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Abstract

The purpose of this study is to examine the consequences of attending middle schools requiring a course in a Mayan language for both Indian and Ladino students. The schools serving Q'eqchi' students required Ladino and Indian students to take a course in the Q'eqchi' language, while the schools serving Kiché students did not offer a course in the Kiché language. Instruments assessing Spanish language, mathematics, self-esteem, other-group attitudes, and ethnic identity achievement were administered near the beginning and end of the school year. The results indicate superior gains in academic skills for both Ladino and Indian students attending schools requiring the Indian language course, while the effects of this course on other-group attitudes and ethnic identity achievement was moderated by ethnic group.

The purpose of this study is to examine the consequences of attending middle schools requiring a course in a Mayan language for both Indian and Ladino students in Guatemala. The population of Guatemala is almost evenly divided between Indian and non-Indian groups (Beckett & Pebley, 2002). The Indian groups are considered to be descendents of the ancient Mayans (Fischer & Brown, 1996), and, at present, they represent 22 different language groups (Diaz, 1997). Most of the non-Indian people are called Ladinos, Spanish-speaking people who regard themselves as part of the dominant national culture, even though their ancestors were also Mayan (Nyrop, 1984; Smith, 1990; Warren, 1989).

The Guatemalan Context

The domination of Ladinos over Guatemalan Indians began with the Spanish invasion (Smith, 1990) and, over time, became part of the ethnic landscape of Guatemala (Warren, 1989). Indians have been able to pass from their home culture to become Ladino through a process called “ladinization,” which involved the acquisition of Spanish language skills and moving away from the home village in pursuit of employment and a better life (Nyrop, 1984; Warren, 1989). In Guatemala, when Indians become Ladinos, they rarely return to their Indian identities (Nyrop, 1984; Warren, 1989). At present, Ladinos range widely in terms of their wealth, but still have higher social status than Indians (Beckett & Pebley, 2002; Nyrop, 1984).

Currently, in Guatemala, public school students generally attend primary schools near their homes; consequently, their classmates tend to come from their own Indian or Ladino group. When students begin secondary school, however, they are forced to attend schools further away from home and mix with students from other groups. The present

study took advantage of this structural transition to examine how students change during their first year in secondary school, when they become classmates of students from another group.

The middle schools sampled for this study served Ladinos and students from Indian communities that spoke one of two common Indian languages, Kiché or Q'eqchi'. The enrollment of these middle schools was fairly evenly divided between one of the Indian groups and Ladinos. In general, the Indians who speak Kiché have higher levels of educational attainment and earnings than other Indian groups in Guatemala (Patrinos, 1997). In contrast, the Indian students whose native language is Q'eqchi' live in an area, Alta Verapaz, which has a distinctive and strong native culture (Schackt, 2000). The Q'eqchi' language is commonly spoken in Alta Verapaz, and even Ladinos speak a little of it, when necessary, in addition to their native Spanish (Fischer & Brown, 1996). However, the Q'eqchi' people, as a group, have less formal education and lower earnings than do other Indian groups, particularly the Kiché (Patrinos, 1997). In an effort to draw more Q'eqchi' into the formal education process, the primary schools have offered bilingual education (World Bank, 1995), informed largely by the Mayan education movement (Richards & Richards, 1996).

During the first year of secondary school, public schools in Guatemala aim to reinforce the skills the students acquired in their last year of primary school, offering courses in such basic topics as Spanish, Mathematics, Social Studies, and Natural Science. The students also have the opportunity to take various other courses, such as Music, Physical Education, Industrial Arts, and Textiles. All courses are taught in Spanish. The main difference between middle schools serving Q'eqchi' students and

those serving Kiché students is that schools serving Q'eqchi' students required all students to take a course in the Q'eqchi' language, while the schools serving Kiché students did not offer a course on the Kiché language. This difference provided an opportunity to investigate the academic and psychological consequences of attending middle schools requiring coursework in the Mayan language for Indian and Ladino students.

Bicultural Competence

In the U.S., many studies have been conducted to investigate the challenges involved in educating American Indian youth (Deyhle, 1995; Deyhle & Swisher, 1997; Kleinfeld, 1979). Historically, the goal of the U.S. government has been to assimilate American Indian youth into the American mainstream largely by removing aspects of their native culture from the children's educational environment and immersing them into an all English, all mainstream cultural environment (Deyhle & Swisher, 1997; Van Hamme, 1996). In general, this approach has been unsuccessful (Deyhle, 1992; Van Hamme, 1996), with American Indian youth often dropping out of school (Rumberger, 1983) or underachieving while in school (e.g., Dehyle, 1992; McLaughlin, 1992). The failure of this "subtractive" approach to the education of American Indian motivated the development of new approaches.

One of the more recent approaches has focused on the addition of the Indian culture into the curriculum of the school (Cummins, 1986; Dehyle, 1995; McLaughlin, 1991; Van Hamme, 1996). This infusion of Indian culture can take many forms, but one of the most common involves providing secondary students with courses in their Indian language (McLaughlin, 1991; McCarty, 1989). This approach has been tried in the U.S.

with some success, notably for Navajos, Eskimos, and Mohawks (Begay, Dick, Estell, Estell, & McCarty, 1995; Kleinfeld, 1979; McLaughlin, 1992; Pertusati, 1988).

Cummins (1986), LaFromboise et al (1993), Van Hamme (1996) and others have argued that giving students the skills they need to be successful in the two cultures they live in promotes their educational success. The general notion is that acquiring skills in the second culture provides the student with a sense of mastery and efficacy that promotes learning in general (Hughes & Chen, 1999; LaFromboise et al, 1993; LaFromboise, Oliver, & Hoyt, 2004). This study offers a quantitative test of the bicultural competence hypothesis. Specifically, this study tests the hypothesis that students who are taught the nationally dominant as well as the local Indian language will acquire more academic skills during a school year than students who are not taught the local Indian language. Note that this hypothesis covers not only Spanish language skills, but also mathematics skills as measured by standardized tests. Also this hypothesis applies to Ladino as well as Indian students.

Proponents of bicultural competence for Indian students (Beauvais, 2000; LaFromboise et al, 2004; Van Hamme, 1996) also argue that the benefits of learning an Indian language extend beyond the acquisition of academic skills. They argue that the presence of coursework in the Indian language in the school promotes mental health. In the U.S., studies of depression (Whitbeck, McMorris, Hoyt, Stubben, & LaFromboise, 2002) and resiliency (Whitbeck, Hoyt, Stubben, & LaFromboise, 2002) have demonstrated the benefit of bicultural competence in American Indian children. Because bicultural competence is associated with mental health, then we hypothesize that students

enrolled in schools offering courses in the local Indian languages will experience greater gains in their overall self-esteem than students in schools not offering such courses.

Further, one might wonder if the teaching of a Mayan language in school promotes positive inter-group contact between Ladino and Indian classmates. A concern about strong ethnic identities is that they can serve as the basis of conflict between ethnic groups (Levinson, 1950; Masson & Verkuyten, 1993; Tajfel & Turner, 1979). This is a particular concern for Guatemala because, between 1978 and 1984, there was significant violence between the military and guerrilla groups attempting to overthrow the government. Many thousands of Indian people living in rural areas were killed because the military perceived them to be sympathetic to the rebels (Fischer & Brown, 1996).

If students are positively affected by the coursework in the Mayan language, would this benefit promote more positive attitudes towards others? The hypothesis tested here is that a course in a local Mayan language will have a positive impact on the students' other-group attitudes, regardless of whether the student is Indian or Ladino. We base this hypothesis on the idea that a course in the local Mayan language would promote mental health and this, in turn, would improve the quality of their inter-group relations.

Ethnic Identity Development

The process of ethnic identity development has been theorized to begin in early adolescence (Phinney, 1989;1990), around the time when an individual's overall identity begins to form (Erikson, 1968). According to theory (Tajfel, 1981; Tajfel & Turner, 1986), if adolescents live in an ethnically mixed environment, they have the opportunity to develop strong ethnic identities. With positive support for learning about their own

ethnic group, adolescents can achieve a secure and confident sense of their ethnic identity (Phinney, 1990; Van Hamme, 1996). The development of a strong ethnic identity, however, usually takes years (Phinney, 1990; Phinney & Chavira, 1995).

Because a daily course in a Mayan language might activate thoughts about ethnicity and heritage, we hypothesize that students who take courses in a Mayan language will increase in their ethnic identity achievement relative to students who do not take such courses.

Method

Sampling Procedure

In order to sample students who were identified as speaking Q'eqchi' or Kiché, we selected secondary schools that were in one of three departments, where the Q'eqchi' or Kiché people predominated. We randomly selected schools within these three departments from a database that the Guatemalan Ministry of Education provided. We requested permission from the principal of each selected school and if the principal did not agree to participate, then we randomly selected another school from the database. With the approval of the principal, we randomly selected Kiché or Q'eqchi' first-year students and their Ladino peers from the school's roster and invited them to participate. If the student did not agree, then we selected another student to invite to participate. We continued this recruitment of students until we obtained at least 80 Q'eqchi', 80 Kiché, and 160 of their Ladino peers.

Instruments

Academic achievement, in terms of Spanish language and mathematics skills, were assessed with standardized tests, appropriate for their level in school (Baessa,

Giron, Mejia, de Cordon, de Avendano, & Fernandez, 1999). The scores are represented here as percentage correct.

To measure the achievement of one's own ethnic identity and attitudes towards members of other ethnic groups, we translated into Spanish and adapted (Baessa, Falbo, & Fernandez, 2001) the Multiethnic Identity Measure (Phinney, 1992). To measure the extent to which a student sought information about and resolved issues regarding his or her ethnic identity, we used a 9-item scale with a 5-point response format. Compared to the original ethnic identity achievement scale (Phinney, 1992), our scale added two items, which were extensions of one of the original items. Our additional items specified the "others" whom the students have used as resources for learning more about their group, specifically, elders and teachers. To measure the degree of positive attitudes that students have about interacting with people of other ethnic groups, we used a 13-item scale, with the same 5-point response format. Compared to the original scale (Phinney, 1992), our scale added seven items, by elaborating on one item. This item used the term, "mixing," a colloquial expression in English that was not clearly translated into Spanish by a single item. The additional items specified the context of this mixing. The ethnic identity and other-group scores are represented here as the sum of the ratings across all the items of each scale.

To measure self-esteem, we used the total score from the Coopersmith Self-Esteem Inventory (Coopersmith, 1967) that had been translated and adapted for use in Guatemala (Garcia, 1998). Like the original scale, our version had 58 items to which students responded in terms of, "Like Me" or "Unlike Me," and we followed the original scoring procedure to generate the total score.

Observations within Schools

Three times near the beginning and three times near the end of the school year, research assistants went to each of the 10 schools to make observations of the first-year students in their classrooms and during free time, on school grounds. In addition to making notes about what courses were being taught and what instructional methods were being used, the observers were looking for inter-ethnic interactions, either between teacher and student or between students. The field notes from these observers yielded the information that the schools serving Q'eqchi' students required a course in the Q'eqchi' language for all students, while no such course was offered in the schools serving the Kiché students.

Procedure for Data Collection

Normally, the school year starts in January, but because of a teachers' strike, we had to wait until March 2003, after the strike was resolved, in order to begin our sampling procedure. Our first wave of data collection occurred in the schools during late April, and the second wave was collected in late August, near the end of the school year.

The achievement tests were administered to groups of students, assembled in unused classrooms during regular school hours. Students were given one hour to complete their language test and one hour for their mathematics test. One form of the achievement test was used at the beginning and another form of the same test was used at the end of the school year. The students answered the achievement test questions on their own, using electronic answer sheets.

In contrast, the other instruments were administered to students individually, with each statement and possible response read to them by a research assistant in Spanish.

This was necessary because our previous experience with data collection from this age group showed that when they were asked to use a rating scale, they had difficulty distinguishing between intermediate and end points on a scale. In addition, the personal attention of an adult interviewer increased the likelihood that the students considered each item seriously. For all but the achievement tests, the same instruments were used during the first and second wave of data collection.

Data Analysis

In order to test our hypotheses, we conducted five repeated measures analyses of variance, one for each of the five dependent variables, Spanish language skills, mathematics skills, self-esteem, other-group attitudes, and ethnic identity achievement. We chose repeated measures in order to determine if the dependent variables had changed significantly over the time between the two waves of measurement. We tested both the within-subjects and the between-subjects effects associated with our independent variables, described below.

Independent Variables. Because we thought that taking a course in a Mayan language was an important factor in the educational experiences of Guatemalan secondary students, we created a variable that represented whether a student took the course or not. We named this variable, Mayan Language Course, and students who attended the five schools requiring a Mayan language course were assigned a value of one and students who attended the five schools that did not even offer a Mayan language course were assigned a zero. The variable representing individual schools was nested within the Mayan Language Course variable. While all the schools offering the Mayan Language course were within the same department, the schools not offering the Mayan

Language course were in two different departments. To determine if the scores from these two departments were significantly different, we compared the scores to determine if the students who went to school in Quetzaltenango differed from the students who went to school in Quiché. We found no significant differences between the students from these two departments on both waves of scores.

We created an Ethnic Group variable, assigning a one to students who were Indian and a zero to students who were Ladino. Finally, we included the students' Sex as a variable in our models. Thus our independent variables were Ethnic Group, Sex, Mayan Language Course, and School; the last variable was nested within the Mayan Language Course variable.

In general, we hypothesized positive effects to be associated with taking the Mayan language course. Support for this hypothesis would be provided by a significant within- subjects effect for the Mayan Language Course variable. However, if the presence or absence of this course had a differential impact on Indian or Ladino students, then the analyses would yield a significant within-subjects effect for the interaction of the Mayan Language Course and Ethnic Group variables.

Results

Participants

At the first wave of data collection, five schools in Alta Verapaz contributed 182 students, two schools in Quetzaltenango contributed 69 students, and three schools in Quiché contributed 122 students. Table 1 presents the distribution of students over the

Insert Table 1 about here

three departments and three ethnic groups. Q'eqchi' students resided in Alta Verapaz and the Kiché students resided in the other two departments. The sample at the first wave consisted of 373 students (49% Ladino). Twenty-two students were not present in the schools when we returned for our second wave of data collection, leaving us with a sample of 351 students (48% Ladino). This loss to attrition was not concentrated in any one ethnic group or department.

About equal numbers of boys and girls were sampled from each of the 10 schools; overall, 52% of the sample was male. The mean age of the students was 13.82, ranging from 11 to 18 years at the first wave. All the students in the sample came from families of the upper levels of the lower classes. In Guatemala, the poorest families cannot afford to send their children to secondary school and the middle and upper classes usually send their children to private schools.

Characteristics of Scale Scores

We have presented in Table 2 the ranges, means, standard deviations and alpha

Insert Table 2 about here

coefficients of the scale scores generated from both waves of data collection.

In order to evaluate the validity of the scale scores used in this analysis, we conducted several correlations. As expected (Cascallar & Dorans, 2003), the correlations between the Spanish scores and the mathematics scores were significant at the first assessment, $r(374) = .48, p < .0001$, and the second assessment, $r(351) = .51, p < .0001$. We also expected a positive association between self-esteem and academic skills because academic competence can serve as a basis of enhanced self-worth (Coopersmith, 1967;

Shaalvik & Hagtvet, 1990). We found significant associations between Spanish and self-esteem scores, $r(374) = .25, p < .001$, and between mathematics and self-esteem scores, $r(374) = .19, p = .0002$, at the first assessment. Likewise, we found significant correlations between self-esteem and Spanish scores, $r(374) = .18, p = .0006$, and self-esteem and mathematics scores, $r(351) = .13, p = .0146$, at the second assessment. Since the achievement of ethnic identity is posited to be a developmental task accomplished during adolescence, we expected a positive association between age and the ethnic identity scores. We found this association at the first assessment, $r(374) = .17, p = .0008$, and the second assessment, $r(351) = .11, p = .0359$, which is consistent with previous results (Phinney & Chavira, 1995). Similarly, consistent with previous findings with secondary students (Phinney, 1992), we expected the degree of ethnic identity achievement to have a small, but significant correlation with other-group attitudes and that is what we found at the first assessment, $r(374) = .10, p = .0507$ and second assessment, $r(351) = .11, p = .0472$.

Observations within Schools

The field notes indicated that the ten schools were highly differentiated in terms of degree of student discipline and structure. In general, because the schools lacked textbooks, instruction involved the teachers dictating the course material and the students taking notes or copying from the teacher's notes on the walls. The observers noted that all instruction was in Spanish and Spanish was the most common language spoken between students during class time. Indian students were observed speaking their native languages outside of the classroom.

Hypothesis Testing

Academic Skills. We expected the Spanish and mathematics skills of students who took the Mayan Language Course to improve more than did the academic skills of students who did not take this course. The results of our analyses provided support for this hypothesis. In terms of Spanish language skills, the results yielded a significant within-subjects Mayan Language Course effect, $F(1, 335) = 8.41, p = .0040$. Likewise, in terms of mathematics skills, the results indicated a significant within-subjects Mayan Language Course effect, $F(1, 335) = 6.49, p = .0113$. The means for these effects are in Table 3 and indicate that students taking a Mayan language course gained more than did

Insert Table 3 about here

students who did not.

We also tested for the possibility that Ethnic Group would moderate this effect of taking the language course on academic skills. In terms of Spanish, the within-subjects effect for the Ethnic Group by Mayan Language Course interaction was not significant, $F(1, 335) = 0.01, p = .9209$. Similarly, for mathematics, the within-subjects effect for the Ethnic Group by Mayan Language Course interaction was not significant, $F(1, 335) = 0.50, p = .4815$.

Self-Esteem. We expected that taking a Mayan language course would benefit the mental health of students, specifically, in this case, their self-esteem. No support for our hypotheses could be found in the results of our analyses. Neither the within-subjects main effect for Mayan Language Course, $F(1, 335) = 0.19, p = .6667$, nor the within-subjects interaction effect for the Mayan Language Course by Ethnic Group interaction, $F(1, 335) = 0.10, p = .7513$, was significant.

Other-Group Attitudes. We expected that students who took the Mayan language course would become more positive in their attitudes toward members of other groups than students who did not take this course. The results of our analyses indicated a marginal within-subjects effect for Mayan Language Course, $F(1, 335) = 2.75, p = .1000$. The means are presented in Table 3 and suggest that the students taking the Mayan language course increased in their other-group attitudes, while the students not taking this course, declined.

The results also yielded a marginally significant within-subjects effect for the interaction between Ethnic Group and Mayan Language Course, $F(1,335) = 3.03, p = .0827$. The adjusted means for this interaction are presented in Table 4. These means

Insert Table 4 about here

indicate that the scores of Ladino students changed the most during the school year, with Ladinos taking the Mayan language course increasing, while Ladinos not taking this course, decreasing their other-group attitudes. The Indian students did not change much in their other-group attitudes, regardless of whether they took the Mayan language course.

Ethnic Identity Achievement. We expected that taking a Mayan language course would enhance the achievement of ethnic identity for all students. The results of the repeated measures analysis of covariance yielded only marginal support for a within-subjects effect for Mayan Language Course, $F(1,335) = 3.78, p = .0527$. Contrary to our expectation, the means, shown in Table 3 indicate that students who took the course remained the same in their ethnic identity scores, while the students who did not take the course increased.

Further, the results did yield a significant moderating effect of Ethnic Group on this Mayan Language Course effect. The within-subjects effect of Ethnic Group by Mayan Language Course was significant, $F(1,335) = 7.54, p = .0064$. We have presented the adjusted identity means for this interaction in Table 4. These means indicate that the scores of Ladino students hardly changed at all during the school year, however, the ethnic identity scores of Indian students taking the Mayan Language Course declined, while the Indian students not taking this course, increased.

Other Findings

Ethnic Group Differences. The only significant Ethnic Group main effect was a between-subjects effect found in the Spanish language scores, $F(1, 335) = 43.76, p < .0001$, with Ladinos outscoring Indians. There were no significant between-subjects interactions found between Ethnic Group and Mayan Language Course. Furthermore, there were no significant between or within-subjects interactions between Ethnic Group and Sex, or between Ethnic Group, Sex, and Mayan Language Course variables. All the significant within-subjects interaction effects between Ethnic Group and Mayan Language Course have been discussed above.

Mayan Language Course. The only significant between-subjects main effect for Mayan Language Course was found in the identity scores, $F(1, 335) = 12.56, p = .0005$. Students who took the Mayan language course had higher ethnic identity scores than students who did not. There was a between-subjects main effect for Mayan Language Course of marginal significance found in the self-esteem scores, $F(1,35) = 3.18, p = .0756$. Students not taking the Mayan language course had higher self-esteem than those who did. Since these between-subject differences were found at both times of

assessment, we cannot attribute them to the effects of the course. There were no significant between- or within-subject interactions between the variables of Mayan Language Course and Sex.

Sex Differences. Our results yielded no significant between-subject main effects for the Sex variable. However, the results yielded a within-subjects Sex effect of marginal significance for self-esteem, $F(1,335) = 3.05, p = .0814$. A comparison of the means indicated that boys gained more self-esteem than girls.

School Differences. The most consistent finding across all five dependent variables was the significance of the main effects produced by the School variable. For the Spanish language scores, both the between-subjects, $F(8, 335) = 5.44, p < .0001$ and within-subjects effects, $F(8, 335) = 2.45, p = .0138$, were significant. For the mathematics scores, both the between-subjects, $F(8, 335) = 4.49, p < .001$, and the within-subjects effects, $F(8, 335) = 3.10, p = .0022$, were significant. For the self-esteem scores, only the between-subjects main effect was significant, $F(8, 335) = 4.20, p < .0001$. For the other-group attitudes scores, both the between-subjects, $F(8, 335) = 4.43, p < .0001$ and within-subjects effects, $F(8, 335) = 4.80, p < .0001$, were significant. Finally, for ethnic identity scores, both the between-subjects, $F(8, 335) = 2.92, p = .0037$, and within-subjects effects, $F(8, 335) = 6.11, p < .0001$ were significant. Overall, these findings indicate that the schools varied greatly not only compared to each other, but also in terms of the amount and direction of change occurring across the interval of this study.

Repeatedness. Only two of the analyses yielded a significant overall repeatedness effect. Both Spanish scores, $F(1, 335) = 18.40, p < .0001$ and self-esteem scores, $F(1, 335) = 8.86, p = .0031$, were greater at the second assessment than the first.

Discussion

The goal of this study was to examine the effects of attending middle schools that required all students to take a course in the local Mayan language in Guatemala. Our results indicated that the effects were clearest in academic skills, with greater gains in Spanish language and mathematics skills for those students taking the Mayan language course, compared to those students who did not. We expected such benefits, based on models of bicultural competence (Hughes & Chen, 1999; LaFromboise et al, 1993; LaFromboise, Oliver, & Hoyt, 2004). Since we did not find that the students' ethnic group moderated this benefit, these results support the idea that bicultural competence benefits not only members of the non-dominant group, but also members of the dominant group. These findings suggests that giving students the skills they need to be successful in the two cultures they live in promotes their acquisition of academic skills.

If the academic skills benefit had been limited to Spanish language skills, then we might have argued that offering a course in the Mayan language, taught in Spanish, simply provided the students with another opportunity to practice their Spanish skills. However, the finding that the academic benefit extended to their mathematics skills as well, suggests that something more fundamental was going on that promoted learning in general.

Note that the only consistent difference between Ladino and Indian students was found in Spanish language skills. Ladino students had higher Spanish scores at both

times of assessment. Thus, the presence or absence of the Mayan language course did not affect the balance of Spanish language skills within schools. Instead, the rate of change in Spanish language and mathematics skills were found to be associated with the presence or absence of a course in the local Mayan language. The fact that we found no significant differences between Indian and Ladino students in mathematics skills, self-esteem, attitudes toward other groups, or the degree of ethnic identity achievement, indicates that these two groups of students were otherwise comparable.

We found that the students' ethnic group moderated the effect of the Mayan language course on the students' other-group attitudes and ethnic identity achievement. In terms of other-group attitudes, this finding suggests that Ladino students who were required to take the Mayan language course became more positive in their attitudes toward other groups, while Ladinos not taking such a course became more negative. The Indian students did not change in their attitudes toward other groups, regardless of whether they attended a school providing a Mayan language course. Altogether, although this finding was only marginally significant, it suggests that students who are members of the dominant ethnic group benefit from taking the Mayan language course, in ways that promote inter-group relations.

Note that we also found that students who attended schools requiring the Mayan language course had consistently higher levels of ethnic identity achievement than did the students attending schools without the Mayan language course. This finding probably reflects the high degree of Indian cultural vibrancy in the department where all the Mayan language courses were required in middle school. Here, both Ladino and Indian students had more opportunity to explore their cultural heritage than did comparable students in an

area where the Indian population was more acculturated to the dominant culture. However, our results indicated that Indian students not taking a Mayan language course gained more in terms of achieving an ethnic identity than did the other Indian students, while the achievement of ethnic identity for Ladinos was not affected by the Mayan language course. It is possible that Indian youth attending schools that did not support their home culture developed greater curiosity and desire to find out more about their Indian heritage. Consequently, their ethnic identity achievement scores increased. In contrast, Indian students who had already attained a higher level of ethnic identity may have felt less motivated to find out more about their heritage, since it was already supported and legitimized by the school as a course.

Overall, the students in our sample improved significantly only in their Spanish language skills and not their mathematics skills, despite the fact that they had participated in the better part of a school year. Perhaps the lower-than-expected academic performance can be explained by the shortened school year and stronger changes might have been detected if the school year had been its usual length.

It was reassuring to know that the self-esteem of the students improved significantly during the course of their first year in middle school. Given that the interval between assessments spanned four months within the same school year, the most reasonable interpretation of this finding is that it reflected the adjustment of the students to their new school. Note that we found no significant differences in self-esteem between Indians and Ladinos, although some might have expected Indian students to have lower self-esteem than Ladinos. This failure to find a difference can be explained by the many psychological mechanisms that protect and promote self-esteem, even in the face of

discrimination and subordination (Crocker & Major, 1989; Gray-Little & Hafdahl, 2000).

Note also that we found a trend for male students gaining more in self-esteem than female students. While this finding is consistent with other findings (Josephs, Markus, Tafarodi, 1992;McRae, 1991, O'Brien, 1991), sex differences in self-esteem have not always been reported (Maccoby & Jacklin, 1974).

One of the major sources of variance within all the outcomes was the variation between schools and within schools, across time. Our field notes gave us information about this wide variation. Some of the schools in our sample were well - established with focused teachers and disciplined students. Other schools were relatively new, and had yet to establish a structured learning environment or student discipline.

Finally, although our findings about the benefits of taking a Mayan language course in middle school may inspire widespread application, we acknowledge that requiring students to take such a course may not be feasible in schools with students from many different Indian groups. Future research will be directed at gathering more information to help us understand why some schools brought about much more gain in their students than others, and how Indian language study can be implemented in schools with students from many different groups.

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Table 1

Distribution of Students by Department and Ethnic Group at Both Waves

Department	Wave	Ethnic Group	Frequency	Percentage
Alta Verapaz				
	Wave 1	Ladino	94	51.37
		Q'eqchi'	88	48.63
	Wave 2	Ladino	85	49.42
		Q'eqchi'	87	50.58
Quetzaltenango				
	Wave 1	Ladino	62	50.82
		Kiché	60	49.18
	Wave 2	Ladino	58	51.33
		Kiché	55	48.67
Quiché				
	Wave 1	Ladino	27	39.13
		Kiché	42	60.87
	Wave 2	Ladino	26	39.39
		Kiché	40	60.61

Note. The sample size for the first wave was 373. For the second wave, the sample size was 351.

Table 2

Characteristics of Scale Scores: Waves 1 & 2

Scale	Wave	Range	Mean (Standard Deviation)	Alpha Coefficient
Spanish				
	1	7.5 – 92.5	54.51 (18.79)	.88
	2	2.5 – 92.5	57.74 (18.04)	.85
Mathematics				
	1	15 – 100	62.90 (16.81)	.82
	2	5 – 100	64.75 (17.78)	.87
Self-Esteem				
	1	24 – 86	57.95 (11.51)	.71
	2	12 – 86	60.11 (12.97)	.78
Other-Group Orientation				
	1	18 – 65	46.86 (9.33)	.80
	2	13 – 65	47.23 (9.48)	.83
Ethnic Identity				
	1	10 – 45	28.40 (6.29)	.64
	2	12 – 43	28.67 (6.11)	.66

Table 2 (continued)

Characteristics of Scale Scores: Waves 1 & 2

Scale	Wave	Range	Mean (Standard Deviation)	Alpha Coefficient
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Note: Spanish and Mathematics scores represent the percentage correct on standard tests of achievement (Baessa et al, 1999); Self-Esteem represents the total score from the Coopersmith Self-Esteem Inventory (1967); Other-Group Attitude and Ethnic Identity scores are sums of items adapted from the MEIM (Phinney, 1992).

Table 3

Adjusted Means for Within-Subjects Effect of Mayan Language Course

Scale	Wave 1		Wave 2	
	Mayan Course	No Course	Mayan Course	No Course
Spanish	49.44	58.29	54.42	59.25
Mathematics	63.16	62.50	66.36	61.44
Other Group Attitudes	46.85	47.04	47.83	46.34
Ethnic Identity	29.96	27.26	29.92	28.03

Note. These means were underlying the within-subjects main effect for Mayan Language Course.

Table 4

Adjusted Means for Within-Subjects Effect of Interaction of Mayan Language Course and Ethnic Group

Scale	Wave 1		Wave 2	
	Ladino	Indian	Ladino	Indian
	Mayan Language Course			
Other Group Attitudes	46.78	46.91	48.91	46.75
Ethnic Identity	28.94	30.99	29.53	29.32
	No Mayan Language Course			
Other Group Attitudes	46.97	47.10	45.72	46.96
Ethnic Identity	28.05	26.48	28.17	27.90

Note. These means were underlying the within-subjects interaction effects for Mayan Language Course and Ethnic Group.