	39.1	57	76	45	37.8	53	63.1

IV. CONCLUSIONS AND IMPLICATIONS

A. Conclusions

DIGEBI, through its various stages of implementation, has been successful in reducing the problem of over age initial enrollment in rural schools.

The opportunity to attend preprimary classes led to children in the Bilingual Education program starting school at the appropriate age. Over 90% of the Bilingual Education graduates attended preschool and the average age for initial entry was 6.87 years of age. The average age (7.13) of entry for comparison school graduates was significantly higher.

DIGEBI has successfully created an environment where the predominant classroom language of the early years of primary school is the mother tongue. This emphasis on the use of the mother tongue has increased over the life of the Bilingual Education program.

Significantly more graduates of the Bilingual Education program used Mayan or a combination of Mayan and Spanish than graduates of comparison schools. This trend was consistent over the three implementation periods of the program.

The emphasis on the mother tongue in Bilingual education classrooms has allowed students to use Mayan in their classroom interactions and maintain their speaking abilities in Mayan.

Consistently greater numbers of graduates of the Bilingual Education program reported using Mayan with teachers than in the comparison group. Their ability with oral Mayan was reflected in the consistently higher number of Bilingual Education graduates that chose to be interviewed in Mayan and were able to carry out the interview in a Mayan language.

DIGEBI has had an impact on the mastery of Mayan reading and writing skills. However, overall mastery remains low.

Significantly higher percentages of Bilingual Education graduates reported having mastered reading and writing Mayan in their primary school years. However, the overall percentages of mastery reported by graduates were 38% of bilingual education graduates and 23% of graduates of comparison schools.

Emphasis on the mother tongue did not affect DIGEBI graduates ability to master Spanish.

Graduates of the Bilingual Education program and the comparison schools reported similar use of Spanish in the workplace and other settings. Only about 5% of either group felt that further study of Spanish would be a priority if they had the opportunity to continue their studies.

DIGEBI provided a school environment where parents felt able to inquire about the academic progress of there children.

Participation of parents in the school was reported by similar percentages of the graduates. However the nature of parental participation differed by group. Significantly more parents of DIGEBI graduates asked about the progress of their children in academic pursuits. This is likely a result of the possibility of speaking to teachers in their native tongue where they could express themselves more broadly.

The importance of bilingual education and the teaching of Mayan culture has been widely accepted by rural folk of Mayan origin who have graduated from primary school in the last fifteen years. However, interculturalism (*interculturalidad*) is a concept little understood.

Seventy-nine percent of each group approved of bilingual education. Similarly, 78% of Bilingual Education graduates and 73% of graduates of comparison schools approved of teaching Mayan culture in primary school. More than two-third of both groups did not have an opinion about multicultural education, as they did not understand the concept.

Despite the development of textbooks during each implementation period of the Bilingual Education program, DIGEBI textbooks were seldom used in the classroom and teaching was traditional.

Materials and texts were reported to have been used by less that 10% of the Bilingual Education graduates and 7% of the comparison school graduates. Notebooks and the blackboard were the most common materials used by both groups.

Graduation from the Bilingual Education program had no effect on material well-being, participation in civil society, or continuation of studies after sixth grade.

No differences were found in terms of dwelling or household possessions between Bilingual Education graduates and comparison school graduates. Both groups of graduates also had similar participation in community and political organizations as well as similar voting behavior. Graduates of comparison schools took leadership roles in somewhat higher percentages than bilingual Education graduates and went significant farther in school, on the average.

DIGEBI has been successful in preserving ethnic identity among its graduates when compared to graduated from traditional schools.

Graduates of DIGEBI exhibited a higher use of mother tongue in the interview situation than graduates of the comparison group. There was also significantly greater use of traditional clothing by males and male children among such graduates. Among those with children, Bilingual Education graduates were more likely to send their children to bilingual

public schools that graduates of the comparison group.

B. Implications

DIGEBI, in its different implementation periods, has met its principal objective of providing a means for Mayans to preserve their identity and language during a period in Guatemalan history when both were threatened. This has been accomplished largely by encouraging the use of Mayan language or Mayan and Spanish in the classroom. Despite the development of textual materials in each implementation period of the program, these were reported to have been little used. This brings into question the production of new materials without study of existing materials to find out why they have not been useful to teachers and students.

The lack of civic participation is understandable given the danger of public visibility through many of the initial years of the Bilingual Education program implementation. However, with the Peace Accords mandate for equal opportunities and self representation for Mayans an emphasis on civic participation would seem to be an important focus of the Bilingual Education curriculum of the future.

The lack of continued formal education may be the result of limited opportunities. Since level of schooling is usually tied to material well-being, it may be important to examine ways to provide post-primary education that is tied to the current work situations of program graduates.

Finally, the importance of the existence of preschool in encouraging enrollment at the appropriate age should be examined closely. As early enrollment is generally associated with persistence in school, this aspect of DIGEBI impact should be examined.

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